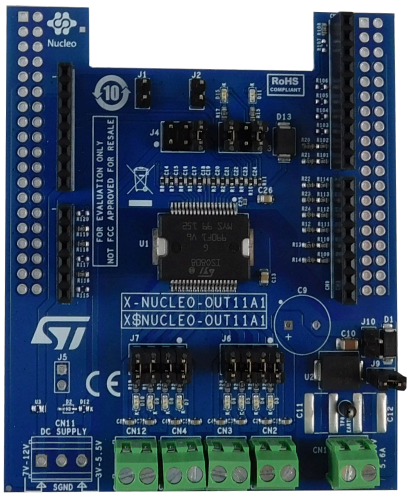
X-NUCLEO-OUT11A1

Data brief

Industrial digital output expansion board based on ISO808 for STM32 Nucleo



Product summary	
Industrial digital output expansion board based on ISO808 for STM32 Nucleo	X-NUCLEO-OUT11A1
Software expansion for STM32Cube driving industrial digital output based on intelligent power switch (IPS)	X-CUBE-IPS
Galvanic isolated octal high-side power solid state relay for high inductive loads	ISO808TR
Applications	Programmable Logic Controllers

Features

- Based on the ISO808 octal high-side switch, which features:
  - Operating range 9.2 to 36 V
  - Low power dissipation ($R_{ON(MAX)}$ = 260 mΩ)
  - Process side operating current: up to 0.7 A per channel
  - Embedded 2k V_{RMS} galvanic isolation
  - Direct (jitter < 20us) and synchronous (jitter < 6us) control modes
  - Fast decay for inductive loads
  - Undervoltage lock-out
  - Overload and overtemperature protections
  - Loss of ground protection
  - PowerSO36 package
- Application board process side operating range: 10 (J10 open) to 33 V (J9 closed)
- Extended operating range of process side from 9.2 (J10 closed) up to 36 V (J9 open)
- Application board logic side operating voltage 3.3 to 5 V
- Green LEDs for outputs on/off status (J6 and J7 close 1-2, 3-4, 5-6, 7-8)
- Red LED for common overheating and communication error diagnostic (J3 close 1-2)
- Yellow LED for output enable status signalization (J3 close 5-6)
- Direct control mode (J1, J2 closed)
- Synchronous control mode (J1, J2 open)
- Process and logic supply rails reverse polarity protections
- Compatible with STM32 Nucleo development boards
- Equipped with Arduino® UNO R3 connectors
- RoHS and China RoHS compliant
- CE certified

Description

The X-NUCLEO-OUT11A1 is an industrial digital output expansion board for STM32 Nucleo. It provides a powerful and flexible environment for the evaluation of the driving and diagnostic capabilities of the ISO808 octal high-side smart power solid state relay, with embedded galvanic isolation, in a digital output module connected to 0.7 A industrial loads.

The X-NUCLEO-OUT11A1 directly interfaces with the microcontroller on the STM32 Nucleo driven by GPIO pins and Arduino® R3 connectors.

The galvanic isolation between the microcontroller and the process stage is guaranteed by the ISO808.

The expansion board can be connected to either a NUCLEO-F401RE or a NUCLEO-G431RB development board.

It is also possible to evaluate a system composed of a X-NUCLEO-OUT11A1 stacked on other expansion boards.

