PRODUCT DATASHEET

Notecarrier Datasheet

Notecarrier R v1.0

Notecarrier R is a slim Notecarrier for adding Notecard to Arduino MKR and Arduino PRO Portenta boards. It includes an ESLOV connector carrying I2C plus a GPIO wired to Notecard's attention pin, a micro-USB port for power and USB Serial access, and u.FL connections for user-provided antennas.

Last Revised October 21, 2026

Blues Developer Center

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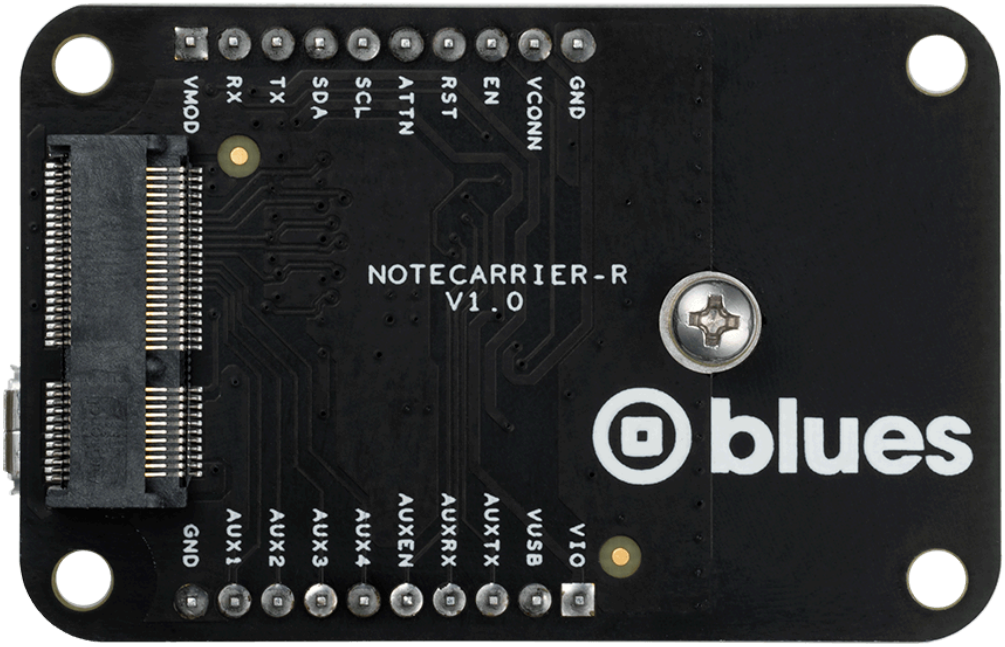
Blues Notecarrier® Datasheet: Notecarrier R v1.0



Warning

This product remains supported, but is no longer available for individual purchase through the Blues store. It is still available in minimum order quantities (MOQ). See Back Catalog Products for ordering details.

For new designs, we recommend the Notecarrier X and Notecarrier XM as updated alternatives.

Functional Description

Notecarriers are available in multiple form factors to support rapid development across a range of use cases. Depending on the variant, a Notecarrier may prioritize direct host integration, compact size, integrated cellular/WiFi and GNSS antennas, or the ability to be soldered directly into a low-volume production design.

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Notecarriers are explicitly designed to bridge the gap between early prototyping and a production-ready Notecard-based solution. In a final product, the Notecard is typically socketed directly onto a custom PCB via an edge connector, alongside the customer's MCU, sensors, and supporting circuitry. While this approach provides maximum flexibility and modularity, it can significantly increase the effort required during initial development and validation.

To simplify this process, Notecarriers expose the Notecard's interfaces through convenient breakout connections and integrate essential supporting circuitry, including power regulation, protection, and signal conditioning. This allows developers to focus on firmware, connectivity, and system behavior without first designing a complete custom carrier board.

Features

- **Simple.** Provides breadboard compatible pins or solderable mask for direct connections.
- **Compatible.** Breaks out Notecard's I2C and serial interfaces for direct connection to a host MCU or single-board computer.
- **Convenient.** Powered by a USB connector (requires 2A supply).
- **GPS Ready.** Models are either active GPS compatible, or feature a built-in antenna to enable GNSS connectivity.

