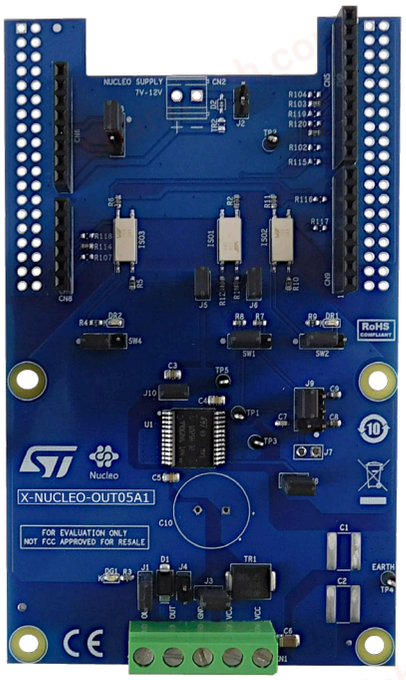
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X-NUCLEO-OUT05A1

Data brief

Industrial digital output expansion board based on IPS1025H for STM32 Nucleo



Features

- Based on the IPS1025H single high-side switch, which features:
  - Operating range up to 60 V
  - Low-power dissipation ($R_{ON(MAX)}$ = 25 mΩ)
  - Fast decay for inductive loads
  - Smart driving of capacitive loads
  - Under-voltage lock-out
  - Overload and over-temperature protection
  - PSSO24 package
- Application board operating range: 8 to 33 V/0 to 2.5 A
- Extended voltage operating range (J3 open) up to 60 V
- Green LED for output on/off status
- Red LEDs for overload and overheating diagnostics
- 5 kV galvanic isolation
- Supply rail reverse polarity protection
- EMC compliance with IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-8
- Compatible with STM32 Nucleo development boards
- Equipped with Arduino UNO R3 connectors
- CE certified:
  - EN 55032:2015 + A1:2020
  - EN 55035:2017 + A11:2020
- RoHS and China RoHS compliant

Description

The X-NUCLEO-OUT05A1 industrial digital output expansion board for STM32 Nucleo provides a powerful and flexible environment for the evaluation of the driving and diagnostic capabilities of the IPS1025H single high-side smart power solid state relay, in a digital output module connected to 2.5 A industrial loads.

The X-NUCLEO-OUT05A1 interfaces with the microcontroller on the STM32 Nucleo via 5 kV optocouplers driven by GPIO pins and Arduino R3 connectors.

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 up to four stacked X-NUCLEO-OUT05A1 expansion boards.

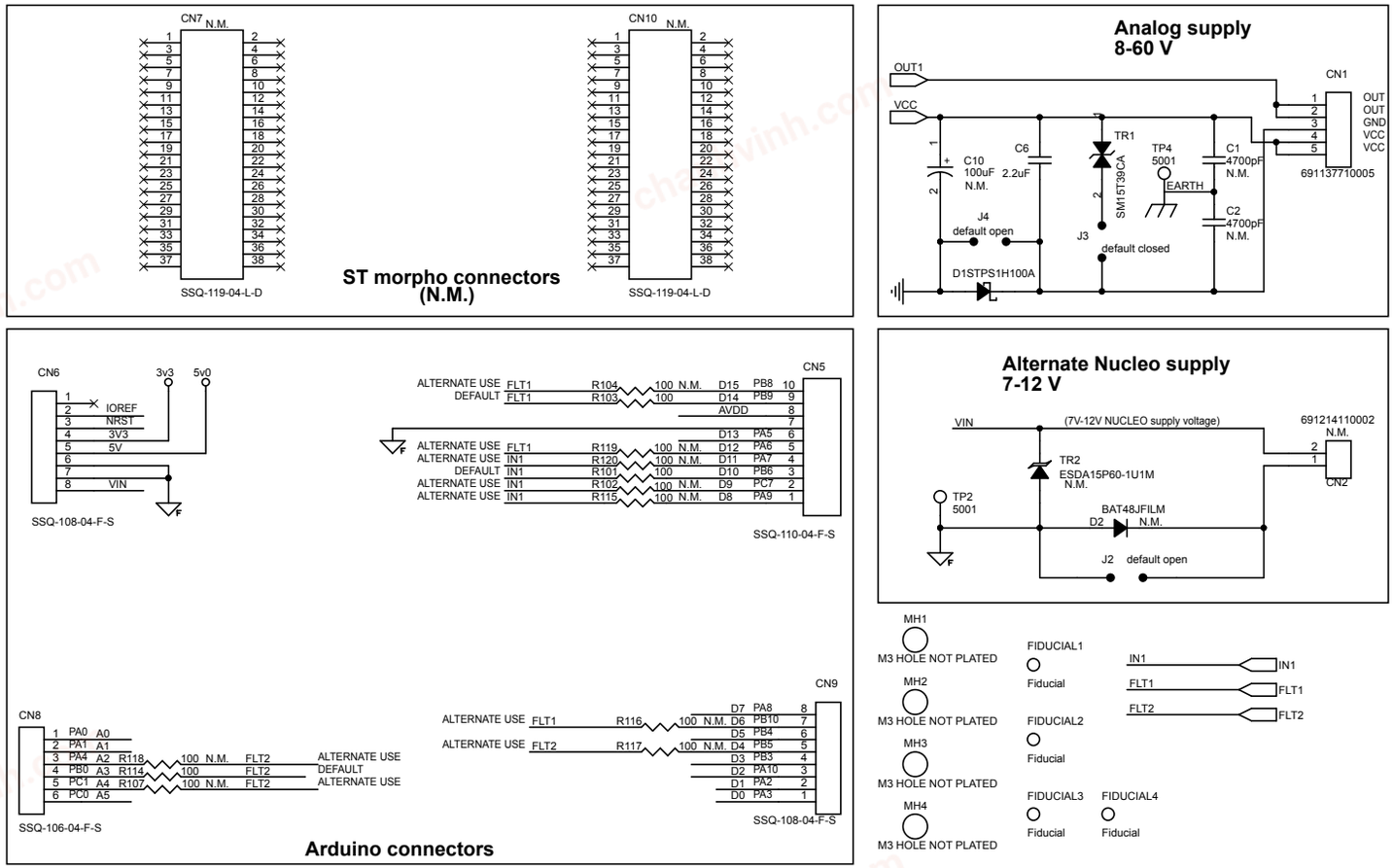
As an example, a system with four X-NUCLEO-OUT05A1 expansion boards allows you to evaluate a quad channel digital output module.

