PROTECTION MADE SIMPLE.

Installation of WIC1 g2 R2.3 Firmware Update as Corrective Action for Service Bulletin CAC_SEG_0170 “Incorrect current measurements on phase C”

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WARNING!

During firmware update, the WIC1 does not provide any (protection) functionality. Please ensure the protected object is taken out of service until the firmware update has finished, the parameters have been re-configured and commissioning tests have been completed.

All parameters and settings of the WIC1 are set to factory defaults during the firmware update. Only settings made using DIP / HEX switches will be retained after the firmware update (WIC1-2 and WIC1-3 only).

A firmware update may add and change functions of the device. Be sure to verify the changes between the old and the new firmware versions by reading the "Revision History" in the appendix of the WIC1 manual. Adjust the settings of the device, if necessary.

Please make sure to follow all locally applicable national and international standards as well as safety regulations for electrical power installations (e.g. VDE, EN, DIN, IEC).

CAUTION!

A PC3 adapter must not be used. Only PC4 adapters or DiggiMECs are compatible with WIC1 g2.

The power supply of the WIC1 must not be interrupted during the firmware update process. Do not disconnect the USB- and RJ45-connection between the WIC1, PC4 adapter or DiggiMEC and the PC.

CAUTION!

Only hardware variants "Backup Protection / Self-Supervision" = "1" (Self-Supervision operates "TC"-Output):

Disconnect the "TC"-output wiring before the firmware update. This can be done by removing connector X4.

This variant is designed to generate a trip pulse at the "TC"-Output if the regular firmware is not running. During a firmware update process there is no regular firmware running which activates the Backup Protection.

Alternatively, the protected object can be taken out-of-service temporarily by opening the breaker.

Introduction

This document describes the update process to WIC1 g2 Firmware R2.3 to resolve the issue described in CAC_SEG_0170. The new firmware may also change the devices behavior for selected functions and add new features. Please refer to the "Revision History" in the appendix of the WIC1 g2 manual for further information about release changes (manual available under https://docs.segelectronics.de/library/wi_line/wic1/).

Generally, there are three different methods to update the WIC1. See the detailed description in the corresponding chapters:

Method 1: PC4 adapter – update WIC1 only

Method 2: DiggiMEC – update WIC1 only

Method 3: DiggiMEC – update WIC1 and DiggiMEC simultaneously

The Appendix chapter contains FAQ and Troubleshooting.

Please Note: Alternatively, for firmware versions R2.1 and R2.2 are so-called Hotfix Updates available. These updates deliver a minimal effort approach which will only resolve the issue described in CAC_SEG_0170. None of the devices functionality is changed and all parameters/data on the WIC1 remain unchanged. Therefore, it is not necessary to re-configure the device after an update.

Method1: Firmware update WIC1 via PC4 adapter

NOTICE!	
!	It is not permitted to have multiple WIC1 devices connected simultaneously to a PC as this will lead to connection problems with the installer. **WIC1-4 with Modbus TCP only:** This device variant requires additional auxiliary power supply during the firmware update (X4-3, X4-4).

