Li-Po 3.7 V

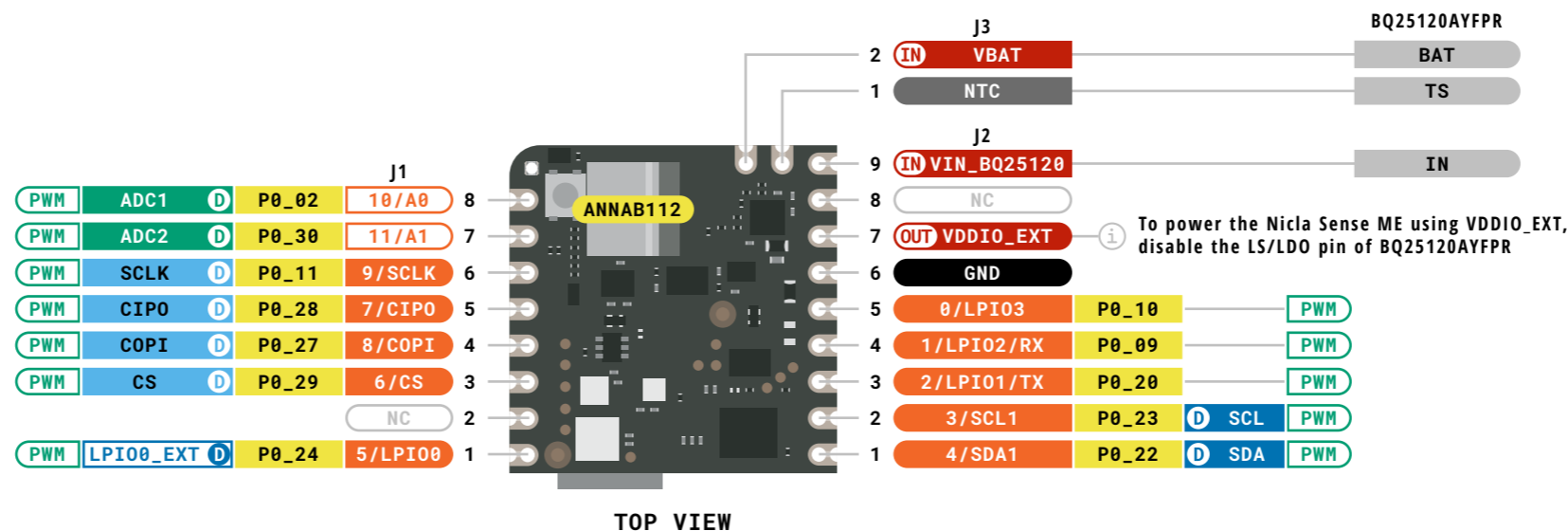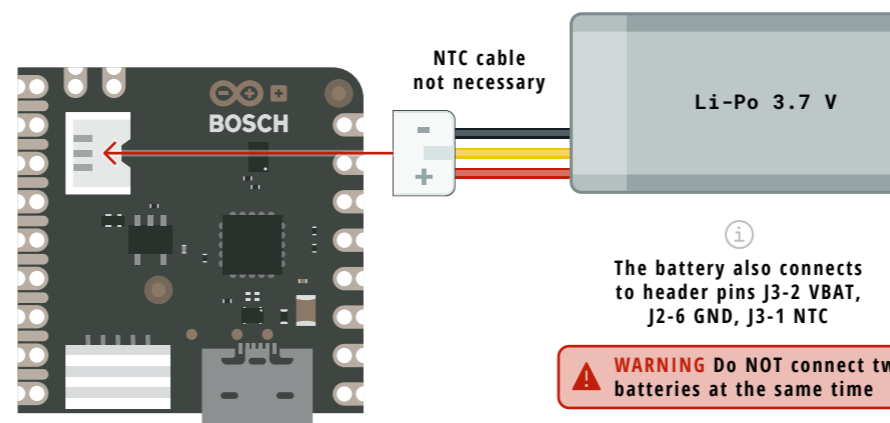If the battery has NTC cable, connects it to the NTC pin

