

## RELEASE NOTES FOR *groov* I/O MODULES FIRMWARE

Document Updated: July 15, 2024

*Note: Some bug fixes may require a corresponding groov EPIC firmware update. In these situations, the description lists the corresponding version of groov EPIC firmware required to complete the fix.*

### Installing a Module Firmware Update

For instructions on installing module firmware, see “Applying a module firmware update” in the [groov EPIC User's Guide, form 2267](#).

## *groov* SIMPLE MODULES

*groov* simple modules are the following modules:

- GRV-IACDCTTLS-24
- GRV-IACIS-12
- GRV-IDCS-24
- GRV-ODCIS-12
- GRV-IACHVS-24
- GRV-IACS-24
- GRV-OACIS-12
- GRV-OMRIS-8
- GRV-IACIHVS-12
- GRV-IDCIS-12
- GRV-OACS-12

Version 1.6f

Released: January 20, 2020

### Enhancement

*groov* simple, GRV-CSERI-4, and GRV-CCANI-2 modules now have Watchdog capabilities.

### Version 1.6e

Released: January 9, 2019

### Bug Fixes

[KB87956](#) - GRV simple and GRV-CSERI-4 modules auto-identify as being in the wrong position on the chassis

### Version 1.4b

Released: May 18, 2018

Initial release.

## GRV-IAC-24 MODULES

### Version 1.3d

Released: December 7, 2023.

#### Bug Fixes

- [KB90514](#) - *groov* discrete input channel may report inaccurate counts or totalization or miss a measurement
- [KB90748](#) - *groov* discrete input channel may not produce period, pulse, or frequency measurements
- [KB90757](#) - Some *groov* discrete input channels configured with On/Off totalization feature may return an invalid measurement
- [KB90761](#) - Difference between the in-progress value and the final value of a period measurement
- [KB90762](#) - *groov* discrete input counters may momentarily report a value 256 less than actual
- [KB90782](#) - *groov* discrete input channels may lose a value that is a multiple of 256

### Version 1.3c

Released: March 3, 2023. Section updated: March 28, 2023.

#### Enhancement

Updates due to changes in internal hardware.

#### Bug Fixes

- [KB90069](#) - Erratic frequency readings on *groov* discrete modules
- [KB90549](#) - *groov* discrete modules occasionally report unusually large frequency measurements

### Version 1.3b

Released: May 21, 2021

#### Bug Fixes

- [KB88556](#) - Digital input period measurement feature reports inaccurate value
- [KB88608](#) - Get and Restart Measurement commands don't restart measurement correctly
- [KB89055](#) - Discrete (digital) input channels may not detect on or off latches

### Version 1.3a

Released: February 13, 2019

#### Enhancements

Optimized communication with GRV-EPIC-PR1.

### Version 1.0k

Released: May 18, 2018

Initial release.

## GRV-IACI-12 MODULES

### Version 1.3d

Released: December 7, 2023.

#### Bug Fixes

- [KB90069](#) - Erratic frequency readings on groov discrete modules
- [KB90514](#) - *groov* discrete input channel may report inaccurate counts or totalization or miss a measurement
- [KB90549](#) - *groov* discrete modules occasionally report unusually large frequency measurements
- [KB90748](#) - *groov* discrete input channel may not produce period, pulse, or frequency measurements
- [KB90757](#) - Some *groov* discrete input channels configured with On/Off totalization feature may return an invalid measurement
- [KB90761](#) - Difference between the in-progress value and the final value of a period measurement
- [KB90762](#) - *groov* discrete input counters may momentarily report a value 256 less than actual
- [KB90782](#) - *groov* discrete input channels may lose a value that is a multiple of 256

### Version 1.3c

Released: February 10, 2023

#### Enhancement

Updates due to changes in internal hardware.

### Version 1.3b

Released: May 21, 2021

#### Bug Fixes

- [KB88556](#) - Digital input period measurement feature reports inaccurate value
- [KB88608](#) - Get and Restart Measurement commands don't restart measurement correctly
- [KB89055](#) - Discrete (digital) input channels may not detect on or off latches

### Version 1.3a

Released: February 13, 2019

#### Enhancements

Optimized communication with GRV-EPIC-PR1.