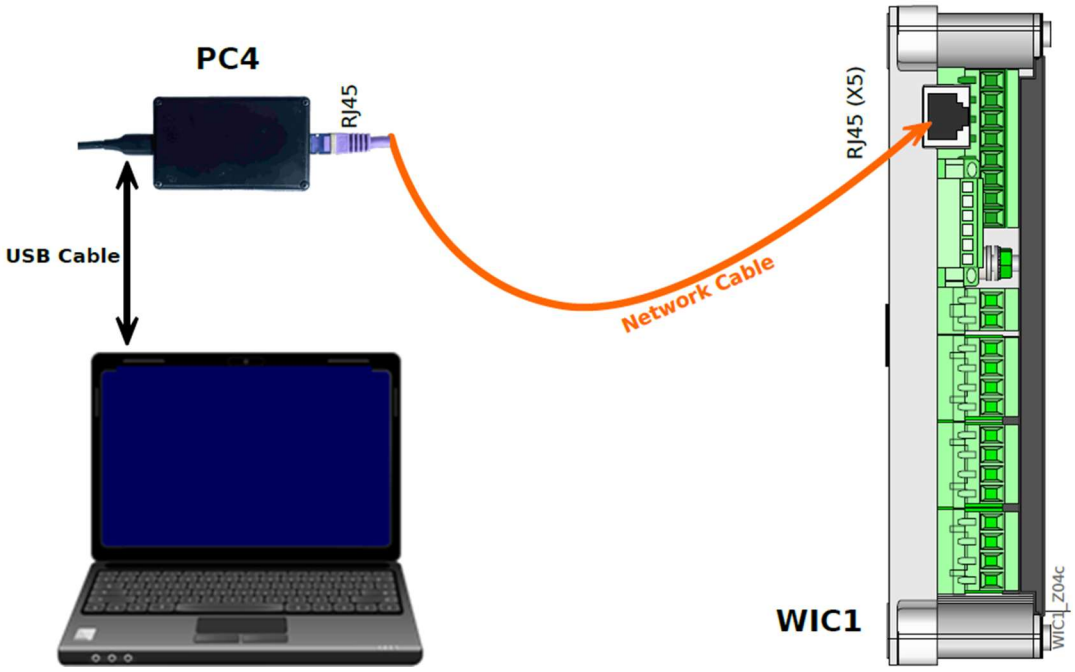
Preparation

To update the firmware of a WIC1 g2 device the following equipment and preparations are necessary:

1. Get the "WI-FieldDeviceInstaller" for R2.3. It contains the firmware and will update the WIC1 g2. Please download from https://docs.segelectronics.de/library/wi_line/wic1/Updates/ .
2. A PC4 adapter is required for a connection between WIC1 and a Windows PC (PC3-adapters from the prior WIC1 generation must not be used!)
3. Install the latest Smart view version (mandatory):
   - https://docs.segelectronics.de/library/smart_view/Smart_view_latest_release/
   - Smart view delivers the necessary drivers for the PC4 adapter.
   - Installation requires administrator privileges.
   - Smart view can be used for parameter backup.
   - Smart view can be used to verify if the device is running properly after the update. Alternatively, a DiggiMEC can be used for verification (WIC1 and DiggiMEC must have matching firmware versions).
4. RJ45-cable for connection between WIC1 and PC4 adapter.
5. USB-C to USB-A cable for connection between PC4 adapter and Windows PC.
6. Software settings / parameters backup (optional): Read the configured parameters from the device with Smart view and save the parameter file externally before firmware update. This is not necessary if DIP / HEX switches are used (WIC1-2 and WIC1-3 only).
7. WIC1-4 with Modbus TCP: External power supply 48 … 230 VAC* 24 … 250 VDC

Installation of the firmware update

1. Connect the WIC1 with the PC4 adapter to a Windows PC according to the figure below.



2. Start the installer.
3. Select the port which is used for a connection with the PC4 adapter.
4. Start the firmware update of the WIC1 with the button “Check Device”. The WIC1 is automatically set to a special "WIC Service Mode". This Mode enables the installer to install the update. As long as the “WIC Service Mode” is active, the red “Error”-LED of the WIC1 lights up permanently.
5. The installer will notify once the update has finished successfully.
6. The WIC1 requires a manual restart before it becomes fully operational. To force this manually, disconnect the power supply briefly and then reconnect it.
7. To verify if the WIC1 is running properly there are two options:
   - Smart view: Connect the WIC1 to the setting Software Smart view. The red “Error”-LED of the WIC1 must be off and it should be possible to read out the parameters from the device.
   - DiggiMEC: Connect the WIC1 to a DiggiMEC with USB power supply. The red “Error”-LED of the WIC1 must be off and it should be possible to navigate through the menu using the keys. WIC1 and DiggiMEC must have matching firmware versions.

Method 2: Firmware update WIC1 via DiggiMEC

NOTICE!	
!	It is not permitted to have multiple WIC1 devices connected simultaneously to a PC as this will lead to connection problems with the installer. **WIC1-4 with Modbus TCP only:** This device variant requires additional auxiliary power supply during the firmware update (X4-3, X4-4). Please ensure that the WIC1 is not supplied beforehand, not even by additional power supply. The device is then restarted by holding down the corresponding button (as explained in the sections below) while plugging in the USB cable*. Afterwards, the additional power supply must be restored before the update is started.

