

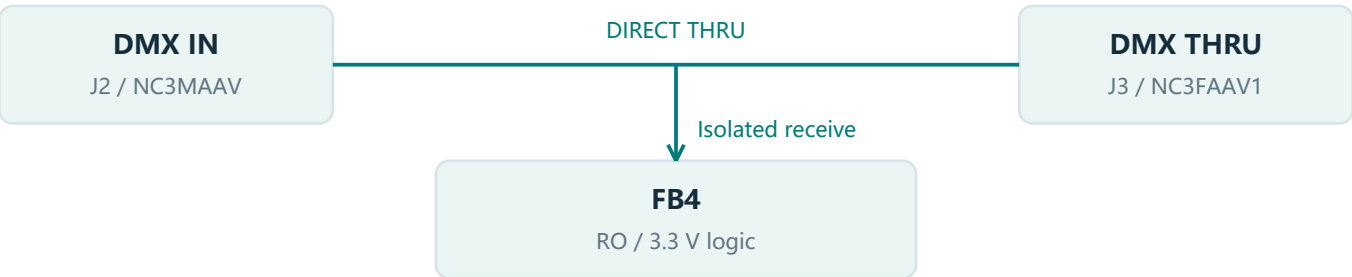
DMX NWP

Installation and User Guide / Isolation: page 6

Document: v1.7 Issued: 2026-10-05

A module board for standard 3-pin XLR connectors. Electronic components are fitted; the XLR connectors are not soldered. It provides DMX reception and a direct through connection.

1 Function and connection



Signal common, Data- and Data+ are wired directly between IN and THRU. A separate isolated receive path sends RO data to the FB4. THRU does not regenerate the DMX signal.

2 Product variants

Connector type	XLR not fitted	XLR soldered
Waterproof	DMX WP	DMX WP kit
Standard XLR	DMX NWP	DMX NWP kit

WP and NWP use the same circuit functions. Their XLR pad holes differ: WP accepts thicker waterproof connector pins; NWP accepts thinner standard A-series XLR pins. Verify the pin layout before choosing a connector.

Prepare for installation

Prepare NC3MAAV male and NC3FAAV1 female connectors, or verified equivalents, a suitable harness and enclosure mounting hardware. Check the accessories included in your order.

Interfaces and power

DMX NWP / Verify pin numbers before connecting

3 FB4 connector J1

J1 is a 1 x 7 connector with 1.5 mm pitch. See the numbered connector photographs on page 3. In the illustrated component-side view, pin 1 (GND) is left and pin 7 (+3.3V) right. Pin 1 has the square pad; the solder-side view is mirrored. Do not infer polarity from wire colours.

Pin	Net	Function
1	GND-FB4	FB4-side power and logic ground
2	RO	Isolated DMX receive data output to FB4
3	NC	Not connected in this version
4	SCL	I ² C clock
5	SDA	I ² C bidirectional data
6	INT	Active-low, open-drain interrupt output
7	FB4+3.3V	Nominal 3.3 V DC supply input

4 XLR connectors

Port	Connector / purpose
J2 male	NC3MAAV / DMX IN
J3 female	NC3FAAV1 / DMX OUT (THRU)

At both ports, pin 1 is signal common / shield (PGND), pin 2 is Data- and pin 3 is Data+. Each pin is wired directly to the same pin at the other port. This passive THRU path does not require board power; FB4 reception does.

5 Supply requirements

Connect a nominal 3.3 V DC supply to J1 pin 7 and FB4-side ground to pin 1. The onboard isolated converter generates an unregulated 5 V rail for internal circuits. Do not apply 5 V to J1 or use the internal 5 V rail as an external supply output.

The LED indicates isolated-side power, not DMX data activity. Suitable pull-ups for SCL, SDA and INT must be provided by the mainboard; they are not fitted on this board.