### Version 1.0k

Released: May 18, 2018

Initial release.

## GRV-IACDCTTL-24 MODULES

### Version 1.3d

Released: December 7, 2023.

#### Bug Fixes

- [KB90069](#) - Erratic frequency readings on *groov* discrete modules
- [KB90514](#) - *groov* discrete input channel may report inaccurate counts or totalization or miss a measurement
- [KB90549](#) - *groov* discrete modules occasionally report unusually large frequency measurements
- [KB90748](#) - *groov* discrete input channel may not produce period, pulse, or frequency measurements
- [KB90757](#) - Some *groov* discrete input channels configured with On/Off totalization feature may return an invalid measurement
- [KB90761](#) - Difference between the in-progress value and the final value of a period measurement
- [KB90762](#) - *groov* discrete input counters may momentarily report a value 256 less than actual
- [KB90782](#) - *groov* discrete input channels may lose a value that is a multiple of 256

### Version 1.3b

Released: May 21, 2021

#### Bug Fixes

- [KB88556](#) - Digital input period measurement feature reports inaccurate value
- [KB88608](#) - Get and Restart Measurement commands don't restart measurement correctly
- [KB89055](#) - Discrete (digital) input channels may not detect on or off latches

### Version 1.3a

Released: February 13, 2019

#### Enhancements

Optimized communication with GRV-EPIC-PR1.

### Version 1.0k

Released: May 18, 2018

Initial release.

## GRV-IACHV-24, GRV-IACIHV-12 MODULES

### Version 1.3d

Released: December 7, 2023.

#### Bug Fixes

- [KB90069](#) - Erratic frequency readings on *groov* discrete modules

- [KB90514](#) - *groov* discrete input channel may report inaccurate counts or totalization or miss a measurement
- [KB90549](#) - *groov* discrete modules occasionally report unusually large frequency measurements
- [KB90748](#) - *groov* discrete input channel may not produce period, pulse, or frequency measurements
- [KB90757](#) - Some *groov* discrete input channels configured with On/Off totalization feature may return an invalid measurement
- [KB90761](#) - Difference between the in-progress value and the final value of a period measurement
- [KB90762](#) - *groov* discrete input counters may momentarily report a value 256 less than actual
- [KB90782](#) - *groov* discrete input channels may lose a value that is a multiple of 256

## Version 1.3b

Released: May 21, 2021

### Bug Fixes

- [KB88556](#) - Digital input period measurement feature reports inaccurate value
- [KB88608](#) - Get and Restart Measurement commands don't restart measurement correctly
- [KB89055](#) - Discrete (digital) input channels may not detect on or off latches

## Version 1.3a

Released: February 13, 2019

### Enhancements

Optimized communication with GRV-EPIC-PR1.

## Version 1.0k

Released: May 18, 2018

Initial release.

## GRV-IDC-24 MODULES

## Version 1.3d

Released: December 7, 2023.

### Bug Fixes

- [KB90514](#) - *groov* discrete input channel may report inaccurate counts or totalization or miss a measurement
- [KB90748](#) - *groov* discrete input channel may not produce period, pulse, or frequency measurements
- [KB90757](#) - Some *groov* discrete input channels configured with On/Off totalization feature may return an invalid measurement
- [KB90761](#) - Difference between the in-progress value and the final value of a period measurement
- [KB90762](#) - *groov* discrete input counters may momentarily report a value 256 less than actual
- [KB90782](#) - *groov* discrete input channels may lose a value that is a multiple of 256

## Version 1.3c

Released: February 10, 2023.

### Enhancement

Updates due to changes in internal hardware.

### Bug Fixes

- [KB90069](#) - Erratic frequency readings on *groov* discrete modules
- [KB90549](#) - *groov* discrete modules occasionally report unusually large frequency measurements

## Version 1.3b

Released: May 21, 2021. Section updated: May 17, 2022.

### New Feature

A new channel type was added to GRV-IDCI-12 modules: 10—25 VAC. To configure this new channel type, you need firmware 3.3.0 or higher on your GRV-EPIC-PR1 or GRV-EPIC-PR2. To select this channel type in:

- PAC Control, you need PAC Control R10.4 or higher.
- CODESYS, you need Library Package for CODESYS Development System 2.0.3.0 or higher.