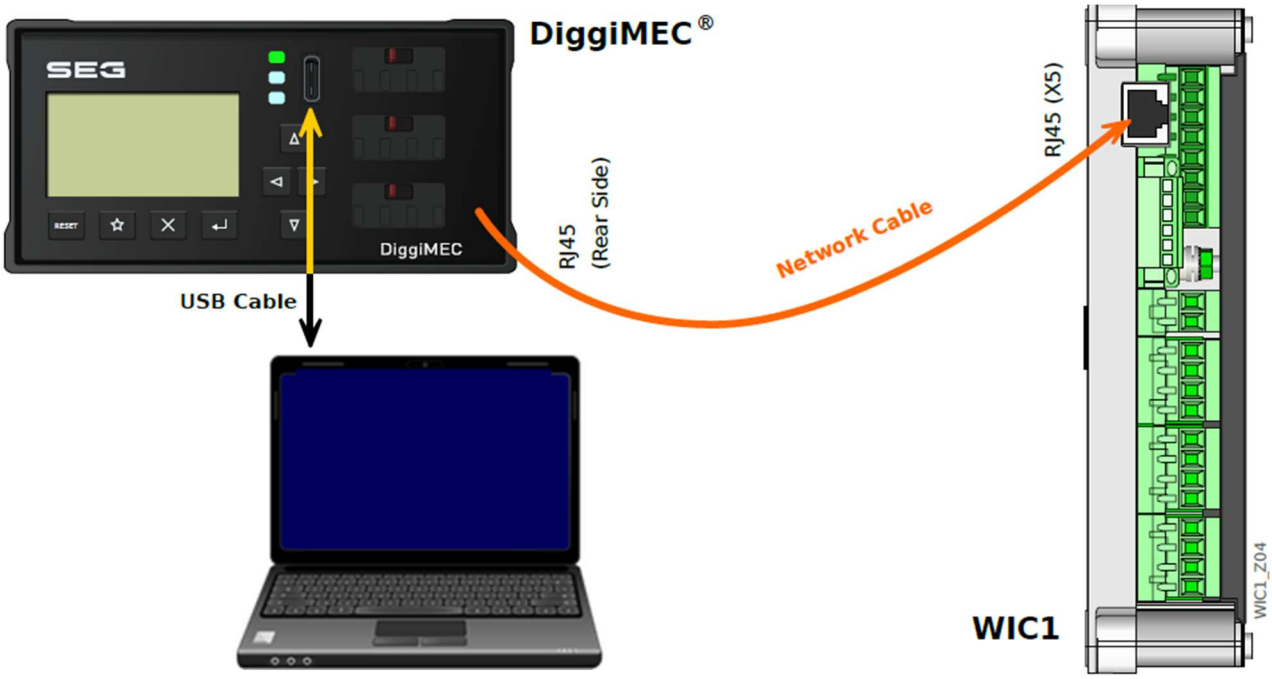
Preparation

To update the firmware of a WIC1 g2 device the following equipment and preparations are necessary:

1. Get the "WI-FieldDeviceInstaller" for R2.3. It contains the firmware and will update the WIC1 g2. Please download from https://docs.segelectronics.de/library/wi_line/wic1/Updates/ .
2. A DiggiMEC is required for a connection between the WIC1 and a Windows PC (PC3-adapters from the prior WIC1 generation must not be used!)
3. RJ45-cable for connection between WIC1 and DiggiMEC.
4. USB-C to USB-A cable for connection between DiggiMEC and Windows PC.
5. Install the latest Smart view version (optional):
   - https://docs.segelectronics.de/library/smart_view/Smart_view_latest_release/
   - Installation requires administrator privileges.
   - Smart view can be used for parameter backup.
   - Smart view can be used to verify if the device is running properly after the update. Alternatively, a DiggiMEC can be used for verification (WIC1 and DiggiMEC must have matching firmware versions).
6. Software settings / parameters backup (optional): Read the configured parameters from the device with Smart view and save the parameter file externally before firmware update. This is not necessary if DIP / HEX switches are used (WIC1-2 and WIC1-3 only).
7. WIC1-4 with Modbus TCP: External power supply 48 … 230 VAC* 24 … 250 VDC