6 Line termination

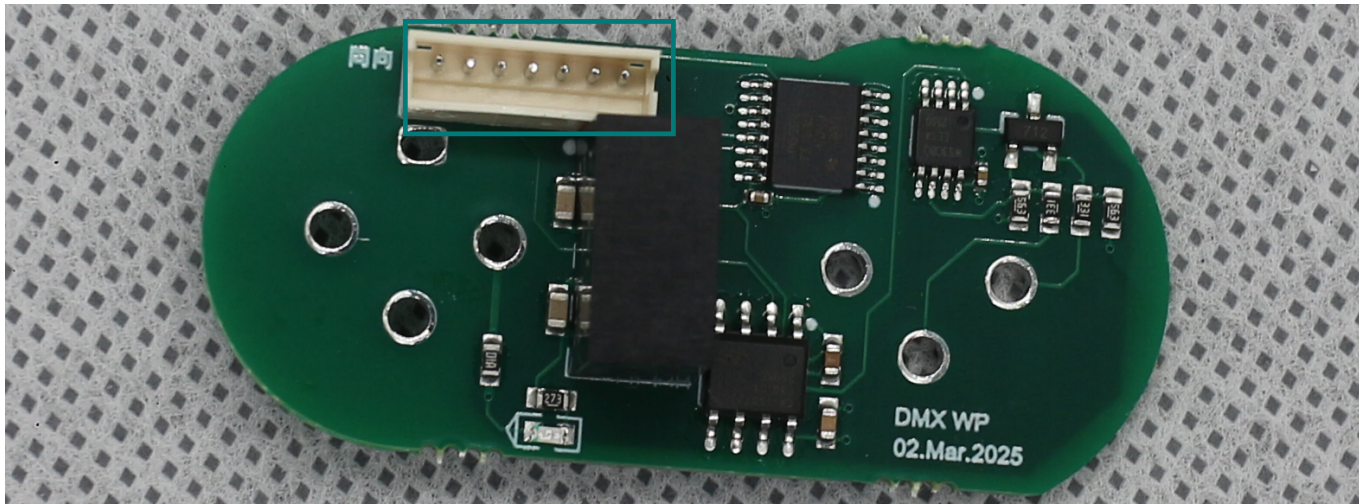
No DMX termination resistor is fitted. At the end of the chain, use an external 120-ohm terminator between Data- and Data+ (XLR pins 2 and 3). Intermediate devices retain the through connection without additional termination.

7-pin connector orientation

DMX NWP / J1 component-side view

Viewing direction: face the component side, with the 7-pin socket at the upper left and the PCB model marking at the lower right. In this view, pin 1 is at the left end and pin 7 at the right end.

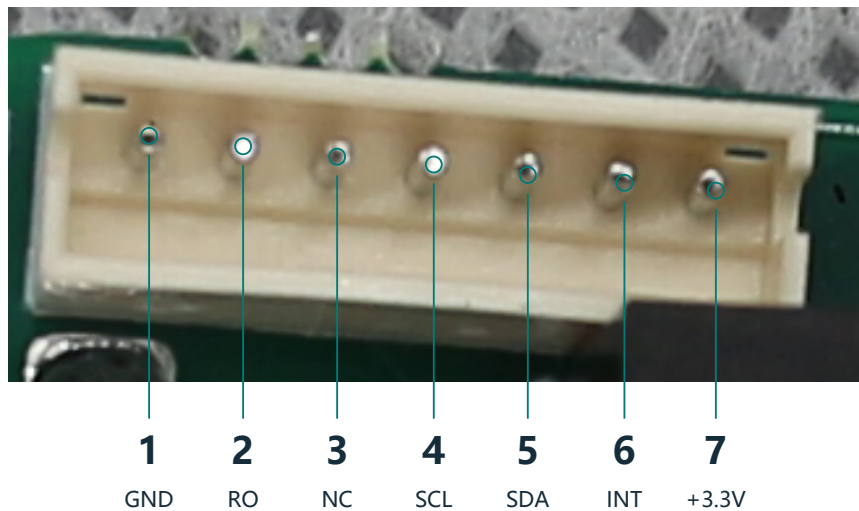
A Locate J1 on the board



Location reference uses an original WP bare-board photograph. WP, NWP and both kits share the same J1 location and pin assignment.

B Enlarged 7-pin socket and pin numbers

1 = GND



7 = +3.3V

Pin 1 = GND (FB4-side ground), at the end nearest the “同向” marking. Pin 7 = +3.3V, at the end nearest the central black module. The marking is a location landmark only; pin assignments were checked against the PCB data.

This is the component-side view of the board socket. Left and right reverse on the solder side; a cable plug may also be viewed from the opposite direction. Identify the actual contacts by number rather than copying a cable-plug left/right view.

Assembly and checks

DMX NWP / Disconnect power before handling the internal harness

Check system grounding before installation; see the FG grounding and isolation bypass warning on page 6. Normal reception does not prove isolation.

7 Installation

1. Disconnect FB4 and DMX system power. Verify the NWP board and connector footprint match.
2. Fit the male connector at J2 and the female at J3. Align pad numbers and fully seat the pins before soldering.
3. Solder without bridges, cold joints or excessive connector heating. Check pin-to-pin continuity between the XLR ports and check the supply for shorts.
4. Secure the assembly to a suitable enclosure or panel so the mounting structure carries connector insertion forces.
5. Verify the J1 harness by pin number, then connect the FB4, DMX IN and THRU as required.