TOP VIEW

ⓘ The battery also connects with the Battery Connector on the bottom of the board

⚠ **WARNING** Do NOT connect two batteries at the same time

J1

PWM	ADC1	D	P0_02	10/A0	8
PWM	ADC2	D	P0_30	11/A1	7
PWM	SCLK	D	P0_11	9/SCLK	6
PWM	CIPO	D	P0_28	7/CIPO	5
PWM	COPI	D	P0_27	8/COPI	4
PWM	CS	D	P0_29	6/CS	3
	NC				2
PWM	LPIO0_EXT	D	P0_24	5/LPIO0	1

J3

BQ25120AYFPR

| 2 | IN | VBAT | | BAT |
| 1 | | NTC | | TS |

J2

9	IN	VIN_BQ25120		IN
8		NC		
7	OUT	VDDIO_EXT	ⓘ	To power the Nicla Sense ME using VDDIO_EXT, disable the LS/LDO pin of BQ25120AYFPR
6		GND		
5	0/LPIO3	P0_10	PWM
4	1/LPIO2/RX	P0_09	PWM
3	2/LPIO1/TX	P0_20	PWM
2	3/SCL1	P0_23	D	SCL	PWM
1	4/SDA1	P0_22	D	SDA	PWM

ANNAB112

TOP VIEW

BOSCH

NTC cable not necessary

Li-Po 3.7 V

ⓘ The battery also connects to header pins J3-2 VBAT, J2-6 GND, J3-1 NTC

⚠ **WARNING** Do NOT connect two batteries at the same time

BOTTOM VIEW

Legend:

▮	Power	IN	Power Input	▮	GPIO Digital External	▮	I2C	D	Default	⊕	LED
		OUT	Power Output	▯	Analog External	▮	SPI	D	Default	◉	RGB LED
▮	Ground			▮	Main Part	▮	UART/USART	D	Default	▯	Other
				▮	Secondary Part	▯	Other SERIAL Communication				
				▮	Internal Component	▮	Analog	D	Default		
				▮	Other Pins (Reset, System Control, Debugging)	▯	PWM/Timer				

⚠ **MAXIMUM** LPIOs are driven by bidirectional translators powered by VDDIO_EXT. These translators are meant for low power and can only drive very limited current. Please check translator datasheet for details.
VDDIO_EXT is software programmable between 1.8 and 3.3V

