

Datasheet OCTOPUS™

USB/SPI converter board

Version preprod. — ????????

PRODUCT FAMILY

Evaluation modules

APPLICATIONS

- Fast prototyping
- Easy integration
- Interfacing with sensors

DESCRIPTION

OCTOPUS™ is a breakout board with Type-C USB connector providing USB-to-SPI conversion and GPIO. It provides full-speed USB connectivity at up to 12 Mbit/s, supports all four SPI modes, and offers up to eight chip-select lines. The module features a compact form factor for easy integration into embedded systems and supports standard drivers for Windows, Linux, and macOS.

USE CASES

Typical applications include laboratory prototyping, embedded-system development, maker projects, and hobbyist applications.

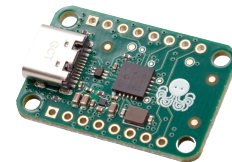


Photo of the OCTOPUS™.



Key features

- USB-to-SPI converter for fast prototyping
- Compact form factor
- Type-C USB port

1. Technical Specifications

OCTOPUS™ is a breakout board based on Microchip Technology's MCP2210T-I/MQ USB-to-SPI protocol converter with GPIO. It provides full-speed USB connectivity at up to 12 Mbit/s, supports all four SPI modes, and offers up to eight chip-select lines. The module features a compact form factor for easy integration into embedded systems and supports standard drivers for Windows, Linux, and macOS.

Table 1: Key electrical, mechanical, and environmental specifications of the radar system.

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Converter						
communication speed		b_r	1.5	–	12,000	kbps
SPI Transactions		N	–	–	65535	Bytes
Lengths						
chip select lines		N_{CS}	1	–	8	–
Mechanical Outlines						
outline dimensions	compare to drawing p. 4	height length width	5.0 30.0 20.0	5.0 30.0 20.0	5.0 30.0 20.0	mm
Power supply						
supply voltage		V_{CC}	3.3	5	5.5	V
supply current	@5V	I_{CC}	–	90	–	mA
Environment						
operating temperature		T_{OP}	-40	–	85	°C

For further information and specifications please refer to the MCP2210 datasheet [1].

3. Mechanical Drawing

All dimensions are expressed in millimeters (mm) unless otherwise noted. Drawings are schematic and not to scale.

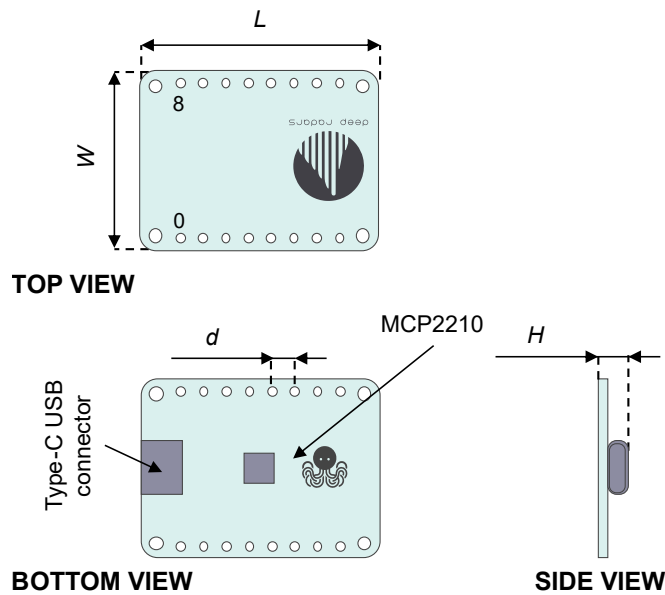


Figure 1: Mechanical drawings of module.

DIMENSIONS SUMMARY

Length (L)	40.0 mm $\pm$ 0.1 mm
Width (W)	40.0 mm $\pm$ 0.1 mm
Height (H)	22.0 mm $\pm$ 0.5 mm
Header pitch (d)	1.45 mm $\pm$ 0.01 mm
Mounting holes	2× Ø 2.5 mm, see Fig. 1

4. Pinout Description

In Table 3 the list of pins and the description of their usage is shown. For the pin number, please refer to Fig. 1. For the symbol, instead, please refer to the silkscreen labels on the physical device.

Table 3: Pinout description.

PIN NO.	SYMBOL	TYPE	STD. FUNCTION	ALT. FUNCTION	DESCRIPTION
0	SCK	O	–	–	SPI clock output
1	MOSI	O	–	–	SPI host output
2	MISO	I	–	–	SPI host input
3	0	I/O	GPIO0	CS0	general purpose I/O
4	GND	GND	–	–	ground
5	5	I/O	GPIO5	CS5	general purpose I/O
6	4	I/O	GPIO4	CS4	general purpose I/O
7	3	I/O	GPIO3	CS3	general purpose I/O
8	VIN	I	–	–	–
9	3V3	3V3	–	–	power
10	GND	GND	–	–	ground
11	8	I	–	–	digital input only
12	7	I/O	GPIO7	CS7	general purpose I/O
13	6	I/O	GPIO6	CS6	general purpose I/O
14	2	I/O	GPIO2	CS2	general purpose I/O
15	1	I/O	GPIO1	CS1	general purpose I/O

4. Regulatory Compliance

OCTOPUS™ is not FCC/CE compliant and is therefore intended for evaluation purposes only. It must not be resold, integrated into a final product, or installed as a standalone product. The module is intended solely for evaluation, experimentation, development, and testing purposes.

! ESD Information

This evaluation module is sensitive to damage from ESD. Normal precautions as usually applied to CMOS devices are sufficient when handling the device. Avoid touching the signal and output pins before soldering or plugging the device into a host board.

5. References

- [1] Microchip Technology Inc. MCP2210 datasheet. [Online]. Available: <https://www.microchip.com/en-us/product/mcp2210#Documentation>

6. Document Revision History

This datasheet contains the technical specifications of the described product. Changes to the specification must be made in written form. All previous versions of this document are no longer valid.

VERSION	DATE	COMMENT
<i>preprod.</i>	???.???.???	Initial release of the datasheet during preproduction

Deep Radars S.r.l.

Via P. Vivarelli 10

41125 Modena (MO), Italy

Tel.: +39 059 205 8780

E-Mail: customer-care@deepradars.com

URL:

www.deepradars.com