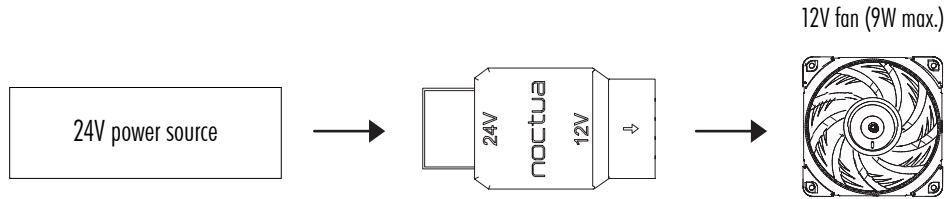




Introduction

The NA-VC1 is a sophisticated, premium grade 24V DC to 12V DC step-down voltage converter that allows running standard 12V fans in 24V environments such as 3D printers or industrial and automotive applications. Its neat, ultra-compact and lightweight design makes it easy to integrate in to virtually any environment. Compatible with both 4-pin PWM and 3-pin fans, the NA-VC1 passes through RPM and PWM signals for speed monitoring and PWM-based speed control (4-pin fans only). At the same time, it adjusts output with input voltage for voltage-based speed control. Supporting a total output power of 9W, the NA-VC1 can run multiple fans using the optional NA-SYC1 splitter cables or NA-FH1 fan hub. For speed controlling PWM fans, it can be nicely combined with the optional NA-FC1 fan controller. With a maximum operating temperature of up to 60°C, integrated protection against short-circuits, reverse polarity, overcurrent and overheating (automatic shutdown) as well as a safety fuse that protects other components in case the unit is mechanically compromised, the NA-VC1 is as bulletproof as a voltage converter can be. Topped off with CE, UKCA and UL certifications, full compliance with all applicable safety standards as well as Noctua's 6-year manufacturer's warranty, it is the first choice for quality-conscious customers who seek a safe, dependable solution for powering 12V fans in 24V applications.



Specifications

Output connectors: 1x 4-pin PWM

Input connectors: 1x 4-pin PWM

Max. power: 9W

Input voltage: 12-24V

Max. input current: 0.375A

Output voltage: 7-12V

Max. output current: 0.75A

Fan compatibility: all Noctua 12V fans, many third party fans

Operating temperature: -20°C to +60°C

Safety standards: EN 62368-1, EN 55035, EN 55032

Certifications: CE, UKCA, UL

Protection features:

- Short-circuit protection
- Reverse polarity protection
- Overcurrent protection
- Overheating protection (automatic shutdown)

Scope of delivery: NA-VC1

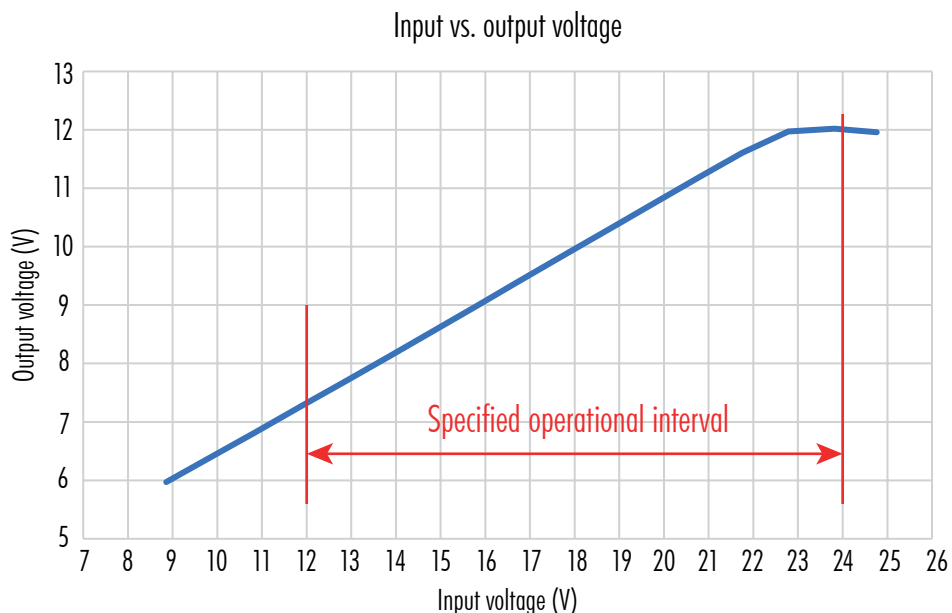
Size: 31x16x8.5mm

Weight: 6g

Warranty: 6 years

PWM and voltage-based speed control

The NA-VC1 supports both PWM- and voltage-based speed control. PWM signals are passed through and the output voltage scales with the input voltage, e.g. if the input is 12V, the output will be ~7.5V, allowing a 12V fan to run at a reduced speed:





RPM monitoring

The NA-VC1 features 4-pin connectors and only adjusts the voltage on the +12V line. PWM and RPM signals are passed through for PWM control and RPM speed monitoring. This makes it easy to implement control, monitoring and watchdog applications in industrial environments.

