M.2 EPSON IMU Card

High-performance M.2 form factor Inertial Measurement Unit (IMU)

Advanced Navigation Solutions

Application

The **ANavS M.2 IMU card** provides a convenient way to use **high-grade industrial** EPSON IMUs in any system with a **M.2 key E** interface.

The widely used M.2 form factor allows direct integration in embedded systems and processing platforms. It can further be used with adapters, including the ANavS M.2 to USB-C adapter.

Specific applications include:

- Automotive
- Rail
- Maritime
- Measurement Equipment

Related Products

ANavS M.2 to USB-C Adapter

P/N: 71.40.0.00.0.0

ANavS M.2 MOSAIC GNSS Modules

P/N:
70.40.0.61.0.0,
70.40.0.62.0.0,
70.40.0.63.0.0

Interfaces

Software

- Virtual serial (COM or tty) interface over USB
- Time Pulse IN and OUT
- LED and reset

Hardware

- M.2 type 2235 key E
- Comes in two different IMU variants
- Compatible with other IMUs from Epson family:

  M-G370PDT

  M-G370PDS

  M-G370PDG

  M-G370PDF

  M-G366PDG

  M-G330PDG

M.2 EPSON IMU Card

Technical Specifications

Performance

- Low-Noise, High-Stability
- Low power consumption: <50mA at 3.3 V
- Temperature Range: -40…+85 °C

M-G370PDG0

Low-Noise, High-Stability

- Gyro Bias Instability: 0.8 °/h
- Angular Random Walk: 0.06 °/√h

M-G366PDG0

Low-Noise, High-Stability

- Gyro Bias Instability: 1.2 °/h
- Angular Random Walk: 0.08 °/√h

Refer to the corresponding Epson datasheet for more detailed information

Pin Out

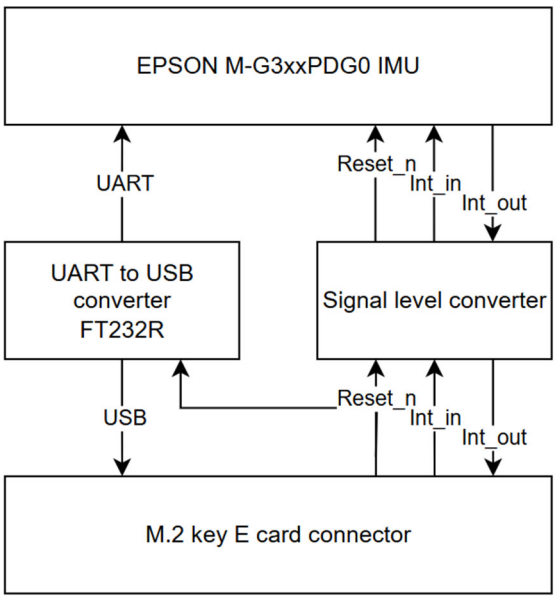
Pin	Use
1 7 18 39 45 51 57 63 69 75	GND
2 4 72 74	3.3V, power supply
3	USB_D+
5	USB_D-
6	Open-Drain LED pin 1
16	Open-Drain LED pin 2
23	Reset_n, internally pulled up
34	Interrupt Out (0 / 1.8V)
36	Interrupt In (0 / 1.8V)

Remaining pins are not connected

M.2 EPSON IMU Card

Technical Specifications

Block Diagram



Interrupt Pins

An Interrupt In and Out is available to send interrupt pulses to and from the IMU. How they are used is fully configurable, please refer to the Epson manual for details.

Interrupt Out is connected to GPIO1 (DRDY) of the Epson IMU

Interrupt In is connected GPIO2 (EXT)

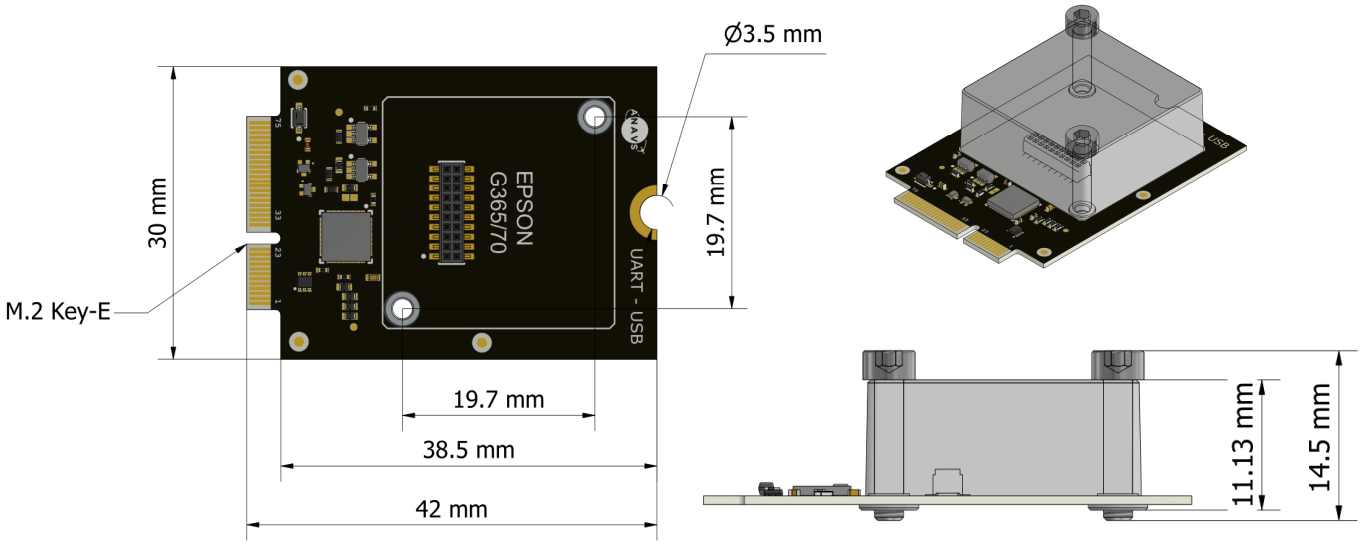
LED Pins

The **ANavS M.2 IMU Card** has 2 pins for driving activity LEDs:

LED 1 (Pin 6) is an Open Drain pin intended for a USB Activity LED, The pin is pulsed low when transmitting or receiving data via USB. The pin is controlled via a transistor to the CBUS1 pin on the FT22R chip.

(LED 2) Pin 16 Is an Open Drain pin intended for use with an IMU activity LED. The pin is controlled by the GPIO1 pin from the IMU

Technical Drawing



M.2 EPSON IMU Card

Technical Specifications

Module Variants

P/N	Product
71.40.0.00.3.0	ANavS Epson IMU card with Epson M-G366PDG0
71.40.0.00.4.0	ANavS Epson IMU card with Epson M-G370PDG0
71.40.0.00.0.0	Standalone ANavS Epson IMU card with no IMU installed

ANavS Smart Module family

P/N	Product
70.40.0.61.0.0	M.2 key E GNSS receiver card with **Septentrio MOSAIC-X5**
70.40.0.62.0.0	M.2 key E GNSS receiver card with **Septentrio MOSAIC-H**
70.40.0.63.0.0	M.2 key E GNSS receiver card with **Septentrio MOSAIC-T**
70.40.0.71.0.0	M.2 key E GNSS receiver card with **ublox ZED-F9P**
70.40.0.72.0.0	M.2 key E GNSS receiver card with **ublox ZED-F9R**
71.40.0.00.0.0	M.2 key E adapter card for **USB-Interface**

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