ADDAC System

ADDAC200RM
Rails Monitor

ADDAC System ADDAC200RM Rails Monitor User Guide

Contents

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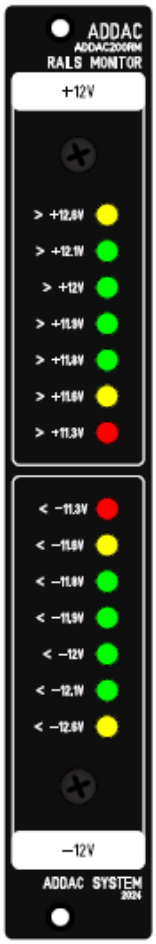


Product Information

Specifications:

- **Width:** 4HP
- **Depth:** 3.5 cm
- **+12V Current:** 60mA
- **-12V Current:** 60mA

Description:

- The ADDAC200RM Rails Monitor provides a simple and precise way to monitor the voltage of your system. The module features a 0.1% precision analog voltage meter that displays the status of both the +12V and -12V rails.
- Monitoring the voltage levels is crucial for maintaining a healthy power supply unit (PSU). Running a PSU close to its maximum ratings can cause stress and reduce its lifespan. It is recommended to operate the PSU at around 75% of its maximum capacity to ensure longevity.
- This module is designed to help prevent voltage-related issues by offering real-time monitoring capabilities. While it cannot fix underlying problems, it aids in day-to-day system maintenance and PSU health.

Product Usage Instructions

Monitoring Voltage Levels:

1. Connect the ADDAC200RM Rails Monitor to your modular system’s power supply.

2. Observe the analog voltage meter to monitor the voltage levels of both the +12V and -12V rails.
3. Maintain the voltage levels within the acceptable range to ensure optimal system performance and PSU health.

Tips for PSU Maintenance:

- Avoid operating the PSU at maximum capacity to prevent overloading and potential failures.
- Regularly check the voltage readings on the monitor to detect any abnormalities in the power supply.
- Keep the PSU well-ventilated and free from dust to maintain proper functioning.

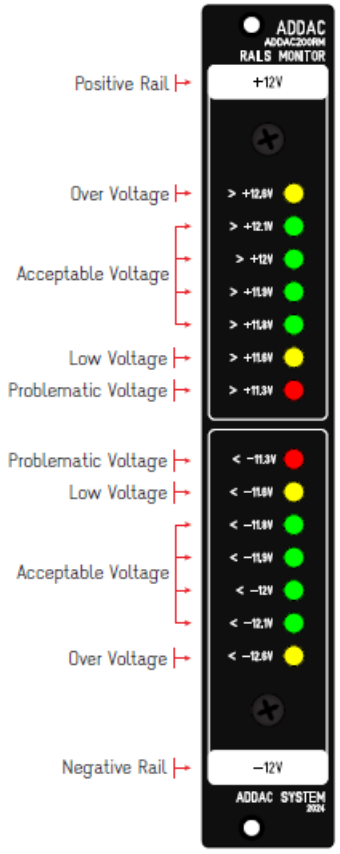
FAQ:

Q: How can I contact ADDAC for feedback or support?
A: For feedback, comments, or problems, please reach out to ADDAC via email at addac@addacsystem.com.

ADDAC System
Instruments for Sonic Expression Est.2009.

DESCRIPTION

ADDAC200RM allows a simple way to monitor the voltage of your system. A 0.1% precision analog voltage meter shows the status of both +12V and -12V rail.



EURORACK ±12V POWER RAILS
Although we all refer to Eurorack PSU voltages as +12V and -12V this is hardly ever the case, although most systems operate in proximity to this ideal reference, there are situations where the drop from the ideal voltage is large enough to influence the performance of your system.

PSU CURRENT RATINGS
Running a PSU too close to its limits will always cause more stress to the PSU, a good practice is to use only about 75% of your PSU's maximum ratings, this will greatly extend the PSU's life.

PSU VOLTAGE DROPS

- PSUs will show a small voltage drop as current increases which will drastically increase when pushed close to its limits. Heat will also influence this drop, heat is related to the current drawn, as more current is being drawn more heat will build up on the PSU, and heat conditions will reduce the maximum amount of current that can be delivered by the PSU. While the current consumption drop is somewhat stable and immediate (as you turn the frame on the current consumption will stabilize in a few seconds) the heat drop will take some time to occur, heat will build up over time until it stabilizes, and only if it has "headroom" to stabilize. If heat dissipation is not effective then the drop will continue until it reaches a balance point which can be several volts below our 12V reference. At this point, your PSU will be under great stress and the heat generated is prone to leave some permanent scars.
- Heat will start to have an impact at about an ambient temperature of 50 degrees Celsius, at 70 degrees the maximum current rating will drop by 50%. If your PSU is rated at 2A maximum and it's running at 70 degrees then it will only be able to deliver 1A maximum.
- For the PSU this is a complex balancing act as current influences heat and heat influences the maximum amount of current available which all together influences the voltage drop. This is why it's so important to keep the PSU load at a sensible level.

PSU PROTECTIONS

- Some PSUs feature over voltage, over current, and overheating protection and will turn off when the operating conditions trigger any of the protection threshold levels.
- At this point, typically, the PSU will enter a Hiccup mode, where it turns on checks the current conditions, and quickly turns off if they haven't changed, leaving it in an intermittent limbo where it powers on and off at some regular frequency.
- If the conditions change enough to drop below the protection threshold levels then the PSU will automatically recover and stay on.

PSU STRESS

- Different situations can be responsible for causing stress that can damage the PSU, It's possible to reverse a ribbon power cable enough times or leave it connected long enough to partly damage the PSU.
- Another situation is having a module that due to some partial previous damage may be drawing more current than specified which will not be accounted for when calculating your system current consumption.
- Stress can cause permanent damage to the PSU, however, some damages can be only partial leaving you with a PSU that no longer features the specs described by the manufacturer but with no apparent misbehavior. The LED monitors on busboards will be on but in reality, will be underperforming at an unknown percentage of the original specs. These situations can be quite hard to debug without the proper tools to evaluate the cause of the problem.

PSU IMPACT ON MODULES

- Some modules are more susceptible to PSU changes than others, modules that feature internal regulators will be less susceptible to PSU voltage, and modules that use internal + 5v, ± 9v, and ± 10v regulators will have more tolerance than modules that use the PSU voltages directly like it is for most cases. Also, modules that use voltage reverse protection will already have a 0.3v to 0.8v drop inherent to the protection circuit.
- While many digital modules can withstand lower voltages some others will be more dependent on the reference voltage and may show strange behaviors.
- This module can help prevent all these situations, it won't fix any problem but can help with the day-to-day monitoring of your system and keeping your PSU in healthy condition.

Tech Specifications

- 4HP
- 3,5 cm deep
- 60mA +12V
- 60mA -12V

For feedback, comments, or problems please contact us at: **addac@addacsystem.com**.

Documents / Resources

	**ADDAC System ADDAC200RM Rails Monitor** [pdf] User Guide ADDAC200RM, ADDAC200RM Rails Monitor, Rails Monitor, Monitor

References

- **User Manual**