IO-Link (PHY) device evaluation board based on L6362A with Arduino connectors for STM32 Nucleo
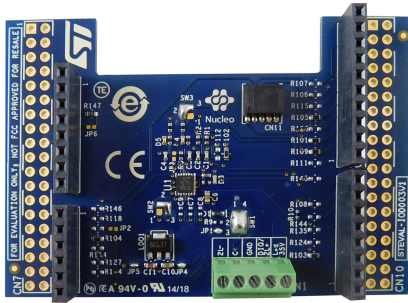
Features

- L6362A IO-Link device transceiver main characteristics:
  - IO-Link PHY layer
  - Dedicated overload diagnostics pin
  - UART interface
  - Selectable 12 mA 3.3 V or 10 mA 5.0 V linear regulator
  - Overload and overheating protections with non-dissipative cut-off function
  - Full reverse polarity on IO-Link interface pins
  - EMC protections (as per IO-Link v1.1)
  - Surge protection (as per IEC 60947-5-2)
  - DFN-12L (3x3x0.9 mm) package
- 6.5 to 35 V operating voltage range
- On-board 100 mA 12 V linear regulator (L78L)
- LEDs for status and diagnostics
- Ground and V_{CC} wire break protections
- Compatible with STM32 Nucleo boards
- Equipped with Arduino UNO R3 connectors
- RoHS and China RoHS compliant

Description

The STEVAL-IOD003V1 evaluation board is based on the L6362A IO-Link PHY device with full integrated EMC protection (according to IO-Link v1.1 specification) and surge protection (according to IEC 60947-5-2). It provides an affordable and easy-to-use solution for the development of IO-Link and SIO applications, letting you easily evaluate the communication features and robustness of the L6362A.

The on-board linear regulators (12 mA-3.3 V from L6362A and 100 mA-12 V from L78L12ABUTR) can be used to supply the microcontroller via the 24 V bus, instead of via USB.

When the L78L12ABUTR is enabled (default configuration), you can also perform evaluation of complete industrial sensor modules by connecting the STEVAL-IOD003V1 to a NUCLEO-L073RZ (or NUCLEO-L053R8) board and an X-NUCLEO-IKS01A2 expansion board.

The STEVAL-IOD003V1 interfaces with the STM32 controller via UART and GPIO pins and is compatible with the Arduino UNO R3 (default configuration) and ST morpho (optional, not mounted) connectors.

Product summary	
IO-Link device evaluation board based on L6362A with Arduino connectors for STM32 Nucleo	STEVAL-IOD003V1
IO-Link communication transceiver device IC	L6362A
L6362A IO-Link communication transceiver device IC evaluation software based on STM32Cube	STSW-IOD003

1 STEVAL-IOD003V1 schematic diagrams

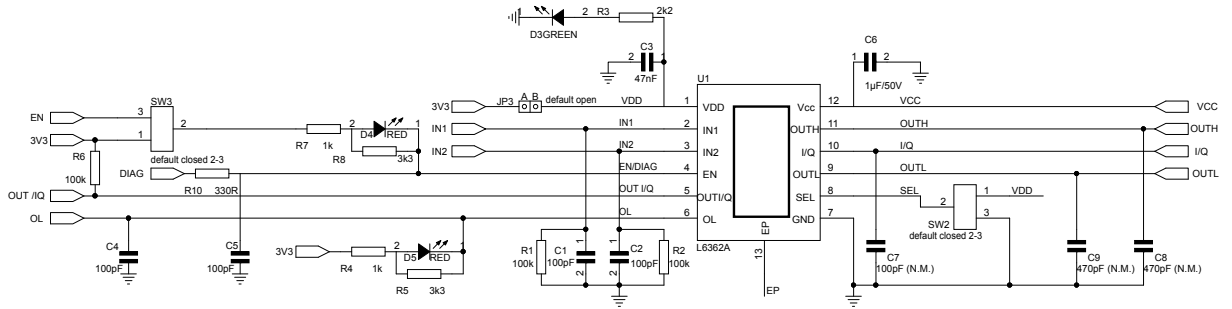**Figure 1. STEVAL-IOD003V1 circuit schematic (1 of 4)**

