

# Hardware Documentation

*ADP-NT24V2  
for HW Revision 1.20*

## Preliminary

Version 001  
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# About This Document

This document describes how to use the [ADP-NT24V2](#) adapter board with mechanical and electrical information. The latest version of this document can be found at:

<http://www.fs-net.de>.

## ESD Requirements



All F&S hardware products are ESD (electrostatic sensitive devices). All products are handled and packaged according to ESD guidelines. Please do not handle or store ESD-sensitive material in ESD-unsafe environments. Negligent handling will harm the product and warranty claims become void.

## History

Date	V	Platform	A,M,R	Chapter	Description	Au
23.09.19	000	All		-	Initial Version	MD

V       Version  
A, M, R   Added, Modified, Removed  
Au       Author

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# 1 Physical Characteristics

ADP-NT24V2 is an adapter board that is able to convert 24Vdc into two different output levels: 12Vdc and 5Vdc. The board can be used independently for general applications and it is also compatible with our armStone™ and PicoCore™ start interface boards, as an extension power adapter.

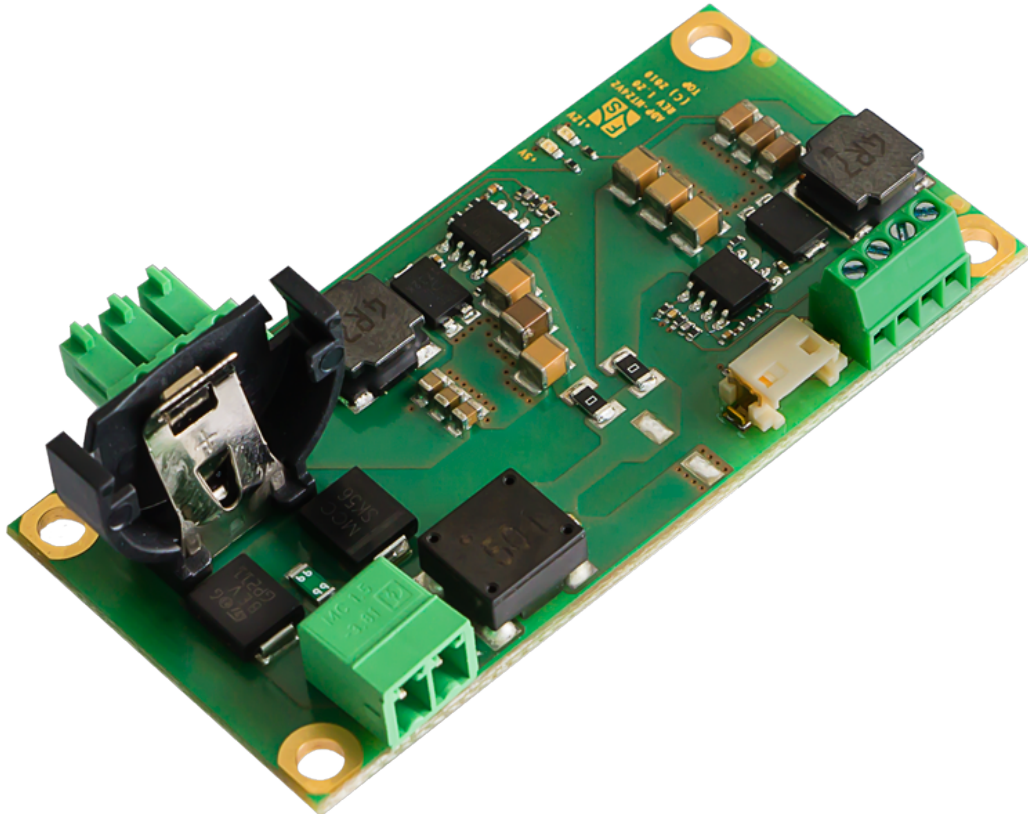


Figure 1: ADP-NT24V2 Adapter Board

Dimensions	Description
Size	35mm x 72mm
PCB Thickness	1.5mm ± 0.1mm
Height of the parts on the top side	8.5mm (without Battery Socket) 17.8mm (with Battery Socket)
Weight	18gr