Product summary	
Industrial digital output expansion board based on IPS1025H for STM32 Nucleo	X-NUCLEO-OUT05A1
Industrial digital output software expansion for STM32Cube	X-CUBE-OUT5
Single high-side smart power solid state-relay	IPS1025H
Applications	Programmable Logic Controllers

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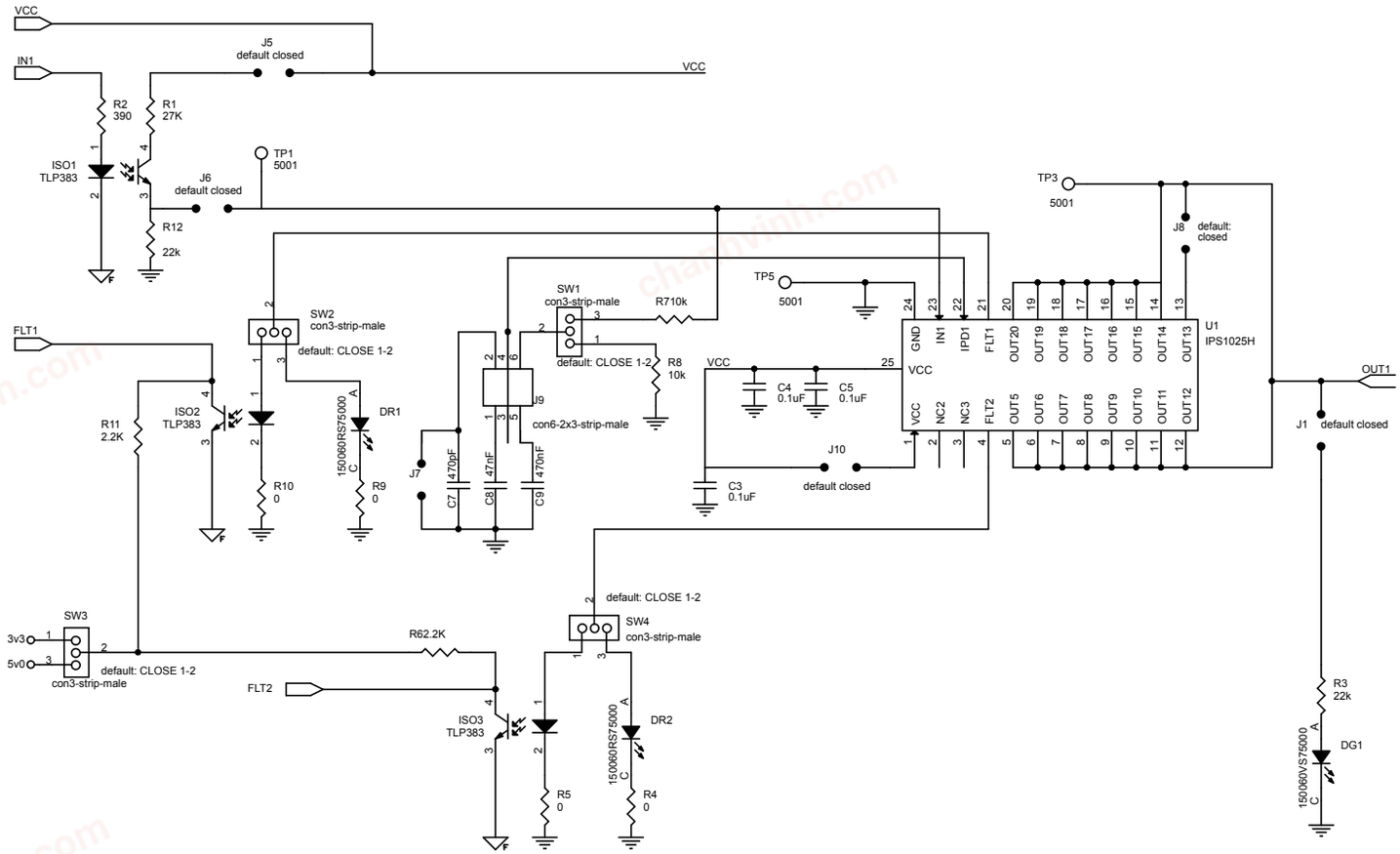
1 Schematic diagrams

Figure 1. **X-NUCLEO-OUT05A1 circuit schematic (1 of 2)**



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Figure 2. **X-NUCLEO-OUT05A1 circuit schematic (2 of 2)**



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2 Board versions

Table 1. **X-NUCLEO-OUT05A1 versions**

Finished good	Schematic diagrams	Bill of materials
X$NUCLEO-OUT05A1 (1)	X$NUCLEO-OUT05A1 schematic diagrams	X$NUCLEO-OUT05A1 bill of materials

1. *This code identifies the X-NUCLEO-OUT05A1 evaluation board first version.*

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Revision history

Table 2. **Document revision history**

Date	Version	Changes
24-Mar-2022	1	Initial release.

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