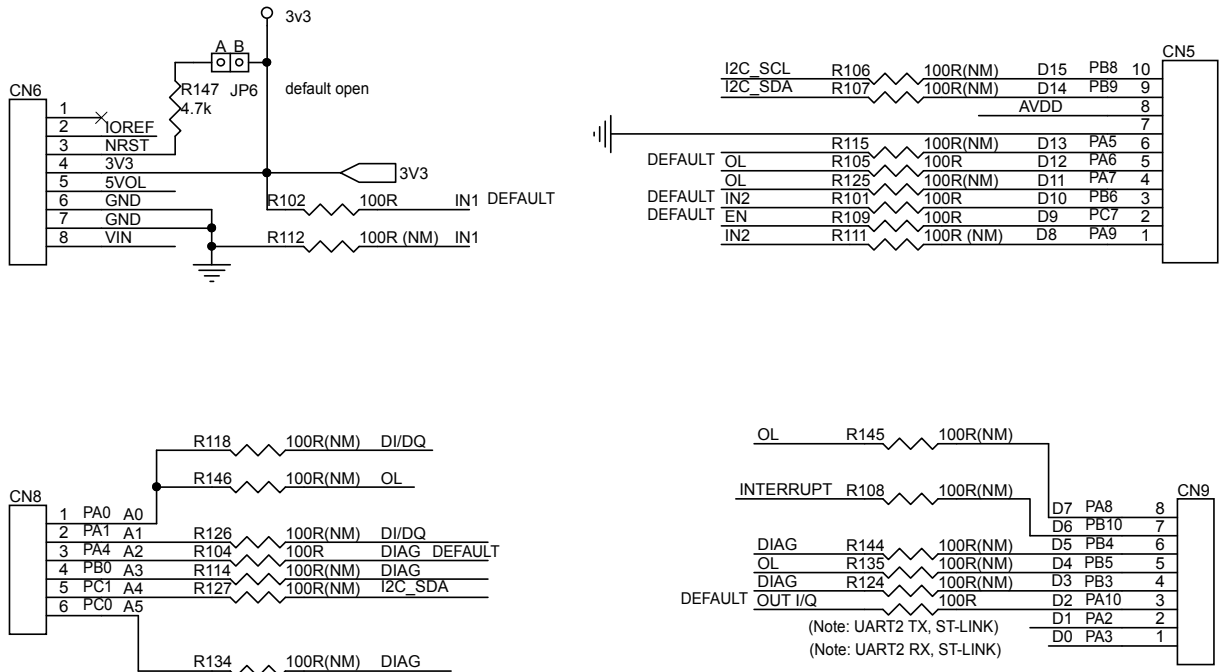**Figure 2. STEVAL-IOD003V1 circuit schematic (2 of 4): Arduino connectors**

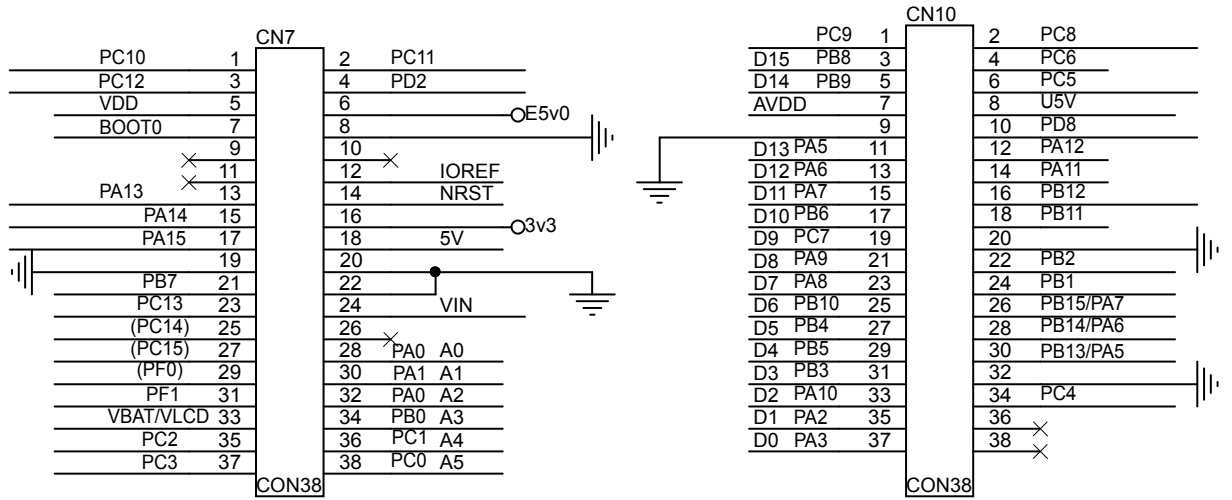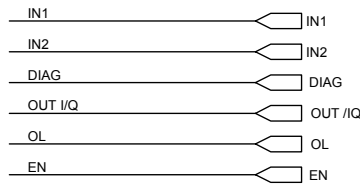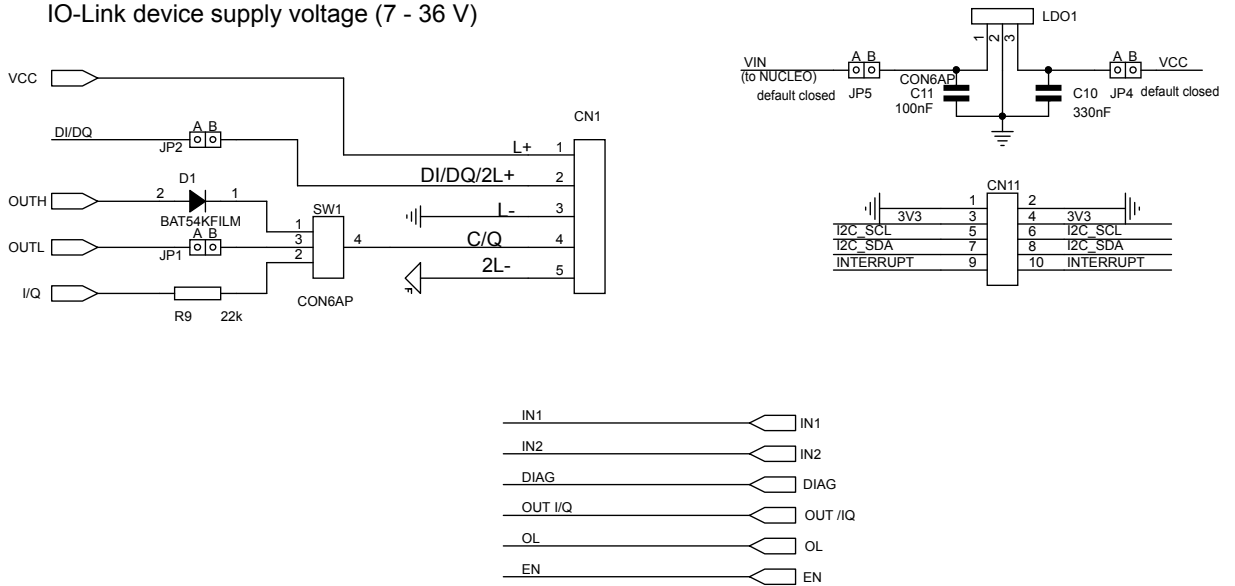**Figure 3. STEVAL-IOD003V1 circuit schematic (3 of 4): ST morpho connectors**