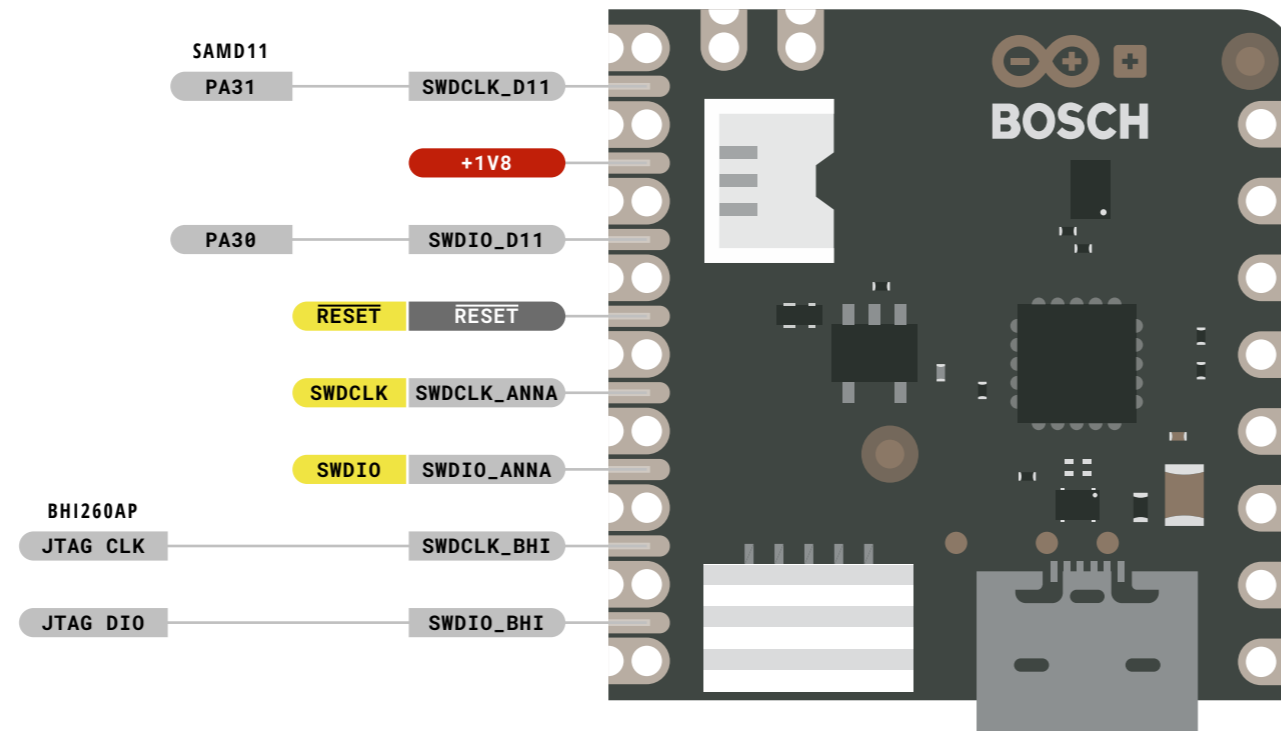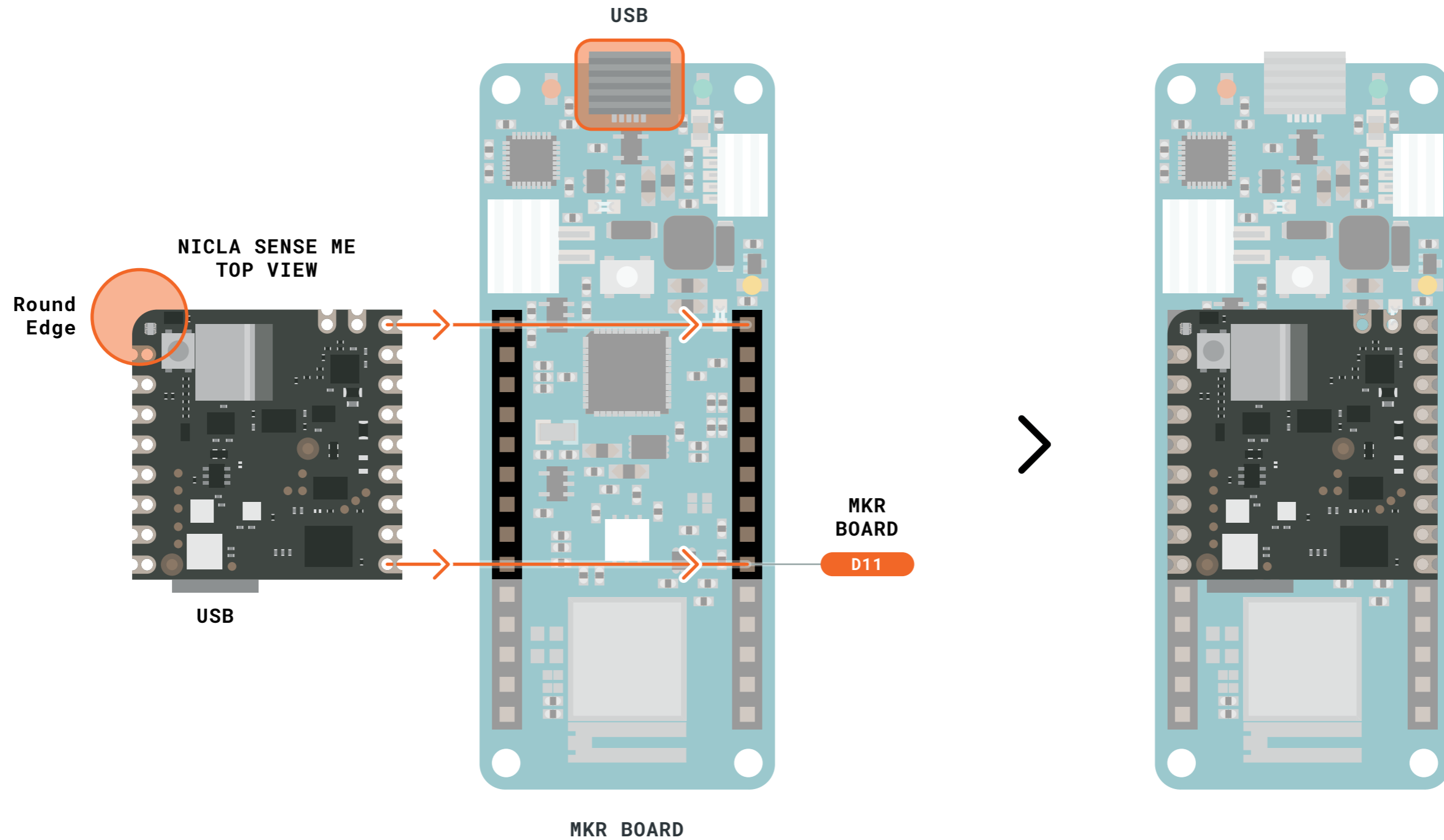ⓘ CIPO/COPI have previously been referred to as MISO/MOSI

