

## Dual channel IO-Link device expansion board based on L6364Q for STM32 Nucleo



### Features

- Based on the **L6364Q** IO-Link device dual transceiver in QFN package with the following main characteristics:
  - 2-channel (CQ and DIO) IO-Link PHY layer
  - IO-Link DLL (M-sequence handler and checksum)
  - Wake-up detection
  - Interrupt diagnostic pin
  - SPI and UART interfaces
  - 50 mA 3.3 V and 5.0 V linear regulators
  - 50 mA adjustable (5.0 ÷ 10.8 V) buck converter
  - Overload protection with adjustable intervention threshold
  - Overheating protection with adjustable shutdown threshold
  - Full reverse polarity on process side
  - Ground and V<sub>CC</sub> wire break protections
  - QFN-20L (4 x 4 x 0.9 mm) package
- 5 to 35 V operating voltage range
- Red LED and green LED for status diagnostics
- Radiated Emissions (EM Fields 30 MHz-1 GHz) < 40dB µV/m
- Immunity to conducted disturbance (150 kHz-80 MHz) ≤ 10 V
- Immunity to RF EM Fields (80 MHz-1 GHz) ≤ 10 V/m
- Immunity to RF EM Fields (1 GHz-2.7 GHz) ≤ 3 V/m
- Immunity to SURGE pulse (500 Ohm coupling) ≤ ± 1.2 kV
- Immunity to ESD contact/air ≤ ±3 kV
- Immunity to BURST noise ≤ ±1 kV
- Compatible with **STM32 Nucleo** development boards
- Equipped with Arduino UNO R3 connectors
- RoHS and WEEE compliant

Product summary	
Dual channel IO-Link device expansion board based on L6364Q for STM32 Nucleo	X-NUCLEO-IOD02A1
Industrial digital output software expansion for STM32Cube	X-CUBE-IOD02
Dual channel SIO and IO-Link PHY device	L6364Q
Motion MEMS and microphone MEMS expansion board for STM32 Nucleo	X-NUCLEO-IKS02A1
Applications	Factory Automation IO-Link modules

### Description

The **X-NUCLEO-IOD02A1** expansion board for **STM32 Nucleo** is based on the **L6364Q** dual channel SIO and IO-Link PHY device transceiver embedding 50 mA 3.3 V and 5.0 V voltage regulators, DC-DC converter and M-sequence management.

The expansion board provides an affordable and easy-to-use solution for the development of SIO and IO-Link industrial sensor applications, letting you easily evaluate the **L6364Q** communication features and robustness.

The **X-NUCLEO-IOD02A1** communicates with the STM32 controller via SPI and GPIO pins and it is compatible with the Arduino UNO R3 (default configuration) and ST morpho (optional, not mounted) connectors (when connected to a **NUCLEO-L073RZ** or **NUCLEO-G071RB** development board).

Communication via IO-Link can be performed in either Multi-byte and Single-byte modes with SPI control of IC configuration and bidirectional sensor data transmission, or in Transparent mode with SPI control of IC configuration and UART interfacing for bidirectional sensor data transmission.

The switches on the [X-NUCLEO-IOD02A1](#) conveniently allow you to configure [L6364Q](#) and expansion board settings such as transmission mode and DC-DC converter enable/disable according to application requirements.

You can also perform evaluation of comprehensive industrial sensor modules by connecting the [X-NUCLEO-IOD02A1](#) to the [X-NUCLEO-IKS02A1](#) sensor shield.

# 1 Schematic diagrams

Figure 1. X-NUCLEO-IOD02A1 circuit schematic (1 of 2)

