

DMX512 – the stage-lighting protocol

250 kbaud over RS-485 · 512 channels/universe · 5-pin XLR

HOW IT WORKS

Lighting control: a 250 kbaud serial stream (UART over RS-485) that broadcasts 512 "slots", each a 0–255 level, ~44 times a second. No addressing on the wire – each fixture is set (by a DIP/address) to watch certain slots and ignore the rest.

THE WIRES

5-pin XLR: pin2 = data- , pin3 = data+ , pin1 = shield
Isolated RS-485 (ground-loop protection is mandatory on stage)

KEY FACTS

250 kbaud, 512 channels, one-way BROADCAST, ~44 Hz refresh.
Daisy-chained; only the last fixture terminates (120 Ω).
Isolation required – gear is on different mains circuits.

WHERE WE USE IT

The DMX expander lets a lighting desk drive the glitch like any other fixture – the original device was a "DMX→CR box", so this is the native control path. Built isolated (ADM2587E) because DMX runs between gear on different power, and ground loops kill inputs.