NICLA SENSE ME

ARDUINO®

BOTTOM VIEW

SAMD11

PA31	SWDCLK_D11
	+1V8
PA30	SWDIO_D11
RESET	RESET
SWDCLK	SWDCLK_ANNA
SWDIO	SWDIO_ANNA

BHI260AP

JTAG CLK	SWDCLK_BHI
JTAG DIO	SWDIO_BHI

BOSCH

Compatible with MKR Boards

USB

**NICLA SENSE ME
TOP VIEW**

**Round
Edge**

USB

**MKR
BOARD**

D11

MKR BOARD

⚠️ **MAXIMUM** LPIOs are driven by bidirectional translators powered by VDDIO_EXT. These translators are meant for low power and can only drive very limited current. Please check translator datasheet for details.
VDDIO_EXT is software programmable between 1.8 and 3.3V
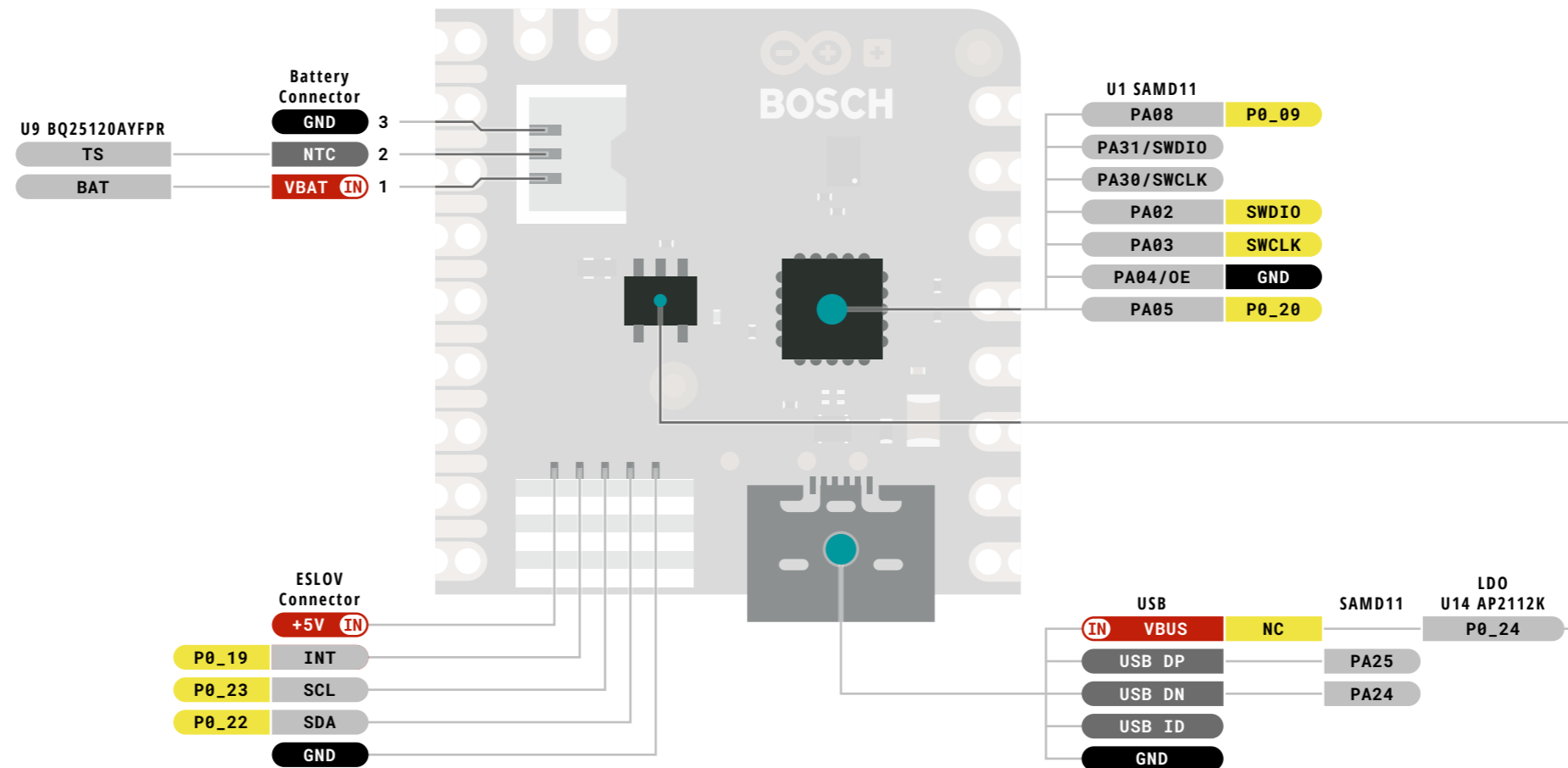
ℹ️ CIPO/COPI have previously been referred to as MISO/MOSI

∞ ARDUINO® **NICLA SENSE ME**

DOCS.ARDUINO.CC

BOTTOM VIEW

U9 BQ25120AYFPR
- TS
- BAT

Battery Connector
- GND — 3
- NTC — 2
- VBAT **IN** — 1

U1 SAMD11
- PA08 — P0_09
- PA31/SWDIO
- PA30/SWCLK
- PA02 — SWDIO
- PA03 — SWCLK
- PA04/OE — GND
- PA05 — P0_20

BOSCH

ESLOV Connector
- +5V **IN**
- P0_19 — INT
- P0_23 — SCL
- P0_22 — SDA
- GND

USB
- **IN** VBUS — NC
- USB DP — PA25
- USB DN — PA24
- USB ID
- GND

SAMD11

LDO U14 AP2112K
- P0_24

Legend:

▮ Power (red)	**IN** Power Input	▮ GPIO Digital External
	OUT Power Output	▯ Analog External
▮ Ground (black)		▮ Main Part (yellow)
		▮ Secondary Part (orange)
		▮ Internal Component (gray)
		▮ Other Pins (Reset, System Control, Debugging)

- 🔴 LED
- 🔵 RGB LED
- ▢ Other

⚠ **MAXIMUM** LPIOs are driven by bidirectional translators powered by VDDIO_EXT. These translators are meant for low power and can only drive very limited current. Please check translator datasheet for details.
VDDIO_EXT is software programmable between 1.8 and 3.3V

ℹ CIPO/COPI have previously been referred to as MISO/MOSI

ARDUINO
NICLA SENSE ME

SKU code: ABX00050
Full Pinout - Page 4 of 8
Last update: 7 Oct, 2022

WARNING!