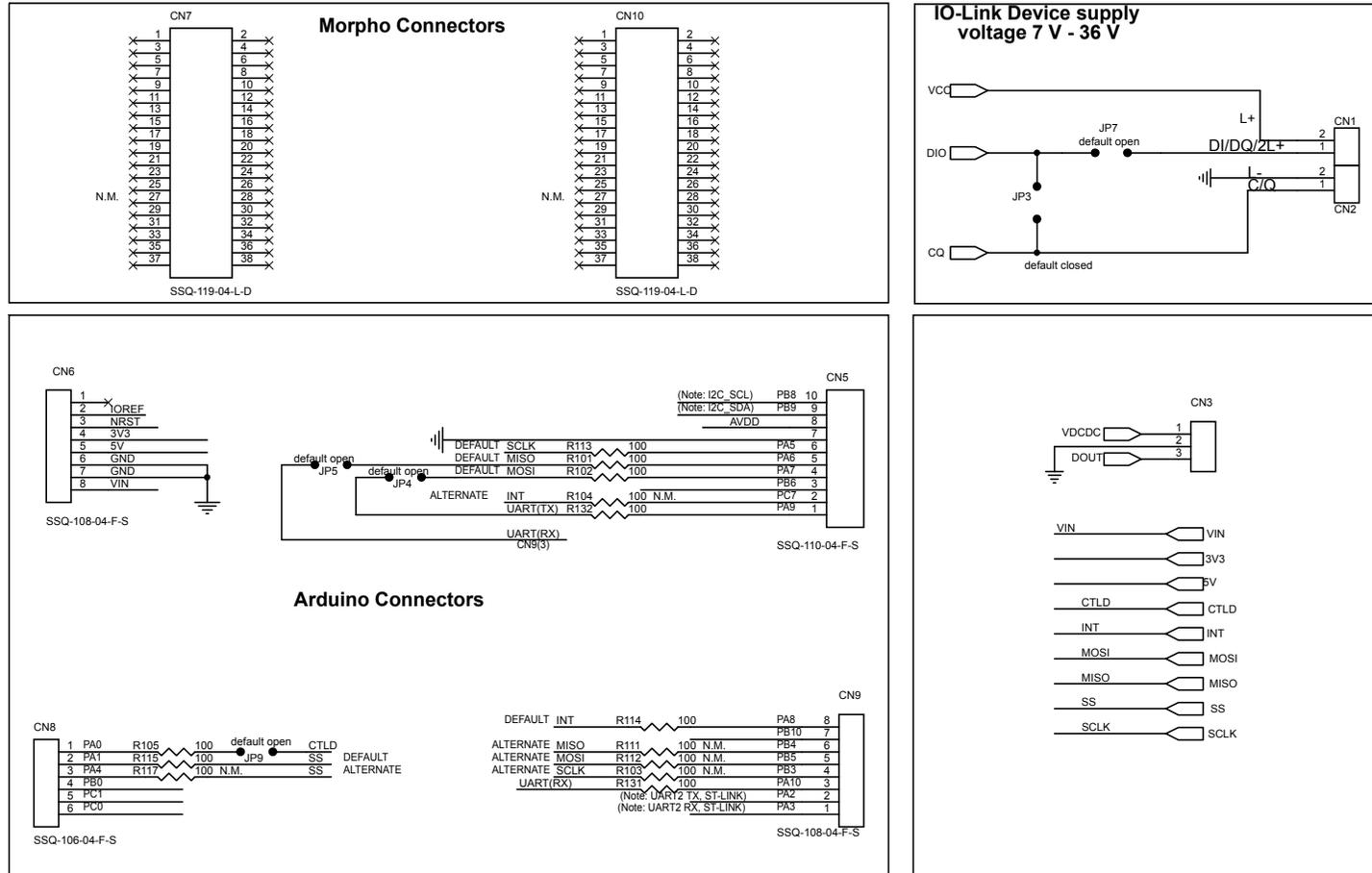
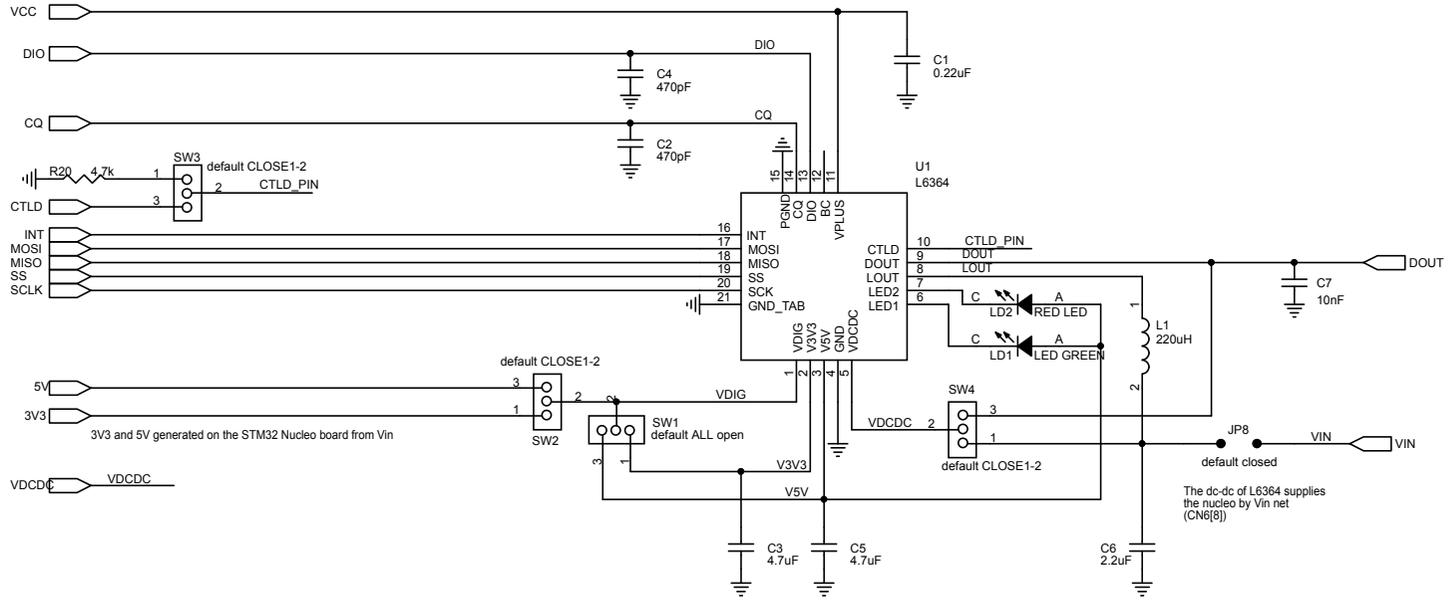


Figure 2. X-NUCLEO-IOD02A1 circuit schematic (2 of 2)



The dc-dc of L6364 supplies the nucleo by Vin net (CN6[8]).



## Revision history

**Table 1. Document revision history**

Date	Version	Changes
01-Sep-2020	1	Initial release.

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