### Bug Fixes

- [KB88556](#) - Digital input period measurement feature reports inaccurate value
- [KB88608](#) - Get and Restart Measurement commands don't restart measurement correctly
- [KB89055](#) - Discrete (digital) input channels may not detect on or off latches

## Version 1.3a

Released: February 13, 2019

### Enhancements

Optimized communication with GRV-EPIC-PR1.

## Version 1.0k

Released: May 18, 2018

Initial release.

## GRV-IDCI-12 MODULES

## Version 1.3d

Released: December 7, 2023.

### Bug Fixes

- [KB90069](#) - Erratic frequency readings on *groov* discrete modules
- [KB90514](#) - *groov* discrete input channel may report inaccurate counts or totalization or miss a measurement

- [KB90549](#) - groov discrete modules occasionally report unusually large frequency measurements
- [KB90748](#) - groov discrete input channel may not produce period, pulse, or frequency measurements
- [KB90757](#) - Some groov discrete input channels configured with On/Off totalization feature may return an invalid measurement
- [KB90761](#) - Difference between the in-progress value and the final value of a period measurement
- [KB90762](#) - groov discrete input counters may momentarily report a value 256 less than actual
- [KB90782](#) - groov discrete input channels may lose a value that is a multiple of 256

## Version 1.3c

Released: December 12, 2022

### Enhancement

Updates due to changes in internal hardware.

## Version 1.3b

Released: May 21, 2021. Section updated: May 17, 2022.

### New Feature

A new channel type was added to GRV-IDCI-12 modules: 10—25 VAC. To configure this new channel type, you need firmware 3.3.0 or higher on your GRV-EPIC-PR1 or GRV-EPIC-PR2. To select this channel type in:

- PAC Control, you need PAC Control R10.4 or higher.
- CODESYS, you need Library Package for CODESYS Development System 2.0.3.0 or higher.

### Bug Fixes

- [KB88556](#) - Digital input period measurement feature reports inaccurate value
- [KB88608](#) - Get and Restart Measurement commands don't restart measurement correctly
- [KB89055](#) - Discrete (digital) input channels may not detect on or off latches

## Version 1.3a

Released: February 13, 2019

### Enhancements

Optimized communication with GRV-EPIC-PR1.

## Version 1.0k

Released: May 18, 2018

Initial release.

## GRV-IDCIFQ-12 MODULES

### Version 1.3e

Released: December 7, 2023.

#### Bug Fixes

- [KB90514](#) - *groov* discrete input channel may report inaccurate counts or totalization or miss a measurement
- [KB90549](#) - *groov* discrete modules occasionally report unusually large frequency measurements
- [KB90748](#) - *groov* discrete input channel may not produce period, pulse, or frequency measurements
- [KB90757](#) - Some *groov* discrete input channels configured with On/Off totalization feature may return an invalid measurement
- [KB90761](#) - Difference between the in-progress value and the final value of a period measurement
- [KB90762](#) - *groov* discrete input counters may momentarily report a value 256 less than actual
- [KB90782](#) - *groov* discrete input channels may lose a value that is a multiple of 256
- [KB90799](#) - Channel configured as quadrature with index: occasionally, index doesn't update

### Version 1.3d

Released: December 21, 2022

#### Enhancement

Updates due to changes in internal hardware.

### Version 1.3c

Released: December 8, 2021. Section updated: March 28, 2023.

#### Bug Fixes

- [KB90069](#) - Erratic GRV-IDCIFQ-12 frequency readings
- [KB90549](#) - *groov* discrete modules occasionally report unusually large frequency measurements

### Version 1.3b

Released: May 21, 2021

#### Bug Fixes

- [KB88556](#) - Digital input period measurement feature reports inaccurate value
- [KB88608](#) - Get and Restart Measurement commands don't restart measurement correctly
- [KB89055](#) - Discrete (digital) input channels may not detect on or off latches

### Version 1.3a

Released: February 18, 2019

Initial release.



## GRV-IDCSW-12 MODULES

### Version 1.3d

Released: December 7, 2023.