Installation of the firmware update

1. The WIC1 must be set to a special "WIC Service Mode". As long as the "WIC Service Mode" is active, the red "Error"-LED lights up permanently. The "WIC Service Mode" is entered by pressing and holding the »RESET«-key while powering both the WIC1 and the DiggiMEC* (plugging in the USB cable, the WIC1 must not be supplied before). A dialogue shows up and asks for confirmation to enter the "WIC Service Mode". The connections between WIC1, DiggiMEC and Windows PC are shown in the figure below.



2. Start the installer.
3. Select the port which is used for a connection with the DiggiMEC.
4. Start the firmware update of the WIC1 with the button “Check Device”.
5. The installer will notify once the update has finished successfully.
6. The WIC1 requires a manual restart before it becomes fully operational. To force this manually, disconnect the power supply briefly and then reconnect it.
7. To verify if the WIC1 is running properly there are two options:
   - Smart view: Connect the WIC1 to the setting Software Smart view. The red “Error”-LED of the WIC1 must be off and it should be possible to read out the parameters from the device.
   - DiggiMEC: Connect the WIC1 to a DiggiMEC with USB power supply. The red “Error”-LED of the WIC1 must be off and it should be possible to navigate through the menu using the keys. WIC1 and DiggiMEC must have matching firmware versions.

* If it is not possible to switch the power supply of the WIC1 completely off, the WIC1 can also be restarted via the DiggiMEC or the setting software Smart view. Navigate to “Service” -> “General” -> “User Restart”. Execute the restart (it may be necessary to enter the password) and directly press the »RESET«-key and hold it before the restart has finished.

Method 3: Firmware Update for both WIC1 + DiggiMEC simultaneously

Use this to update the WIC1 firmware and the DiggiMEC firmware simultaneously. This is necessary if a pair of WIC1 and DiggiMEC are installed locally.

NOTICE!	
!	It is not permitted to have multiple WIC1 devices connected simultaneously to a PC as this will lead to connection problems with the installer. **WIC1-4 with Modbus TCP only:** This device variant requires additional auxiliary power supply during the firmware update (X4-3, X4-4). Please ensure that the WIC1 is not supplied beforehand, not even by additional power supply. The device is then restarted by holding down the corresponding button (as explained in the sections below) while plugging in the USB cable*. Afterwards, the additional power supply must be restored before the update is started.

