



# DMX250 EVB + EVB Tester Interfacing and setup with an existing DMX cables

## 1. General

This application note describes the DMX250 evaluation board and its EVB Tester interface to data+ and data- of a DMX cable (RS485). The EVB Tester board contains onboard RS485 transceiver that translates the data+ and data- signals into TX and Rx logic (3.3V). The EVB Tester switches set the DMX250 operating frequency, TX level, and RS485 transceiver TX/RX mode.

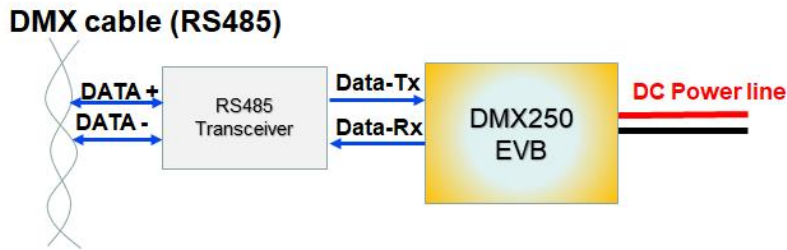


Figure 1 - Interface with DMX cable block diagram

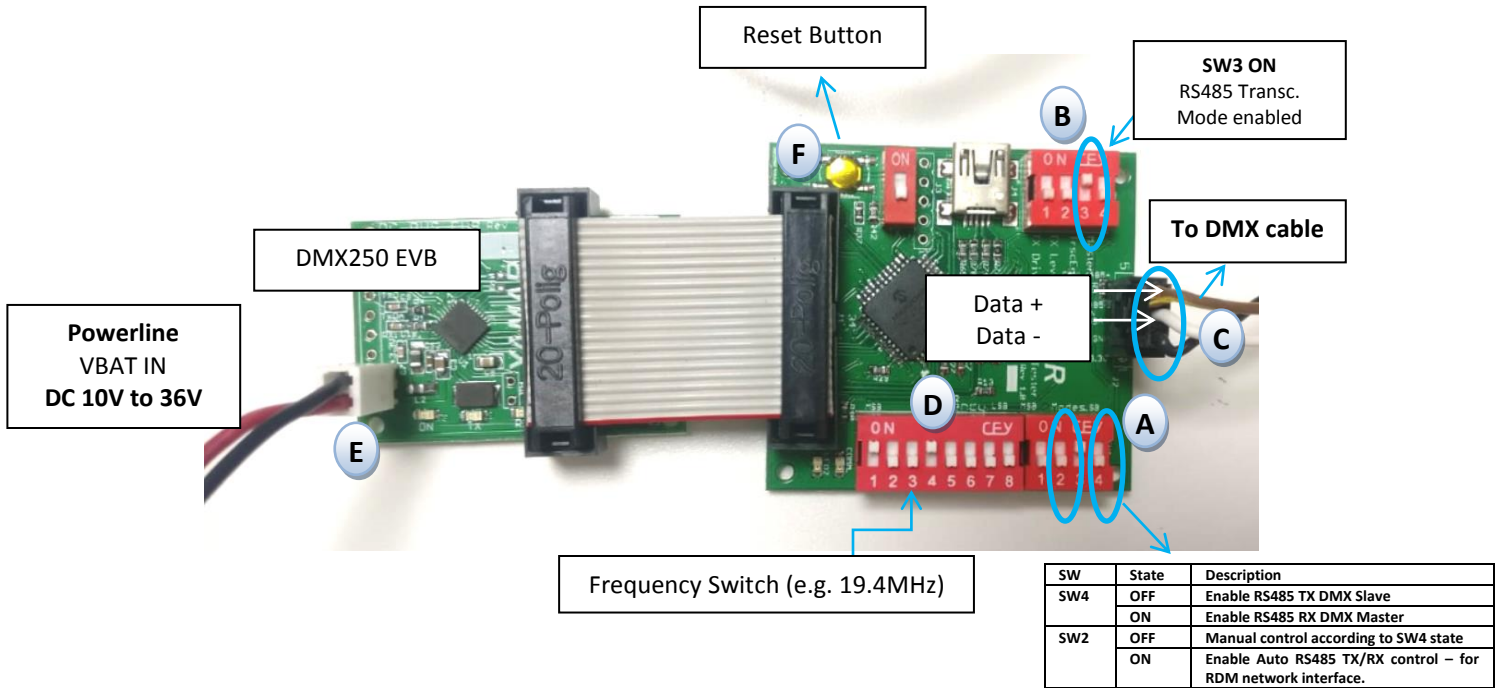


Figure 2 – DMX250 EVB and EVB Tester

## 2. DMX over powerline demo example

The demo example consists of DMX Master controlled by a PC using USB-DMX512, 2 x DMX250 EVAL kits, power supply, and a DMX slave light (see Figure 3).