#### Bug Fixes

- [KB90514](#) - *groov* discrete input channel may report inaccurate counts or totalization or miss a measurement
- [KB90748](#) - *groov* discrete input channel may not produce period, pulse, or frequency measurements
- [KB90757](#) - Some *groov* discrete input channels configured with On/Off totalization feature may return an invalid measurement
- [KB90761](#) - Difference between the in-progress value and the final value of a period measurement
- [KB90762](#) - *groov* discrete input counters may momentarily report a value 256 less than actual
- [KB90782](#) - *groov* discrete input channels may lose a value that is a multiple of 256

### Version 1.3c

Released: March 28, 2023. Section updated: March 30, 2023.

#### Enhancement

Updates due to changes in internal hardware.

#### Bug Fixes

- [KB90069](#) - Erratic frequency readings on *groov* discrete modules
- [KB90549](#) - *groov* discrete modules occasionally report unusually large frequency measurements
- [KB90581](#) - Channel configured with pulse feature may not measure duration nor clear the pulse feature

### Version 1.3b

Released: May 21, 2021

#### Bug Fixes

- [KB88556](#) - Digital input period measurement feature reports inaccurate value
- [KB88608](#) - Get and Restart Measurement commands don't restart measurement correctly
- [KB89055](#) - Discrete (digital) input channels may not detect on or off latches

### Version 1.3a

Released: October 31, 2019

Initial release.

## GRV-IICTD-12 MODULES

### Version 1.3c

Released: February 10, 2023

#### Enhancement

Updates due to changes in internal hardware.

### Version 1.3b

Released: April 18, 2019. Section updated: March 28, 2023.

#### Bug Fixes

[KB88228](#) - Readings may spike

### Version 1.3a

Released: February, 2019

Initial release.

## GRV-IMA-24 MODULES

### Version 1.3c

Released: August 31, 2022

Updates due to changes in internal hardware.

### Version 1.3b

Released: April 18, 2019. Section updated: March 28, 2023.

#### Bug Fixes

[KB88228](#) - Readings may spike

### Version 1.3a

Released: February 13, 2019

#### Enhancements

Optimized communication with GRV-EPIC-PR1.

### Version 1.0I

Released: May 18, 2018

Initial release.

## GRV-IMAI-8 MODULES

### Version 1.3f

Released: September 18, 2023

Prepare for future release of *groov* EPIC firmware.

### Version 1.3e

Released: October 5, 2022

#### Enhancement

Updates due to changes in internal hardware.

### Version 1.3d

Released: August 13, 2020

#### Bug Fixes

[KB89178](#) - GRV-IMAI-8 Module Refreshing at Incorrect Rate

### Version 1.3c

Released: February 5, 2020

#### Enhancement

Minor changes to improve calibration at manufacturing time.

### Version 1.3b

Released: April 19, 2019

Initial release.

## GRV-IRTD-8 MODULES

### Version 1.3e

Released: October 7, 2022

#### Enhancement

Updates due to changes in internal hardware.

### Version 1.3c

Released: December 29, 2021

## Bug Fix

[KB89041](#) - GRV-IRTD-8 channels may randomly return QNANs

## Version 1.3b

Released: October 28, 2019

Initial release.

## GRV-ITM-12 MODULES

### Version 1.3f

Released: October 31, 2022

#### Enhancement

Updates due to changes in internal hardware.

### Version 1.3e

Released: June 23, 2021

#### Bug fixes

[KB89681](#) - GRV-ITM-12: Type K thermocouple channels read about 300 degrees C at room temperature.

[KB89802](#) - GRV-ITM-12 module disconnects and reconnects at random times.

### Version 1.3c

Released: February 19, 2021

#### Enhancement

For ITS-90 Type B thermocouples, the module will report the temperature from 0 °C to 90 °C. Previously, the module would report QNAN for temperatures falling within this range. Temperatures below 0 °C will continue to report QNAN. Please note that the accuracy and resolution specifications stated in the specification table have not changed.

### Version 1.3b

Released: December 9, 2019

Initial release.

## GRV-ITMI-8 MODULES

### Version 1.3f

Released: November 15, 2022.

#### Enhancement

Updates due to changes in internal hardware.