Advanced Section

The following information is for advanced use only and
may not be officially supported by Arduino software

ARDUINO
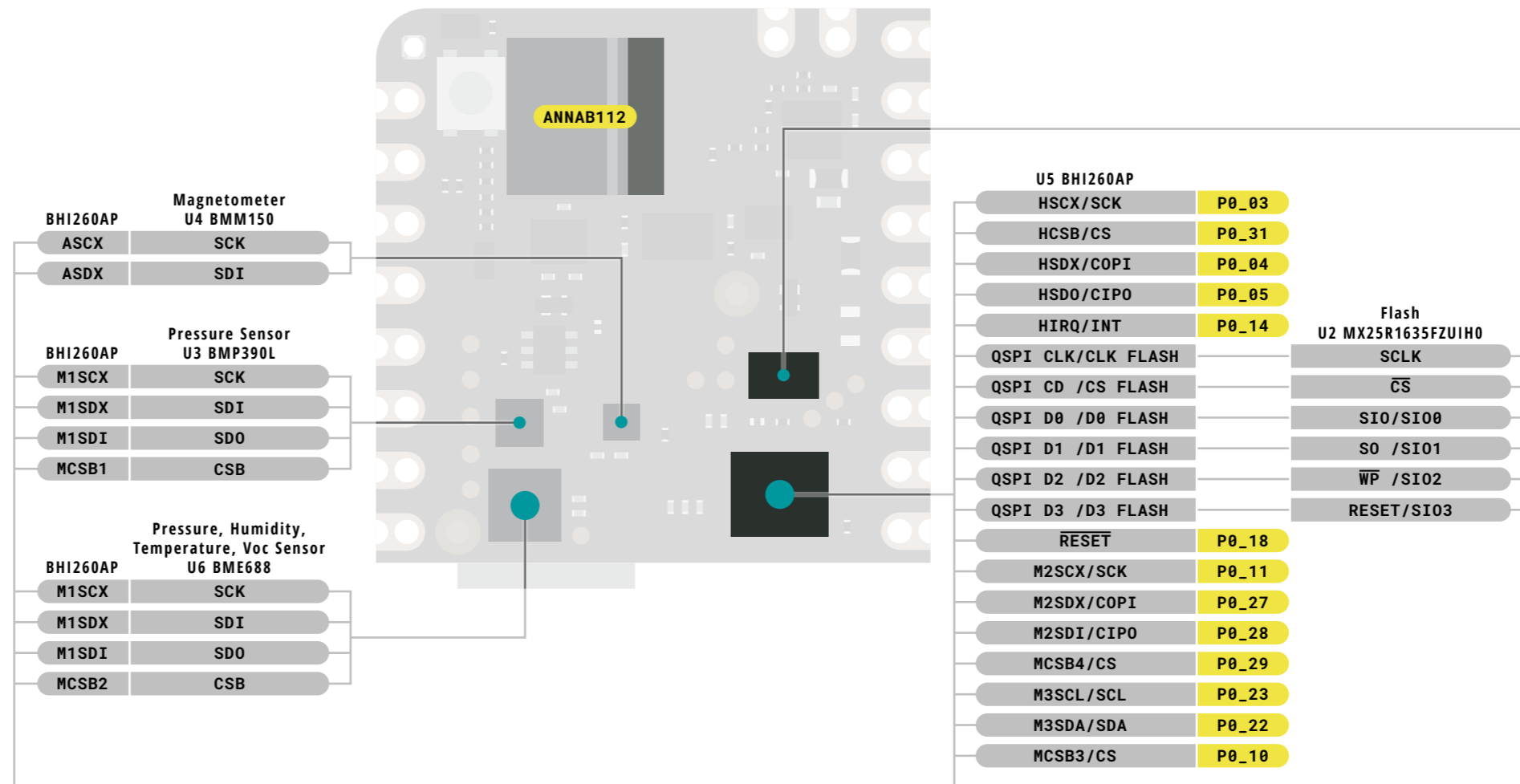
RGB LED Driver
U8 IS31FL3194