Both the DMX250 EVAL kits are connected to the same powerline (13V DC). The powerline is connected to the DMX250 EVBs to supply the onboard 3.3V PS and for communication.

A DMX512 frame is transferred from the PC through the USB-DMX512 (point 1) over the DMX cable to the EVB-Tester onboard RS485 transceiver (point 2). Then, the TX/RX signals are routed to the Master DMX250 EVB (HDI and HDO pins) and the DMX frame is sent over the powerline (point 3). At DMX250 Slave side, the powerline DMX frame is detected (point 4) and transferred via the HDO pin to the EVB-Tester RS485 transceiver and to the Slave light (point 5).

[Click for demo video](#)

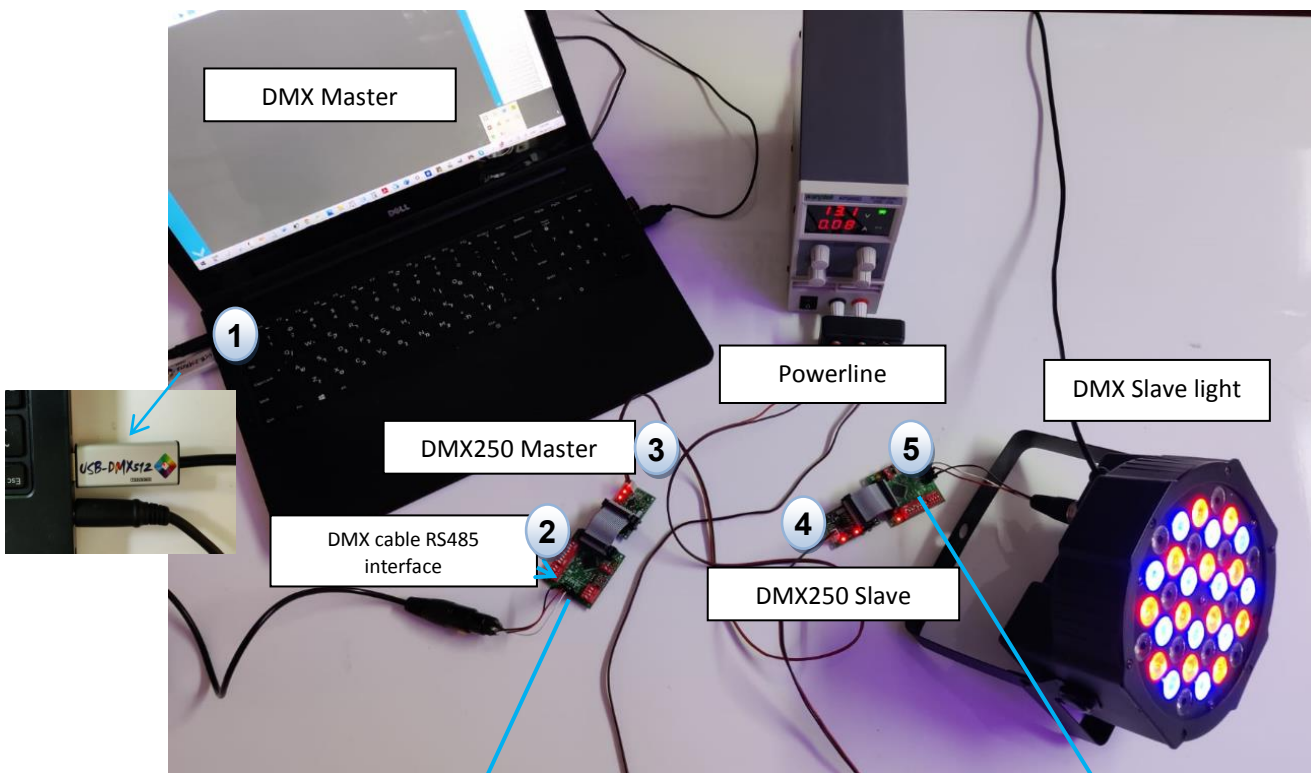
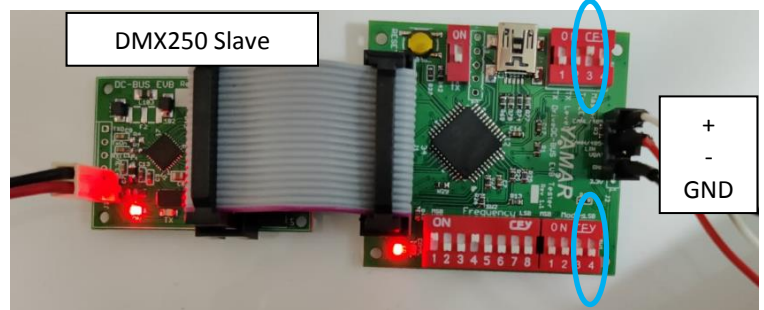
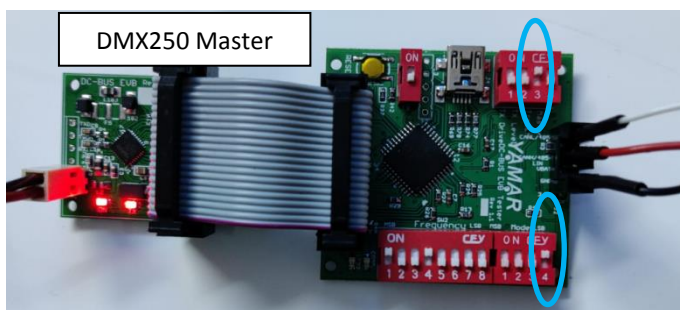