### Version 1.3c

Released: February 19, 2021

#### Enhancement

For ITS-90 Type B thermocouples, the module will report the temperature from 0 °C to 90 °C. Previously, the module would report QNAN for temperatures falling within this range. Temperatures below 0 °C will continue to report QNAN. Please note that the accuracy and resolution specifications stated in the specification table have not changed.

### Version 1.3b

Released: May 29, 2020

#### Bug Fixes

[KB88652](#) - Configured for type B, provides mV instead of temperature

### Version 1.3a

Released: February 13, 2019

#### Enhancements

Optimized communication with GRV-EPIC-PR1.

### Version 1.2d

Released: May 18, 2018

Initial release.

## GRV-ITR-12 MODULES

### Version 1.4e

Released: March 9, 2023.

#### Enhancement

For channels configured as type Thermistor: Custom Curve, the maximum temperature has been raised to 450 °C.

## Bug Fixes

[KB90560](#) - Non-zero values for offset on GRV-ITR-12 channels configured as thermistor inputs are not saved correctly

## Version 1.4d

Released: November 15, 2022.

## Enhancement

Updates due to changes in internal hardware.

## Version 1.4c

Released: March 4, 2022.

## Bug Fix

[KB90167](#) - GRV-ITR-12: Channels configured as "Thermistor" or "0-400k Ohms (auto-range)" may show "Invalid Value"

## Version 1.4b

Internal beta.

## Version 1.4a

Released: September 1, 2021.

## Enhancements

Two new channel types have been added to help decrease data refresh time and step input response time:

- You can choose a *FastADC* channel type on channel 0 to double the analog-to-digital conversion rate for the entire module. (Note that this reduces accuracy by 0.5%.)
- You can specify the Disabled channel type on unused channels to disable analog-to-digital conversion for that channel to decrease data refresh time.

## Version 1.3d

Released: May 19, 2021. Section updated: May 28, 2021.

## Bug Fix

[KB89749](#) - A channel with no input connected changes reading of next channel in the group with valid resistive input connected

## Version 1.3c

Released: June 25, 2020

## Bug Fix

[KB88909](#) - groov Manage Shows "Server Offline" When Configuring GRV-ITR-12

## Version 1.3a

Released: May 29, 2019

Initial release.

## GRV-IV-24 MODULES

### Version 1.3c

Released: September 14, 2022

#### Enhancement

Updates due to changes in internal hardware.

### Version 1.3b

Released: April 18, 2019. Section updated: March 28, 2023.

#### Bug Fixes

[KB88228](#) - Readings may spike

### Version 1.3a

Released: February 13, 2019

#### Enhancements

Optimized communication with GRV-EPIC-PR1.

### Version 1.0I

Released: May 18, 2018

Initial release.

## GRV-IVAPM-3 MODULES

### Version 1.3d

Released: November 30, 2022.

#### Bug Fixes

Updates due to changes in internal hardware.

### Version 1.3c

Released: May 31, 2022.

## Bug Fixes

[KB90307](#) - GRV-IVAPM-3 not always recognized after hot swap

## Version 1.3b

Released: October 29, 2021.

Initial Release

## GRV-IVI-12 MODULES

### Version 1.3f

Released: September 18, 2023

Prepare for future release of *groov* EPIC firmware.

### Version 1.3e

Released: October 5, 2022

#### Enhancement

Updates due to changes in internal hardware.

### Version 1.3c

Released: February 5, 2020

#### Enhancement

Minor changes to improve calibration at manufacturing time.

### Version 1.3b

Released: October 28, 2019

Initial release.

## GRV-IVIRMS-10 MODULES

### Version 1.3f

Released: September 18, 2023

Prepare for future release of *groov* EPIC firmware.

### Version 1.3e

Released: February 1, 2023



## Enhancement

Updates due to changes in internal hardware.

## Version 1.3c

Released: February 17, 2020

Initial release.

## GRV-MM1001-10 MODULES

### Version 1.3d

Released: October 14, 2022

### Enhancement

Updates due to changes in internal hardware.

### Version 1.3c

Released: February 9, 2022

[KB90158](#) - *groov* Manage reports error when selecting 4–20 mA on GRV-MM1001-10 module

## GRV-OAC-12 MODULES

### Version 1.3d

Released: March 21, 2023

### Enhancement

Updates due to changes in internal hardware.