Preparation

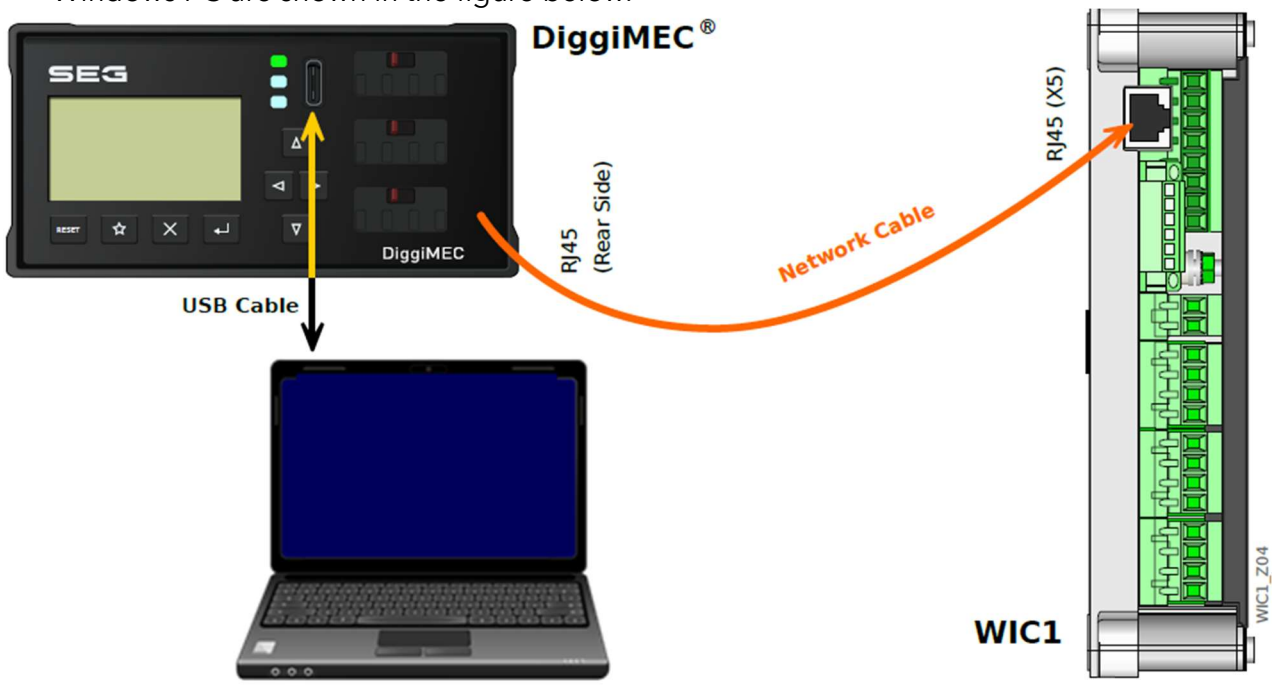
To update the firmware of a WIC1 g2 device the following equipment and preparations are necessary:

1. Get the "WI-FieldDeviceInstaller" for R2.3. It contains the firmware and will update the WIC1 g2. Please download from https://docs.segelectronics.de/library/wi_line/wic1/Updates/ .
2. A DiggiMEC is required for a connection between the WIC1 and a Windows PC (PC3-adapters from the prior WIC1 generation must not be used!)
3. **DiggiMEC driver installation**:
   - Necessary for simultaneous update of WIC1 and DiggiMEC.
   - Installation: connect a WIC1 + DiggiMEC pair to a computer. The DiggiMEC must be set to a special "Service Mode". Then start the Installer once and use the "Check Device" button. The program will now install the necessary drivers. This may require administrator privileges.
   - The "Service Mode" of the DiggiMEC is started by holding the »↵«-key while powering both the WIC1 and the DiggiMEC* (plugging in the USB cable, the WIC1 must not be supplied before). A dialogue shows up and asks for confirmation to enter the "Service Mode".
   - The connections between WIC1, DiggiMEC and Windows PC are shown in the figure in the subsequent firmware update installation section.
4. Install the latest Smart view version (optional):
   - https://docs.segelectronics.de/library/smart_view/Smart_view_latest_release/
   - Installation requires administrator privileges.
   - Smart view can be used for parameter backup.
   - Smart view can be used to verify if the device is running properly after the update. Alternatively, a DiggiMEC can be used for verification (WIC1 and DiggiMEC must have matching firmware versions).
5. RJ45-cable for connection between WIC1 and DiggiMEC.
6. USB-C to USB-A cable for connection between DiggiMEC and Windows PC.

7. Software settings / parameters backup: Read the configured parameters from the device with Smart view and save the parameter file externally before firmware update. This is not necessary if DIP / HEX switches are used (WIC1-2 and WIC1-3 only).
8. WIC1-4 with Modbus TCP: External power supply 48 … 230 VAC* 24 … 250 VDC

Installation of the firmware update

1. The DiggiMEC must be set to a special "Service Mode". This is done by pressing and holding the »↵«-key while powering both the WIC1 and the DiggiMEC* (plugging in the USB cable, the WIC1 must not be supplied before). A dialogue shows up and asks for confirmation to enter the "Service Mode". The connections between WIC1, DiggiMEC and Windows PC are shown in the figure below.