1 Schematic diagrams

Figure 1. **X-NUCLEO-OUT11A1 circuit schematic (1 of 2)**

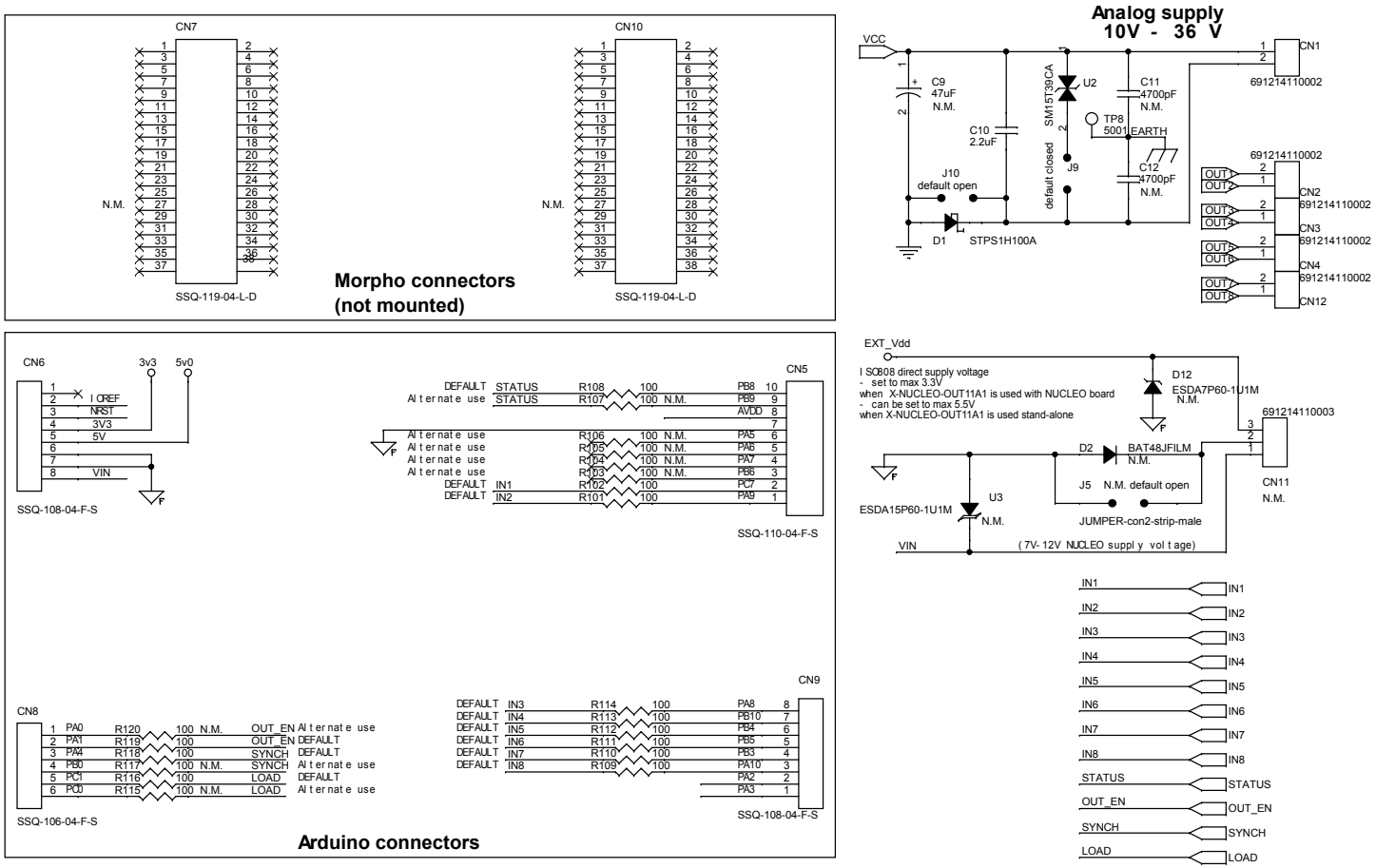
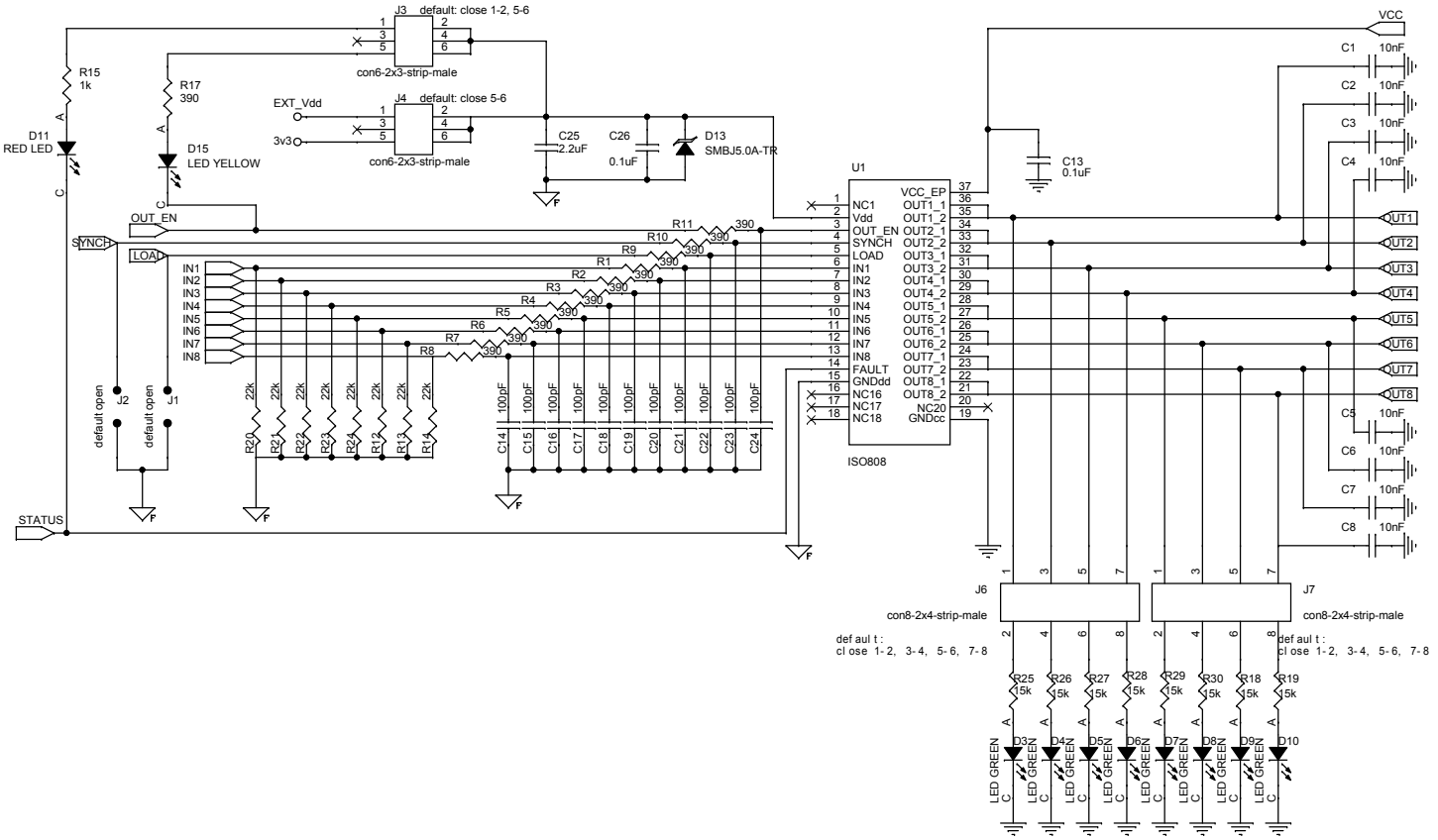


Figure 2. X-NUCLEO-OUT11A1 circuit schematic (2 of 2)



2 Board versions

Table 1. X-NUCLEO-OUT11A1 versions

PCB version	Schematic diagrams	Bill of materials
X$NUCLEO-OUT11A1 (1)	X$NUCLEO-OUT11A1 schematic diagrams	X$NUCLEO-OUT11A1 bill of materials

1. *This code identifies the X-NUCLEO-OUT11A1 evaluation board first version. It is printed on the board PCB.*

Revision history

Table 2. **Document revision history**

Date	Revision	Changes
21-Dec-2022	1	Initial release.
24-May-2023	2	Minor text changes.

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