### Version 1.3c

Released: July 20, 2021

### Bug Fixes

[KB88962](#) - TPO Channel's State Does Not Change With Percentage (Duty Cycle) of 100%, 0%, or Less Than 0%

### Version 1.3b

Released: October 14, 2019. Section updated: May 31, 2022.

### Bug Fixes

[KB88434](#) - Pulses may not start for *groov* digital output channels configured for TPO. You need to apply the *groov* EPIC firmware update 1.4.3-b130 (or higher) to completely fix this bug. See the [groov EPIC Firmware readme](#).

## Version 1.3a

Released: February 13, 2019

### Enhancements

Optimized communication with GRV-EPIC-PR1.

## Version 1.0l

Released: August 2, 2018. Section updated: May 31, 2022.

### Bug Fixes

[KB87499](#) - The TPO feature on *groov* digital output modules behaves inconsistently. (You need to apply the *groov* EPIC Firmware Update 1.1.0-b47 (or higher) to completely fix this bug. See the [groov EPIC Firmware readme](#).)

[KB87618](#) - groov EPIC AC output digital modules briefly show quality code 9

## Version 1.0k

Released: May 18, 2018

Initial release.

## GRV-OACI-12 MODULES

## Version 1.3d

Released: February 13, 2023

### Enhancement

Updates due to changes in internal hardware.

## Version 1.3c

Released: July 20, 2021

### Bug Fixes

[KB88962](#) - TPO Channel's State Does Not Change With Percentage (Duty Cycle) of 100%, 0%, or Less Than 0%

## Version 1.3b

Released: October 14, 2019. Section updated: May 31, 2022.

### Bug Fixes

[KB88434](#) - Pulses may not start for *groov* digital output channels configured for TPO. You need to apply the *groov* EPIC firmware update 1.4.3-b130 (or higher) to completely fix this bug. See the [groov EPIC Firmware readme](#).

## Version 1.3a

Released: February 13, 2019

### Enhancements

Optimized communication with GRV-EPIC-PR1.

## Version 1.0I

Released: August 2, 2018. Section updated: May 31, 2022.

### Bug Fixes

[KB87499](#) - The TPO feature on *groov* digital output modules behaves inconsistently. (You need to apply the *groov* EPIC Firmware Update 1.1.0-b47 (or higher) to completely fix this bug. See the [groov EPIC Firmware readme](#).)

[KB87618](#) - *groov* EPIC AC output digital modules briefly show quality code 9

## Version 1.0k

Released: May 18, 2018

Initial release.

## GRV-ODCI-12 MODULES

## Version 1.3e

Released: March 3, 2023

### Enhancement

Updates due to changes in internal hardware.

## Version 1.3d

Released: July 20, 2021

### Bug Fixes

[KB88962](#) - TPO Channel's State Does Not Change With Percentage (Duty Cycle) of 100%, 0%, or Less Than 0%

## Version 1.3c

Released: October 14, 2019. Section updated: May 31, 2022.

### Bug Fixes

[KB88434](#) - Pulses may not start for *groov* digital output channels configured for TPO. You need to apply the *groov* EPIC firmware update 1.4.3-b130 (or higher) to completely fix this bug. See the [groov EPIC Firmware readme](#).

## Version 1.3b

Released: June 17, 2019

### Enhancement

Optimized TPO performance.

## Version 1.3a

Released: August 2, 2018

### Enhancements

Optimized communication with GRV-EPIC-PR1.

## Version 1.0l

Released: August 2, 2018. Section updated: May 31, 2022.

### Bug Fixes

[KB87499](#) - The TPO feature on *groov* digital output modules behaves inconsistently. (You need to apply the *groov* EPIC Firmware Update 1.1.0-b47 (or higher) to completely fix this bug. See the [groov EPIC Firmware readme](#).)

## Version 1.0k

Released: May 18, 2018

Initial release.

## GRV-ODCSRC-24 MODULES

## Version 1.3e

Released: March 3, 2023

### Enhancement

Updates due to changes in internal hardware.

## Version 1.3d

Released: July 20, 2021

### Bug Fixes

[KB88962](#) - TPO Channel's State Does Not Change With Percentage (Duty Cycle) of 100%, 0%, or Less Than 0%

## Version 1.3c

Released: October 14, 2019. Section updated: May 31, 2022.