Compatible Notecards

Due to differences in the physical size of Notecards, certain Notecarriers are only compatible with certain Notecards. However, the **Notecarrier R v1.0** is **compatible with all available Notecards**:

- Notecard Cell+WiFi
- Notecard Cellular
- Notecard Cellular (Legacy)
- Notecard WiFi
- Notecard LoRa

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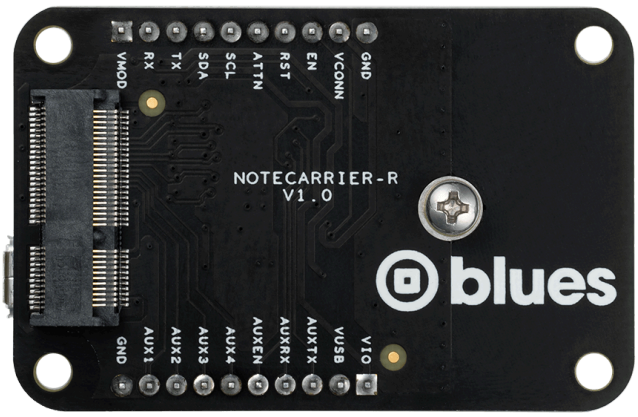
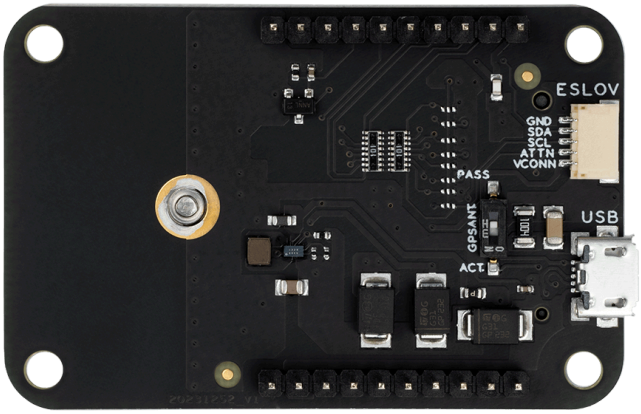
Package Configuration

Notecarrier R (Arduino) v1.0

Notecarrier R (CARR-R) is designed for building highly customized hardware solutions with the Arduino MKR and Arduino PRO Portenta boards.

View in Store

Front	Back
	

- Notecard edge connector socket and mounting screw receptacle.
- Micro-USB port to power Notecarrier and provide a USB Serial command interface to Notecard.
- Requires user provided U.FL cellular/WiFi antenna and optional U.FL active GPS antenna.
- ESLOV connector for connecting I2C peripherals. ESLOV exposes an additional GPIO pin which is connected to the Notecard's ATTN pin.
- PCB Dimensions: 58mm x 38mm
- Center of Mounting Holes: 54mm x 34mm (measured from the edge of the PCB to the center of the furthest mounting hole)

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Power Information

All Notecarriers can be powered by connecting directly to the USB port. However, most installations will not have USB power available, so several alternate power options are provided by the various Notecarrier models:

- Applying 2.5-5.5VDC to the `VCONN` or `VMOD` pins.

  Commonly provided via DC power supply or non-rechargeable battery.

Warning

Typical USB ports may only be capable of supplying 500 mA of current, which might not be enough to power Notecard during a cellular connection to a GSM network (which can spike to 2A). In this situation, you're advised to supplement power to your Notecarrier with an external source.

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GPS (GNSS) Antenna Requirements

All Notecarrier models are designed to support active GPS, and several Notecarrier models provide built-in antennas ready to be connected to a Cellular Notecard using the included u.FL cables.

Active GPS Ready

The Notecarrier B, Notecarrier Pi, and Notecarrier R models do not have integrated GPS antennas, but support active GPS by providing circuitry to enable bias voltage to be supplied.

The Notecarrier is built to support either an active or passive GPS antenna, and has a DIP switch to enable you to select your configuration. The DIP switch connects the Notecard's `VACT_GPS_OUT` to `VACT_GPS_IN` to support active GPS antennas that accept voltages in the 3.3V-4V range*.

* `VACT_GPS_OUT` comes from Notecard's modem supply, so it's powered whenever the modem is on, during cellular activity as well as GPS use.

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Header Descriptions

Notecarrier R Dual 10-pin Headers

Pin Name	Direction	Usage		Usage	Direction	Pin Name
GND	IN	Ground		Digital I/O voltage source with 100mA available	OUT	VIO
VCONN	IN/OUT	Direct connect to the power pin of the ESLOV connector		Direct connect to VUSB pin of the USB connector	IN/OUT	VUSB
EN	IN	For On/Off switching of customer product. Leave NC or connect to a physical switch or Open Drain output. Notecard will be OFF if pulled to GND. Never apply positive voltage to this pin.		High-speed diagnostic interface	OUT	AUXTX

