

X-NUCLEO-PLM01A1

Power line communication expansion board based on ST7580 for STM32 Nucleo

Data brief



Features

- STM32 Nucleo expansion board based on the ST7580 power line networking systemon-chip
- ST7580 main characteristics:
 - FSK, PSK modem for robust wireline communication up to 28.8 kbps
 - 8-18 V analog supply voltage
 - 3.3 V digital supply
 - Output transmitted signal capability up to 14 $V_{\text{p-p}}$, 1 A_{rms}
 - Frequency range 9-250 kHz
- TX and RX filters on board optimized for the CENELEC B (95-125 kHz) frequency band, suitable for IoT / Smart Home / Smart City applications
- Compatible with STM32 Nucleo boards
- Equipped with Arduino UNO R3 connectors
- Example firmware available for point-to-point communication, compatible with STM32Cube firmware
- RoHS compliant

Description

The X-NUCLEO-PLM01A1 expansion board for STM32 Nucleo is based on the ST7580 FSK, PSK multi-mode power line networking systemon-chip. It provides an affordable and easy-to-use solution for the development of connectivity applications based on power line communication. It lets you easily evaluate the communication features of the ST7580 based on a DC two-wire link between two boards.

You can also perform evaluation on an AC power line by connecting the X-NUCLEO-PLM01A1 to an STEVAL-XPLM01CPL board providing effective AC coupling and isolation. The X-NUCLEO-PLM01A1 is interfaced 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.



Schematic diagrams X-NUCLEO-PLM01A1

1 Schematic diagrams

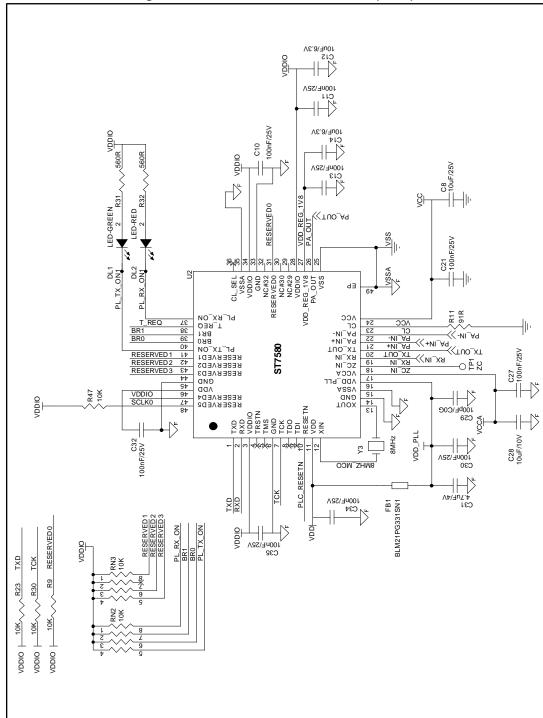


Figure 1: X-NUCLEO-PLM01A1 schematic (1 of 3)

X-NUCLEO-PLM01A1 Schematic diagrams

Figure 2: X-NUCLEO-PLM01A1 schematic (2 of 3) CN6 VDDIO JP9 1 2 3 4 5 6 7 8 00 CN7 CLOSE JP10 -00 CON-1x8 CLOSE 8P**I**N-P254 TXD NC R67 CN8 1 2 3 4 PL_RX_ON PL_TX_ON **ॅ**₀ R69 CON-1x6 CON-2x19 6PIN-P254 CN9 3 CN10 33 Screw connector TXD CLOSE 1-2 CN2 vcc CN9_2_CN10_35 CN5_1_CN10_2 1 ${\tt SUPPLY_CONNECTOR}$.18 RXD CLOSE 1-2 CN9_1_CN10_37 CN9 pin 1 and 2 to be used for UART if X-NUCLEO-IDS01A4/5 SPIRIT1 board is used CN5 10 T_REQ R70 as well CN10 NC R48 CON-1x10 10PIN-P254 RXD R66 CN9 PLC RESETN R73 330 8 7 6 5 4 3 2 1 CON-2x19 CON-1x8 8PIN-P254

D4 SM6T6V8CA R5 150R D2 STPS1L30A 7 ->PA_OUT R64 \ R58 < 24K < OUT 90 4.7pF/C0G R6 PLM_CONNECTOR CN1 Screw connector δ C23 68pF/C0G PA_INK C16 C16 C2F —— C20 —— 100nF/C0G ¥ .≪ . R19 C26

Figure 3: X-NUCLEO-PLM01A1 schematic (3 of 3)

X-NUCLEO-PLM01A1 Revision history

2 Revision history

Table 1: Document revision history

Date	Version	Changes
14-Jun-2017	1	Initial release.

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