## Bug Fixes

[KB88434](#) - Pulses may not start for *groov* digital output channels configured for TPO. You need to apply the *groov* EPIC firmware update 1.4.3-b130 (or higher) to completely fix this bug. See the [groov EPIC Firmware readme](#).

## Version 1.3b

Released: June 17, 2019

### Enhancement

Optimized TPO performance.

## Version 1.3a

Released: August 2, 2018

### Enhancements

Optimized communication with GRV-EPIC-PR1.

## Version 1.0n

Released: August 2, 2018. Section updated: May 31, 2022.

## Bug Fixes

[KB87499](#) - The TPO feature on *groov* digital output modules behaves inconsistently. (You need to apply the *groov* EPIC Firmware Update 1.1.0-b47 (or higher) to completely fix this bug. See the [groov EPIC Firmware readme](#).)

## Version 1.0k

Released: May 18, 2018

Initial release.

## GRV-OVMAILP-8 MODULES

## Version 1.3c

Released: November 8, 2022

### Enhancement

Updates due to changes in internal hardware.

## Version 1.3b

Released: May 17, 2018

## Bug Fixes

[KB88290](#) - GRV-OVMALP-8: If hot-swapped, could cause continuous resetting of PR1

## Version 1.3a

Released: April 16, 2018

Initial release.

## GRV-OVMALC-8 MODULES

### Version 1.3c

Released: September 18, 2023

### Bug Fixes

[KB90664](#) - Configuring channel type to Analog Hi-Z not saved correctly

### Version 1.3b

Released: August 31, 2022

Updates due to changes in internal hardware.

### Version 1.3a

Released: August 2, 2018

### Enhancements

Optimized communication with GRV-EPIC-PR1.

### Version 1.0f

Released: May 18, 2018

Initial release.

## GRV-CCANI-2 MODULES

### Version 1.0c

Released: March 18, 2020

### Bug Fix

[KB89594](#) - CODESYS May Not Recognize GRV-CCANI-2 Ports After Power-Up

## Version 1.0b

Released: January 20, 2020

### Enhancement

groov simple, GRV-CSERI-4, and GRV-CCANI-2 modules now have Watchdog capabilities.

## Version 1.0a

Released: December 18, 2019

Initial release.

## GRV-CSERI-4 MODULES

## Version 1.6f

Released: January 20, 2020

### Enhancement

groov simple, GRV-CSERI-4, and GRV-CCANI-2 modules now have Watchdog capabilities.

## Version 1.6e

Released: January 9, 2019

### Bug Fixes

[KB87956](#) - GRV simple and GRV-CSERI-4 modules auto-identify as being in the wrong position on the chassis

## Version 1.6b

Released: May 18, 2018

Initial release.

## HOW TO GET HELP

If you have any questions about the groov I/O modules, you can call, fax, or e-mail Opto 22 Product Support:

**Phone:** 800-TEK-OPTO (800-835-6786 toll-free in the U.S. and Canada)  
951-695-3080  
Monday through Friday, 7 a.m. to 5 p.m. Pacific Time

**E-mail:** [support@opto22.com](mailto:support@opto22.com)

**Website:** [www.opto22.com](http://www.opto22.com)

When calling for technical support, be prepared to provide the following information about your system to the Product Support engineer:

- Version information for *groov* EPIC, PAC Control Engine, *groov* View, *groov* Manage, and, if applicable, Node-RED and Ignition Edge.
- A description of your system equipment:
  - Computer CPU type, speed, memory, and operating system
  - *groov* EPIC processor model and firmware version
  - *groov* I/O module types and their firmware versions
  - A description of your Setup and Configuration: how it is connected, the purpose of each device, external connections, and networks
  - Specific error messages or other diagnostic indications

### Finding groov I/O Module Firmware Version Number

You can find the version numbers for the *groov* I/O module firmware by:

1. Logging into your *groov* EPIC processor as a user with system administrator permissions.
2. Click or tap on I/O.
3. Click or tap on the module.
4. Click or tap on the Info tab, then Details. The firmware version is listed on the Firmware field.