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Pin Name	Direction	Usage		Usage	Direction	Pin Name
RST	IN	For development use only: MUST normally be NC or High Impedance and must never be pulled to GND. A VIO-level pulse of >250ms will reset the Notecard.		High-speed diagnostic interface	IN	AUXRX
ATTN	OUT	Configurable interrupt signal		Enable diagnostics	IN	AUXEN
SCL	IN/OUT	I2C clock request interface (Notecard has onboard 10K pull-up resistors)		API-selectable modes of operation	IN/OUT	AUX4
SDA	IN/OUT	I2C data request interface (Notecard has onboard 10K pull-up resistors)		API-selectable modes of operation	IN/OUT	AUX3
TX	OUT	UART serial transmit request interface		API-selectable modes of operation	IN/OUT	AUX2
RX	IN	UART serial receive request interface (Notecard has onboard 10K pull-up resistors)		API-selectable modes of operation	IN/OUT	AUX1
VMOD	OUT	Diode union of VUSB and VCONN sources		Ground	IN	GND

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Specifications

Electrical Characteristics

DC Characteristics

Description	Minimum	Maximum	Unit
Supply Voltage	2.5	5.5	V
Supply Current	500	2000	mA

Absolute Maximum Ratings

Description	Minimum	Maximum	Unit
Storage temperature	-35	70	°C

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Ordering Information

- Notecarriers
- Development Kits

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Design Files

Open source hardware designs for all Notecarriers are maintained in the note-hardware GitHub repository.

The design files for the **Notecarrier R v1.0**, such as schematics, board drawings, Gerber fabrication files, a BOM spreadsheet, and a STEP 3D model, are in the following folder of the note-hardware repository:

- _Legacy Hardware/Notecarrier-R/v1.0

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Board Errata

No board errata are currently documented for the **Notecarrier R v1.0**.

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Revision History

Author	Date	Summary
Ray Ozzie	2019-2020	Document drafted
John Wiedey	2020	Various improvements
Sean Taylor	2020	Various improvements
Zachary J. Fields	01 OCT 2020	Updated information and translated to markdown
Brandon Satrom	04 JAN 2021	Added link to design resources
Greg Wolff	13 JAN 2021	Added BAT pin information to Notecarrier AF datasheet
Brandon Satrom	07 APR 2022	Added Notecarrier A information
Zachary J. Fields	20 JUL 2022	Added Notecarrier F information
Zachary J. Fields	24 OCT 2022	Added Notecarrier B v2 information
Rob Lauer	28 OCT 2022	Added versioning for Notecarrier B v1/v2
TJ VanToll	05 JAN 2023	Added Notecard Outboard Firmware Update information

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Author	Date	Summary
Rob Lauer	28 FEB 2023	Re-labeling Notecarrier B as "Basic"
Rob Lauer	01 MAR 2023	Added PCB/Mounting Hole Dimensions
Rob Lauer	07 SEP 2023	Added Notecarrier F v1.3 information
Rob Lauer	16 NOV 2023	Added Notecarrier Pi v2.0 information
Rob Lauer	14 MAR 2024	Added Notecarrier B v3.1 and Notecarrier R v1.0 information
Rob Lauer	05 JUN 2024	Added Notecarrier XS v1.1 information
Rob Lauer	10 JUN 2024	Added KiCad schematics to A, B, F, and Pi Notecarriers
Rob Lauer	18 JUL 2024	Added Notecarrier XS v1.2 information
Rob Lauer	22 JUL 2024	Updated Notecarrier pin descriptions
TJ VanToll	19 AUG 2024	Added Notecarrier X v1.2, XM 1.2, and XP 3.1 information
Rob Lauer	14 JAN 2026	Added Notecarrier CX v1.3 information

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Author	Date	Summary
Rob Lauer	11 FEB 2026	Added Notecarrier A v2.3 information
Rob Lauer	22 MAY 2026	Added Notecarrier CX v1.7 information
Rob Lauer	11 JUN 2026	Added Notecarrier XI v1.4 information
Rob Lauer	16 JUL 2026	Corrected Notecarrier XI DC specifications and Starnote for Iridium antenna details
Rob Lauer	03 AUG 2026	Add newly updated KiCad schematics
Rob Lauer	19 AUG 2026	Added Notecarrier XI v1.4 board errata
Rob Lauer	16 SEP 2026	Added Notecarrier F v1.5 information
Rob Lauer	18 SEP 2026	Replaced the Notecarrier F v1.3 KiCad schematics with the validated Altium conversion
TJ VanToll	21 SEP 2026	Updated Notecarrier F v1.5 pins for Notecard Outboard Firmware Update
Rob Lauer	21 OCT 2026	Corrected power input, header pin, and active GPS details for Notecarrier Pi, B, R, X, XS, XI, XM, XP, and CX

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