CN7

PC10	1	2	PC11	
PC12	3	4	PD2	
VDD	5	6		
BOOT0	7	8	E5v0	
	9	10		
	11	12	IOREF	
PA13	13	14	NRST	
PA14	15	16		
PA15	17	18	5V	3v3
	19	20		
PB7	21	22		
PC13	23	24	VIN	
(PC14)	25	26		
(PC15)	27	28	PA0 A0	
(PF0)	29	30	PA1 A1	
PF1	31	32	PA0 A2	
VBAT/VLCD	33	34	PB0 A3	
PC2	35	36	PC1 A4	
PC3	37	38	PC0 A5	

CON38

CN10

PC9	1	2	PC8	
D15 PB8	3	4	PC6	
D14 PB9	5	6	PC5	
AVDD	7	8	U5V	
	9	10	PD8	
D13 PA5	11	12	PA12	
D12 PA6	13	14	PA11	
D11 PA7	15	16	PB12	
D10 PB6	17	18	PB11	
D9 PC7	19	20		
D8 PA9	21	22	PB2	
D7 PA8	23	24	PB1	
D6 PB10	25	26	PB15/PA7	
D5 PB4	27	28	PB14/PA6	
D4 PB5	29	30	PB13/PA5	
D3 PB3	31	32		
D2 PA10	33	34	PC4	
D1 PA2	35	36		
D0 PA3	37	38		

CON38

Figure 4. STEVAL-IOD003V1 circuit schematic (4 of 4): supply voltage

IO-Link device supply voltage (7 - 36 V)

VCC

DI/DQ   JP2 A B

OUTH   D1 BAT54KFILM   2 1

OUTL   JP1 A B

I/Q   R9 22k

SW1   CON6AP

CN1

L+	1
DI/DQ/2L+	2
L-	3
C/Q	4
2L-	5

LDO1

VIN (to NUCLEO)   JP5 A B   default closed

CON6AP   C11 100nF   C10 330nF   JP4 A B   VCC   default closed

CN11

	1	2	
3V3	3	4	3V3
I2C_SCL	5	6	I2C_SCL
I2C_SDA	7	8	I2C_SDA
INTERRUPT	9	10	INTERRUPT

IN1 — IN1
IN2 — IN2
DIAG — DIAG
OUT I/Q — OUT /IQ
OL — OL
EN — EN

Revision history

Table 1. Document revision history

Date	Version	Changes
04-Jun-2018	1	Initial release.

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