KAMAMI

KAmodLSM303C

Rev. 20200923082126
Źródło: https://wiki.kamamilabs.com/index.php/KAmodLSM303C

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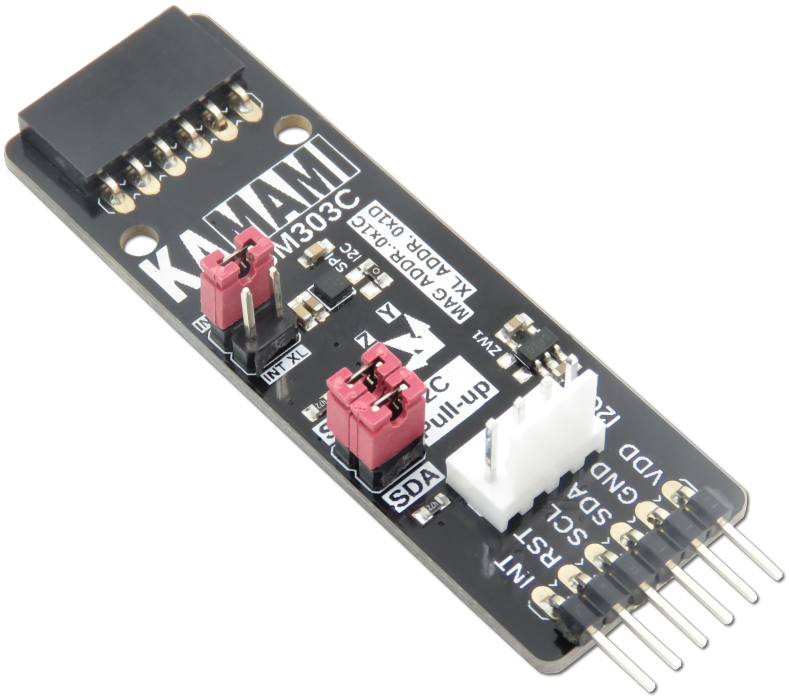
Description

KAmodLSM303C is a module with the MEMS LSM303C chip from STMicroelectronics. The chip has a digital signal output (I2C or SPI bus) and allows measurement of accelerations and magnetic field values in three axes. Thanks to the programmable interrupt generator outputs, it is possible to wake up the microcontroller after detecting free fall or object movement. The board is equipped with a Pmod I2C standard connector and a KAMAMI connector, allowing easy attachment of the module to development kits. Due to its small dimensions, the product can be used in many development projects, while the Pmod through connector allows the boards to be connected in series.



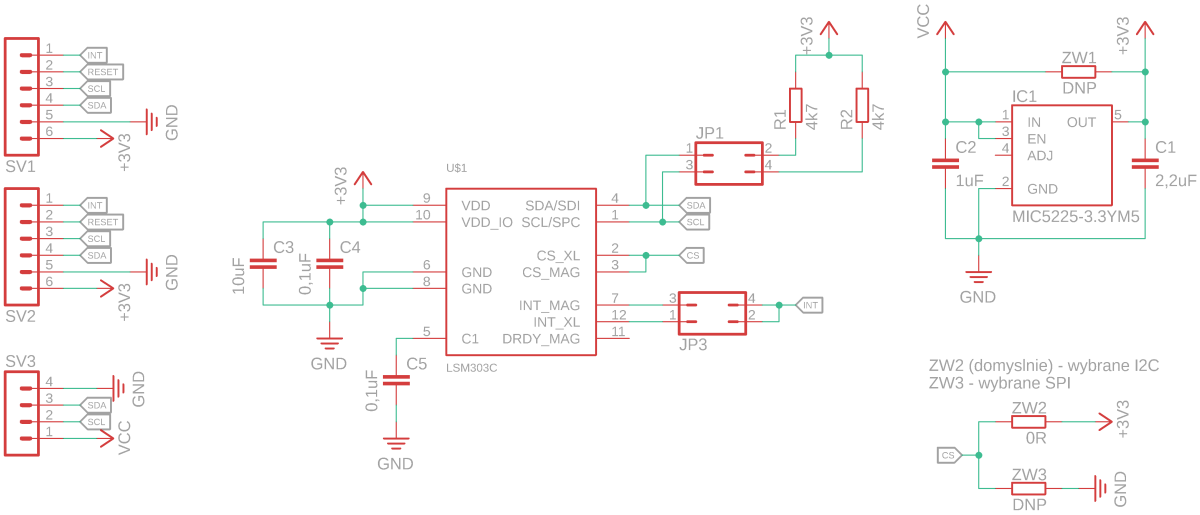
Basic features

- LSM303C system (accelerometer and MEMS magnetometer) from STMicroelectronics
  - Accelerometer measuring range: ± 2 / ± 4 / ± 6 / ± 8 g
  - Magnetometer measuring range: ± 16 Gauss
  - 16 bit data output
  - Sleep mode/low power mode
  - Embedded temperature sensor
  - Communication interface: SPI/I2C
  - Programmable interrupt generators (with free fall, motion or magnetic field detection)
- Through connector compatible with the Pmod standard, allows for serial connection of Pmod I2C modules
- Connector compatible with the KAMAMI standard
- Embedded jumpers enabling pull-up on I2C bus lines
- Embedded jumper connecting the INT line of the system to the INT line of the Pmod connectors
- Possibility of supply with voltage from 1.9 - 3.6 V through the Pmod connector and 1.9 - 5.5 V through the KAMAMI connector
- Mounting holes with a diameter of 2.5 mm
- Dimensions: 61.2 mm x 20.3 mm x 10 mm