Figure 3 – DMX Demo example setup



This demo describes a connection with an existing DMX cable as depicted in Figure 4.

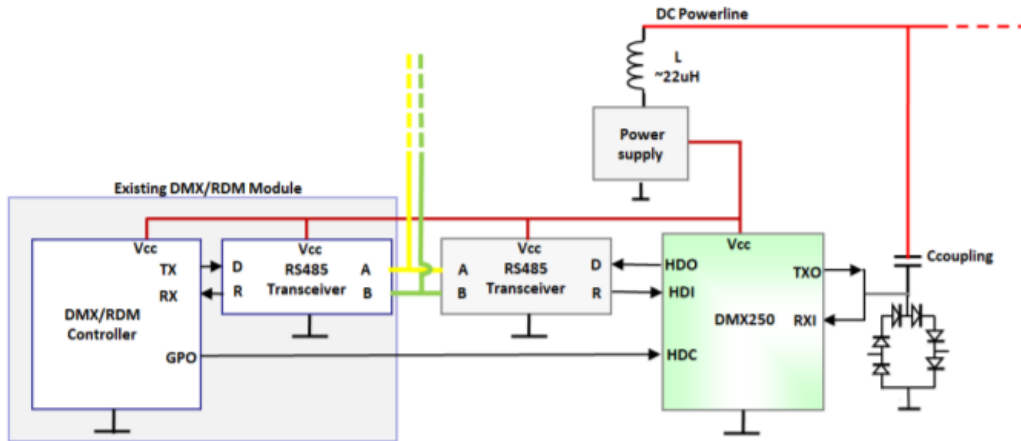


Figure 4 – Typical DMX250 to RS485 transceiver interface

For final application (removing the DMX cabling and RS485 transceivers), a direct interface between the DMX250 and the DMX/RDM controller should take place as depicted in Figure 5.

The powerline can be DC or AC shared with all the DMX lights.

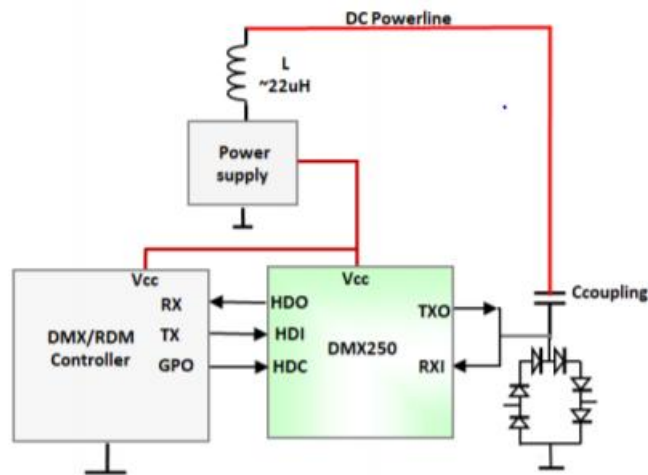


Figure 5 – Typical DMX250 to DMX/RDM controller interface

### 3. DMX250 EVB + EVB-Tester board quick Set-up

Follow this set-up in all DMX250 EVAL kits:

1. Set the RS45 TX/RX mode using switch SW4 or SW2: (See Point **A** in Figure 2 above).
  - SW4 is ON when connected to a DMX Master.
  - SW4 is OFF when connected to a DMX slave.
- Or
- SW2 ON when interfacing an RDM network.
2. Set SW3 ON to enable working with the on-board RS485 Transceiver (See Point **B** in Figure 2 above).
3. Connect DMX cable DATA+ and DATA- and GND to the connector as show in Point **C** in Figure 2 above.
4. Select a carrier frequency (See Point **D** in Figure 2 above).
5. Connected the powerline (See Point **E** in Figure 2 above).
7. The DMX250 is ready.
8. Any DMX512 frame transmitted at DMX250 Master is transferred over the powerline to the DMX250 Slave transmitted over the RS485 to the DMX slave unit.

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<https://yamar.com/product/dmx250/>

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