2. Start the installer.
3. Select the port which is used for a connection with the DiggiMEC.
4. Start firmware update of the DiggiMEC with the button "Check Device".
5. Once the DiggiMEC has been updated, the installer offers to apply a firmware update to the WIC1 as well. Thus, both devices will have compatible firmware versions after completion.
6. The installer will notify once the update has finished successfully.
7. The WIC1 requires a manual restart before it becomes fully operational. To force this manually, disconnect the power supply briefly and then reconnect it.
8. To verify if the WIC1 is running properly there are two options:
   - DiggiMEC: Connect the WIC1 to a DiggiMEC with USB power supply. The red "Error"-LED must be off and it should be possible to navigate through the menu using the keys. WIC1 and DiggiMEC must have matching firmware versions.
   - Smart view: Connect the WIC1 to the setting Software Smart view. The red "Error"-LED of the WIC must be off and it should be possible to read out the parameters from the device.

* If it is not possible to switch the power supply of the WIC1 completely off, the WIC1 can also be restarted via the DiggiMEC or the setting software Smart view. Navigate to “Service” -> “General” -> “User Restart”. Execute the restart (it may be necessary to enter the password) and directly press the »↵«-key and hold it before the restart has finished.

Appendix

FAQ

1. Are the parameters on the device preserved during the firmware update?
   - Software Settings : The firmware update will delete all parameters of the WIC1 and set these to factory defaults. Please make sure to backup the devices parameter file externally using Smart view.
   - DIP / HEX settings (WIC1-2 and WIC1-3 only):
     - The settings are directly obtained from the switch positions with each start of the WIC1. Therefore, these settings are preserved.
     - Only the measurement display with primary scaling of the current will be lost. This does not affect the devices protection functionality and thresholds.

2. Are there any other data losses due to a firmware update?
   - The firmware update will reset all data (e.g. fault records) on the device except the operating hours counter and the device startups counter.

Troubleshooting

1. The connection between the WIC1 and the Windows PC does not work or the installation cannot be started.
   - Please make sure to have the WIC1 properly connected (using a PC4 adapter or a DiggiMEC)
   - Disconnect and reconnect the USB cable as well as any other power supply of the WIC1 to force a restart of the WIC1.
   - DiggiMEC: Make sure that WIC1 or DiggiMEC are set to “Service Mode” as explained in the sections above.
   - A PC4 adapter requires additional drivers. These are installed with the setting software Smart view.
   - A DiggiMEC requires additional drivers for update method 3. See the corresponding chapter for guidance about the driver installation.
   - PC3 adapters must not be used.

2. The WIC1 does not start after firmware update:
   - The green “Ready”-LED of the WIC1 only lights up if there is sufficient power supply for a trip pulse. A USB-connection does not deliver enough power in all cases.
   - To verify if the WIC1 is running properly there are two options:
     - Smart view: Connect the WIC1 to the setting Software Smart view. The red “Error”-LED of the WIC1 must be off and it should be possible to read out the parameters from the device.
     - DiggiMEC: Connect the WIC1 to a DiggiMEC with USB power supply. The red “Error”-LED of the WIC1 must be off and it should be possible to navigate through the menu using the keys. WIC1 and DiggiMEC must have matching firmware versions.
   - Please restart the device manually by disconnecting the power supply briefly and then reconnecting it.
     - WIC1-4: Also make sure to remove the auxiliary power supply for a restart.
   - If the problem persists, please try to execute the firmware update again.

3. The firmware update got interrupted:
   - Check the cable connections and make sure the auxiliary power supply (only WIC1-4 with Modbus TCP) is stable.
   - Try to execute the firmware update again.

4. After the firmware update the DiggiMEC shows a pop-up with a message with TCM Alarm.
   - The Trip Coil Monitoring is a supervision function which is configured by default. It detects if no trip coil is connected or if there are any interruptions of the wiring between trip coil and WIC1.
   - After the firmware update the WIC1 runs the default setting and the TCM function is active. If no trip coil is connected this will result in an Alarm of the TCM function.

5. The installer shows the message “No Installation Required – No updates required as the WIC1-xxxxxxxxxx is already on the same version”.
   - The connected WIC1 already has the same firmware version as that provided by the installer. Therefore, no update is necessary.