P0_16	SDA
P0_16	SCL
	VCC/V_PMID
red	OUT3
green	OUT2
blue	OUT1

| RGB LED | |

U9 BQ25120AYFPR

MR	RESET
SCL	P0_16
SDA	P0_15
CD	P0_25
LS/LDO	
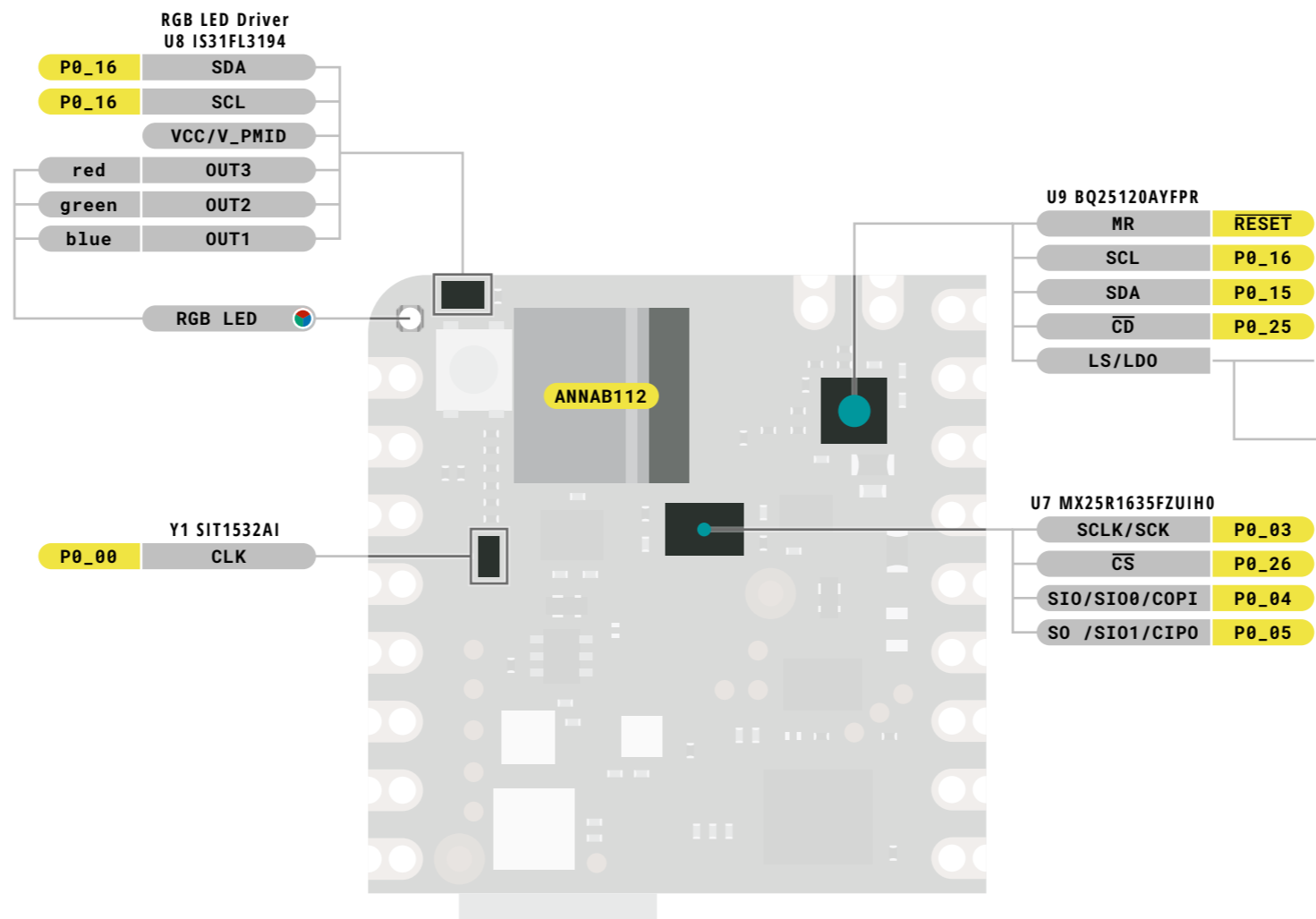
| VDDIO_EXT |