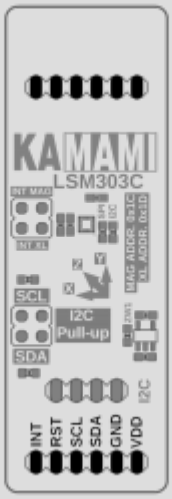
Standard equipment

Code	Description
KAmodLSM303C	• Assembled and launched module

Schematic

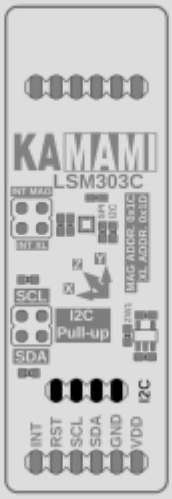

SV1
SV2
SV3
INT
RESET
SCL
SDA
GND
+3V3
VCC
U$1
VDD
VDD_IO
SDA/SDI
SCL/SPC
CS_XL
CS_MAG
GND
GND
INT_MAG
INT_XL
C1
DRDY_MAG
LSM303C
C3
C4
C5
10uF
0,1uF
0,1uF
JP1
JP3
R1
4k7
R2
4k7
CS
INT
VCC
ZW1
DNP
IC1
IN
OUT
EN
ADJ
GND
MIC5225-3.3YM5
C2
1uF
C1
2,2uF
ZW2 (domyslnie) - wybrane I2C
ZW3 - wybrane SPI
ZW2
0R
ZW3
DNP

Output description - Pmod standard connector



JP1 (male connector)	JP2 (female connector)	I2C	SPI 3-wire
VDD	VDD	Power supply of module (max. 3.6 V)	
GND	GND		
SDA	SDA	Data line of I2C bus	Data line of SPI bus (SDI/SDO)
SCL	SCL	Clock line of I2C bus	Clock line of SPI bus (SPC)
RST	RST	-	
INT	INT	INT_MAG/INT_XL interrupt	

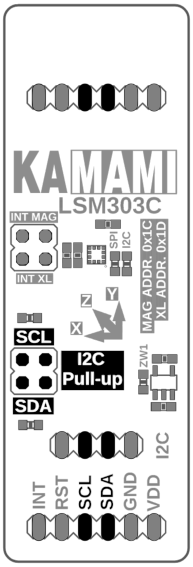
Output description – KAMAMI standard connector



Pin number	I2C	SPI 3-wire
1 (VDD_5V)	Power supply of module (max. 5.5 V)	
2 (SCL)	Clock line of I2C bus	Clock line of SPI bus (SPC)
3 (SDA)	Data line of I2C bus	Data line of SPI bus (SDI/SDO)
4 (GND)	Ground	

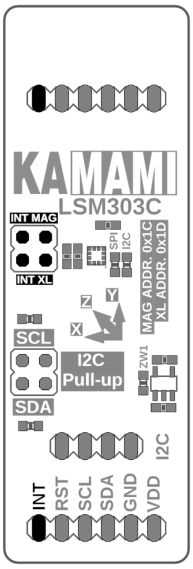
I2C bus lines

The KAmodLSM303C module is equipped with jumpers enabling the connection of pull-up resistors to the VCC power pole to the I2C bus line. The jumpers give the possibility of independent enabled of the pull-up for the SDA and SCL lines.



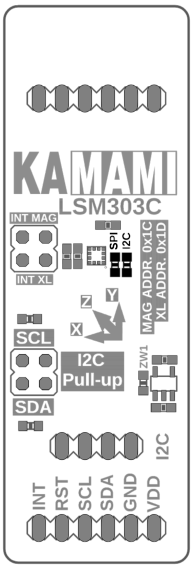
INT interrupt line

The KAmodLSM303C module is equipped with a jumper to connect the INT_XL or INT_MAG interrupt output line to the connector compatible with the Pmod standard. Thanks to the ability to disconnect the KAmodLSM303C interrupt line from the Pmod connectors, the user does not have to worry about the consequences of any conflicts arising from connecting modules compatible with Pmod with different logic states.

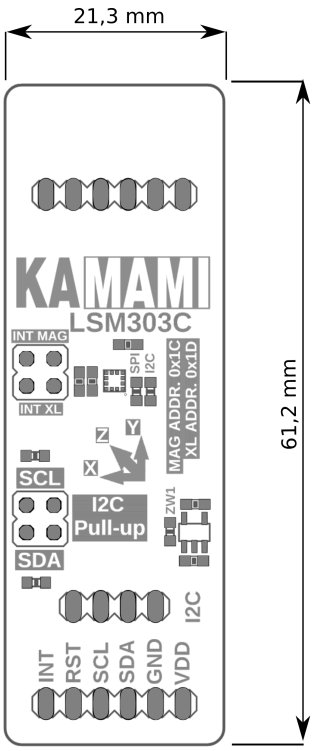


Selection of communication bus

The KAmodLSM303C module has the option of choosing a communication bus between I2C and SPI. The selection of the active bus is done by soldering the jumper in the right place in the form of a 0R resistor on the board. By default, the module is configured for communication via the I2C bus.



Dimensions


21,3 mm
61,2 mm
KAMAMI
LSM303C
INT MAG
INT XL
SPI
I2C
MAG ADDR. 0x1C
XL ADDR. 0x1D
Z
Y
X
SCL
SDA
I2C
Pull-up
ZW1
I2C
INT
RST
SCL
SDA
GND
VDD

External links

- LSM303C datasheet

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