Resettable fuses

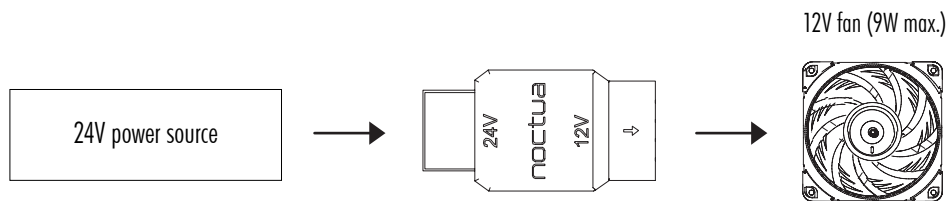
Designed to operate in challenging environments, the NA-VC1 is internally protected against short-circuits, reverse polarity, overcurrent, and overheating by a resettable fuse. It will shut down automatically for protection and can be easily reset by disconnecting it from the power source for one minute in a safe operating temperature (<60°C). Make sure that the current and operating temperature are within the specified limits before reconnecting.

Regulatory compliance

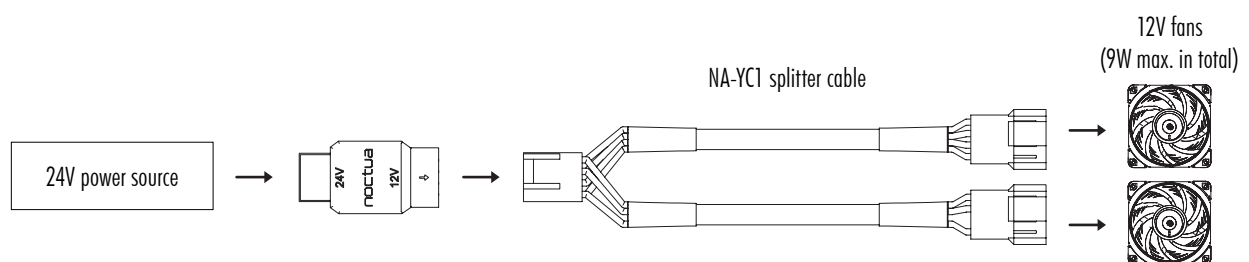
For formal compliance with the IEC 62368-1 standard, please use a power source with a maximum power output of 100W or less (PS2 classification according to IEC 62368-1).

Example setups

Application example 1: Single fan operation

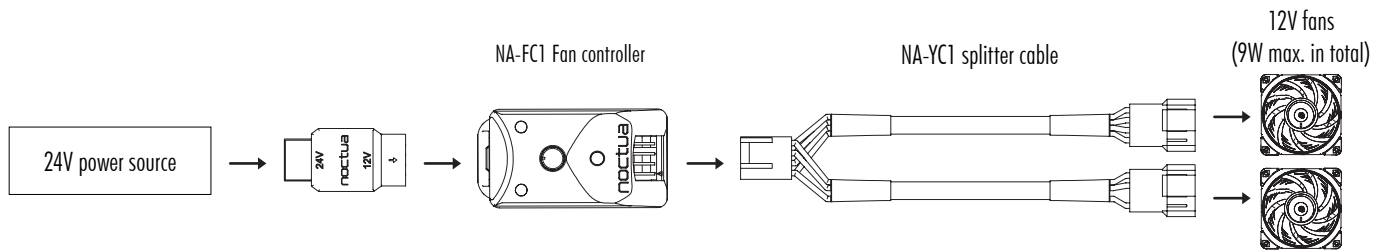


Application example 2: Two fan operation using NA-VC1





Application example 3: Two fan operation with speed control using NA-FC1 and NA-VC1



Caution: The NA-FC1 is a 12V controller, so it must be put on the 12V output side of the NA-VC1. Putting it on the 24V input side of the NA-VC1 may permanently damage the controller!

Application example 4: Multi-fan setup with NA-FH1

