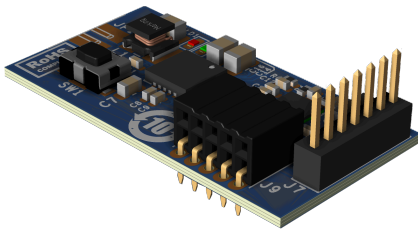


## Dual channel IO-Link device reference design based on L6364Q and STM32L051



### Features

- 5 to 35 V operating voltage range
- Red LED and green LED for status diagnostics
- IO-Link demo-stack running on [STM32L051T8](#)
- 7-pin SWD programming connector
- 10-pin connector for external sensor connection
- Push button for IO-Link test purposes
- Optimized layout to enhance EMC performances:
  - Radiated Emissions (EM Fields 30 MHz-1 GHz) < 40 dB  $\mu$ V/m
  - Immunity to conducted disturbance (150 kHz-80 MHz)  $\leq$  10 V
  - Immunity to RF EM Fields (80 MHz-1 GHz)  $\leq$  10 V/m
  - Immunity to RF EM Fields (1 GHz-2.7 GHz)  $\leq$  3 V/m
  - Immunity to surge pulse (500 Ohm coupling)  $\leq$   $\pm$  1.4 kV
  - Immunity to ESD contact/air  $\leq$   $\pm$ 4/ $\pm$ 8 kV
  - Immunity to burst noise  $\leq$   $\pm$ 2 kV
- RoHS and WEEE compliant

### Description

The [STDES-IOD002V1](#) is a reference design board for a dual channel IO-Link device mounting the [L6364Q](#) transceiver, the [STM32L051T8Y6TR](#) microcontroller running [STSW-IOD02L051](#), a 7-pin programming connector and a 10-pin expansion connector.

The [STDES-IOD002V1](#) compact size allows achieving high EMC immunity levels and makes the application suitable for the harsh industrial environments.

Thanks to a set of configurable drop jumpers and switches, combined with the source code of the [STSW-IOD02L051](#), different configurations are possible.

The microcontroller can be programmed by a dedicated SWD 7-pin connector.

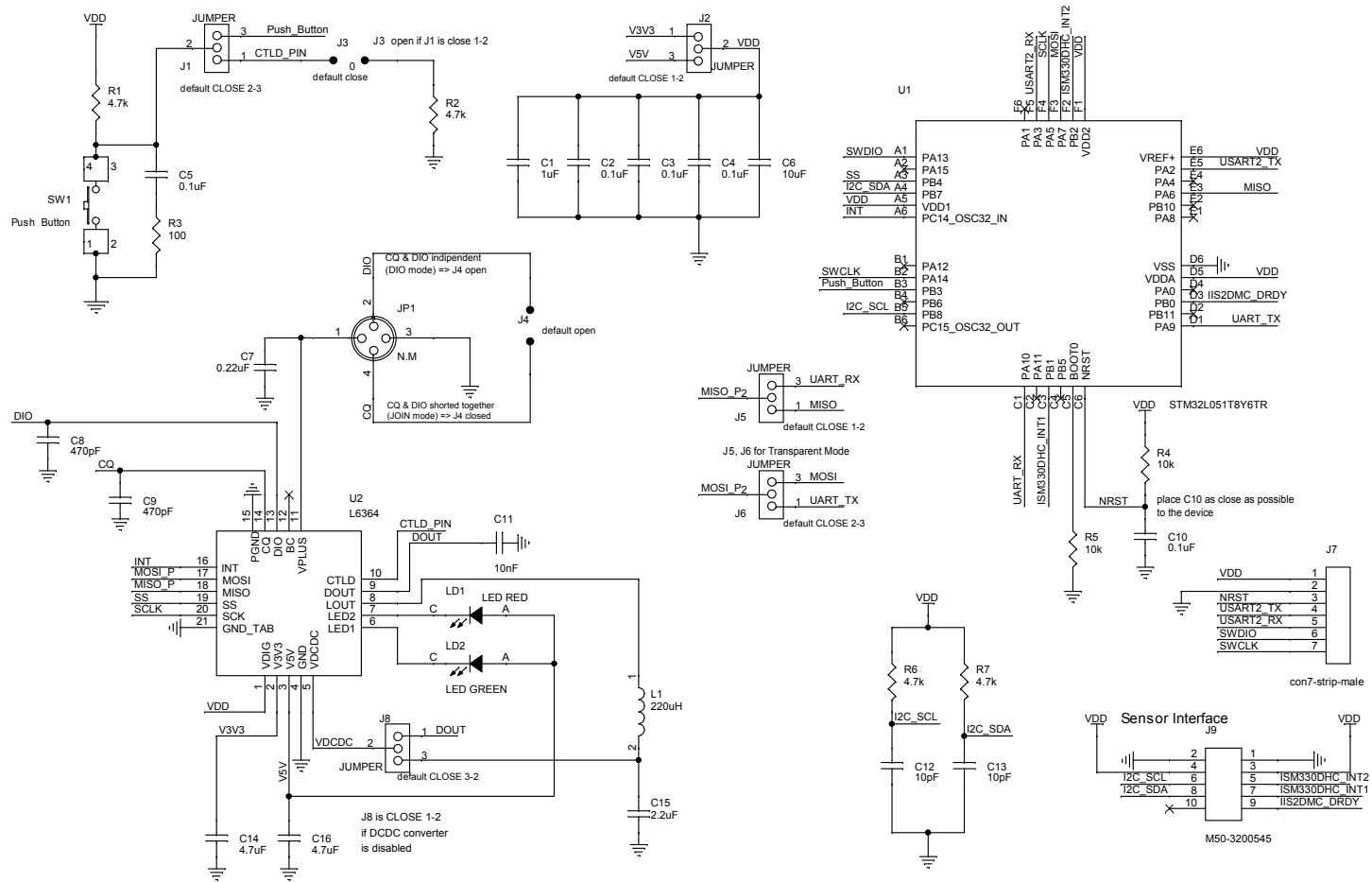
A 10-pin expansion connector allows the [STDES-IOD002V1](#) to host external sensors with I<sup>2</sup>C control interface and up to two interrupts (e.g., [IIS2MDC](#) or [ISM330DHCX](#)).

The on-board push button is used to test the CQ line or to control the DIO line via the CTLD pin.

Product summary	
Reference design board for dual channel IO-Link Device applications	<a href="#">STDES-IOD002V1</a>
Firmware for STDES-IOD002V1	<a href="#">STSW-IOD02L051</a>
Dual channel transceiver IC for SIO and IO-Link sensor applications	<a href="#">L6364Q</a>
Ultra-low-power Arm Cortex-M0+ MCU with 64 Kbytes of Flash memory, 32 MHz CPU	<a href="#">STM32L051T8</a>
Applications	<a href="#">Industrial sensors</a>

# 1 Schematic diagrams

Figure 1. STDES-IOD002V1 circuit schematic



## Revision history

**Table 1. Document revision history**

Date	Version	Changes
22-Feb-2021	1	Initial release.
15-Apr-2021	2	Changed cover image.

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