ⓘ Disabling the LS/LDO pin it is possible to power the Nicla Sense ME using VDDIO_EXT pin on the header

ⓘ If LS/LDO pin is enabled, it is possible to configure the Nicla Sense ME to work at +3V3 or +1V8, depending on the configuration of the maximum input voltage

ANNAB112

Y1 SIT1532AI

| P0_00 | CLK |

U7 MX25R1635FZUIH0

SCLK/SCK	P0_03
CS	P0_26
SIO/SIO0/COPI	P0_04
SO /SIO1/CIPO	P0_05

TOP VIEW

TOP VIEW

Magnetometer U4 BMM150

BHI260AP	
ASCX	SCK
ASDX	SDI

Pressure Sensor U3 BMP390L

BHI260AP	
M1SCX	SCK
M1SDX	SDI
M1SDI	SDO
MCSB1	CSB

Pressure, Humidity, Temperature, Voc Sensor U6 BME688

BHI260AP	
M1SCX	SCK
M1SDX	SDI
M1SDI	SDO
MCSB2	CSB

ANNAB112

U5 BHI260AP

HSCX/SCK	P0_03
HCSB/CS	P0_31
HSDX/COPI	P0_04
HSDO/CIPO	P0_05
HIRQ/INT	P0_14

Flash U2 MX25R1635FZUIH0

QSPI CLK/CLK FLASH	SCLK
QSPI CD /CS FLASH	$\overline{CS}$
QSPI D0 /D0 FLASH	SIO/SIO0
QSPI D1 /D1 FLASH	SO /SIO1
QSPI D2 /D2 FLASH	$\overline{WP}$ /SIO2
QSPI D3 /D3 FLASH	RESET/SIO3

$\overline{RESET}$	P0_18
M2SCX/SCK	P0_11
M2SDX/COPI	P0_27
M2SDI/CIPO	P0_28
MCSB4/CS	P0_29
M3SCL/SCL	P0_23
M3SDA/SDA	P0_22
MCSB3/CS	P0_10

Legend:

- 🟥 Power
- ⬛ Ground
- [IN] Power Input
- [OUT] Power Output
- 🟧 GPIO Digital External
- ⬜ Analog External
- 🟨 Main Part
- 🟧 Secondary Part
- ⬜ Internal Component
- ⬛ Other Pins (Reset, System Control, Debugging)
- 🔴 LED
- 🔵 RGB LED
- ⬜ Other

⚠️ **MAXIMUM** LPIOs are driven by bidirectional translators powered by VDDIO_EXT. These translators are meant for low power and can only drive very limited current. Please check translator datasheet for details.
VDDIO_EXT is software programmable between 1.8 and 3.3V

ℹ️ CIPO/COPI have previously been referred to as MISO/MOSI

NICLA SENSE ME

ARDUINO

Test Points

TOP VIEW

ANNAB112

BHI
INT

BMP
SCLK
SDI
SDO
CS

BME
CS

FLASH
CLK
D0
D3
D2
D1
CS

BOTTOM VIEW

BOSCH

+3V3

USB
D_P
D_N

⚠ **MAXIMUM** LPIOs are driven by bidirectional translators powered by VDDIO_EXT. These translators are meant for low power and can only drive very limited current. Please check translator datasheet for details.
VDDIO_EXT is software programmable between 1.8 and 3.3V

ℹ CIPO/COPI have previously been referred to as MISO/MOSI

ARDUINO ® **NICLA** SENSE ME