Table 1: Mechanical Dimensions

## 2 Connector Layout

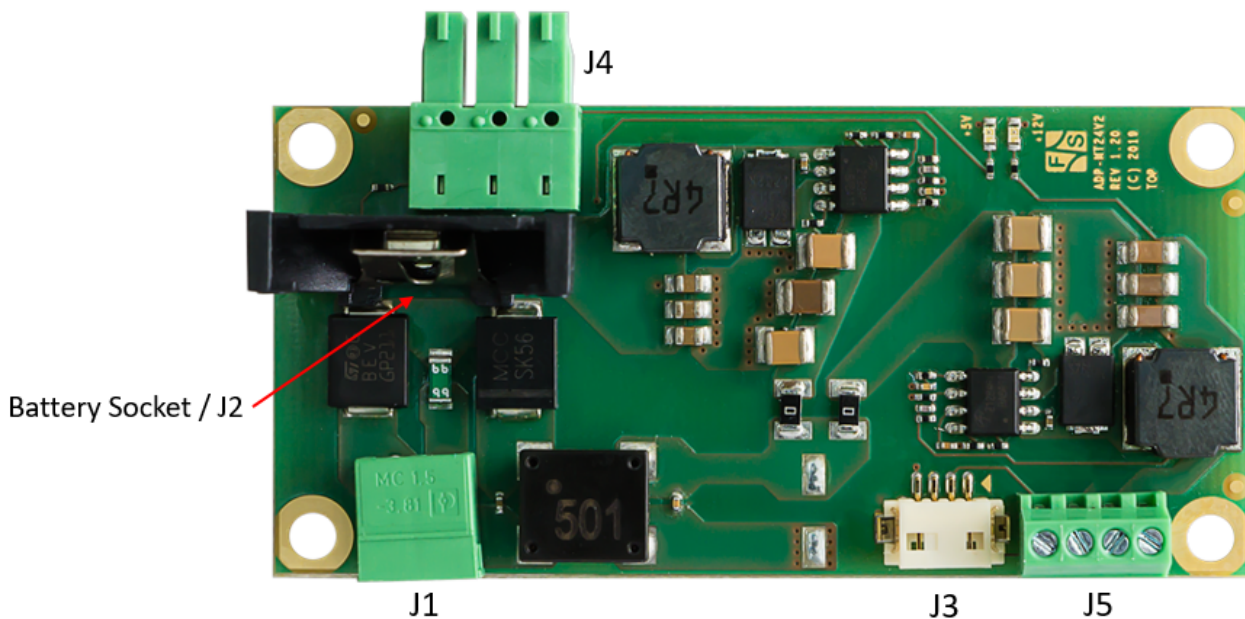


Figure 2: Connector Layout

Ref.	Description	Connector Type	Pin Layout
J1	Input – 24Vdc	Würth WR-TBL Series 322 – 2-pins	1) +24V 2) GND
BAT	Input – VBAT (Standard)(for RTC Option)	MPD BS-05 (for CR2032 battery)	1) VBAT 2) GND
J2	Input – VBAT (Optional*) (for RTC Option)	1*2 Pin Header	1) VBAT 2) GND
J3	Input – Backlight Control	Hirose DP13 – 4-pins	1) NC 2) BACKLIGHT_ON 3) BL_CONTROL 4) GND
J4	Output – 5Vdc	Würth WR-TBL Series 3093 – 3-pins	1) GND 2) +5V 3) VBAT
J5	Output – 12Vdc	Würth WR-TBL Series 2109 – 4-pins	1) BL_CONTROL 2) BACKLIGHT_ON 3) +12V 4) GND

Table 2: Connector List and Pin Layouts

### 3 Electrical Characteristics

Parameter.	Description	Min	Typ.	Max	Unit
V <sub>IN</sub>	Power supply input voltage	13.0 <sup>1</sup>	24.0	36.0	V
V <sub>BAT</sub>	RTC supply voltage	2.2	3.0	3.45	V
V <sub>OUT</sub> (5V)	Power supply output voltage	-	5.0	-	V
V <sub>OUT</sub> (12V)	Power supply output voltage	-	12.0	-	V
I <sub>OUT</sub> (5V)	Load current	-	-	3.0 <sup>2</sup>	A
I <sub>OUT</sub> (12V)	Load current	-	-	2.0 <sup>3</sup>	A

<sup>1</sup>: For 5V-only output minimum voltage level is 7.5V

<sup>2</sup>: Maximum 3A for continuous load current, 4A for short-time peaks

<sup>3</sup>: Maximum 2A for continuous load current 4A for short-time peaks

*Table 3: Recommended Operation Conditions*

## 4 ESD and EMI Implementation

On the ADP-NT24V2 adapter board there is an ESD protection diode for 24V input connector. The other connectors do not have any protection. The inputs and outputs of the power circuits were widely filtered in order to reduce the EMI. We highly recommend using the adapter board with wires as short as possible.

A helpful guide is available from TI; just search for slva680 at ti.com.

## 5 Second source rules

F&S qualifies their second sources for parts autonomously, as long as this does not touch the technical characteristics of the product. This is necessary to guarantee delivery times and product life. A setup of release samples with released second sources is not possible.

F&S does not use broker components without the consent of the customer.

## 6 Storage conditions

Maximum storage on room temperature with non-condensing humidity: 6 months

Maximum storage on controlled conditions 25 ±5 °C, max. 60% humidity: 12 months

For longer storage, we recommend vacuum dry packs.

## 7 ROHS and REACH statement

All F&S designs are created from lead-free components and are completely ROHS compliant.

The products we supply do not contain any substance on the latest candidate list published by the European Chemicals Agency according to Article 59(1,10) of Regulation (EC) 1907/2006 (REACH) in a concentration above 0.1 mass %.

Consequently, the obligations in No. 1 and 2 paragraphs in Annex are not relevant here.

Please understand that F&S is not performing any chemical analysis on its products to testify REACH compliance and is therefore not able to fill out any detailed inquiry forms.

## 8 Packaging

All F&S ESD-sensitive products will shipping either in trays or in bags.

## 9 Matrix Code Sticker

All F&S hardware will ship with a matrix code sticker including the serial number. Enter your serial number here <https://www.fs-net.de/en/support/serial-number-info-and-rma/> to get information on shipping date and type of board.



*Figure 3: Matrix Code Sticker*



# 10 Appendix

## Important Notice

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Specifications are subject to change without notice.

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## Hardware Warranties

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