8 First power-up

Check supply polarity, soldering and insulation first. After power-up, confirm the supply, test FB4 reception with a known working DMX source, then test the next device through THRU. Follow the documentation for your FB4 mainboard for menus, firmware settings and harness requirements.

9 Troubleshooting

Symptom	Check
No DMX reception at FB4	Check the 3.3 V supply, J1 pin mapping, RO, DMX source, Data-/Data+ wiring and FB4 settings.
No signal after THRU	Check cables, XLR solder joints and continuity of pins 1, 2 and 3 between the ports.
Intermittent errors	Check cables, end termination and connector security. Avoid unplanned branches.
Power LED stays off	Disconnect power and check polarity and shorts, then verify the 3.3 V input and isolated supply.

10 Handling

This is a low-voltage DMX interface. The standard XLR version has no waterproof rating stated here. Keep the exposed PCB clear of metal, liquid and live conductors, and preserve insulation across the isolation area. The circuit is not a DMX transmitter, bidirectional interface or active splitter.

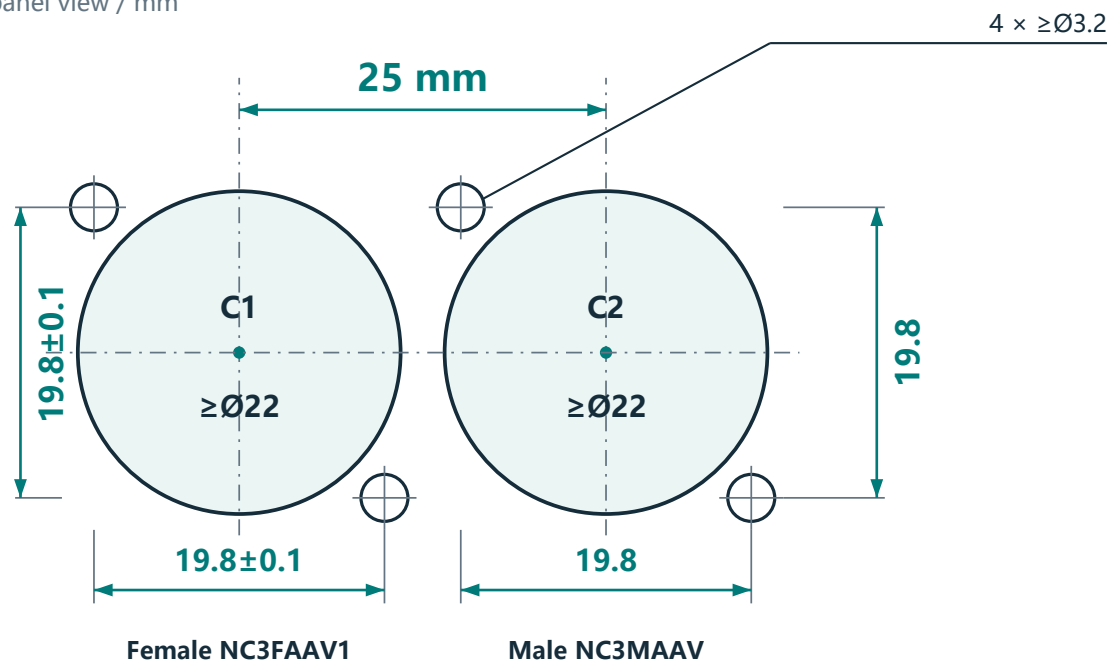
Board current, temperature range, cable length, node count and complete-board isolation withstand are not specified. Mechanical dimensions not shown in the panel cutout drawing are also unspecified. Use product validation data; component limits are not board operating ratings.

Standard XLR panel cutouts

DMX NWP / Front panel view / Dimensions in mm

The matching NC3FAAV1 female and NC3MAAV male use two separate round cutouts, with interface centres 25 mm apart. Each has an upper-left and a lower-right fixing hole: four in total.

NWP / Front panel view / mm



Schematic; not a 1:1 drilling template

Feature	Dimension (mm)
XLR interface centres C1-C2	25
Two separate main cutouts	$2 \times \geq \varnothing 22$
Four fixing holes	$4 \times \geq \varnothing 3.2$
Female NC3FAAV1: horizontal / vertical	19.8 ± 0.1 / 19.8 ± 0.1
Male NC3MAAV: horizontal / vertical	19.8 / 19.8

C1 is the origin; C2=(25,0). Nominal fixing coordinates relative to each interface centre: (-9.9,+9.9), (+9.9,-9.9) mm, Y up. 9.9=19.8/2; reference only.

Alignment and tolerances

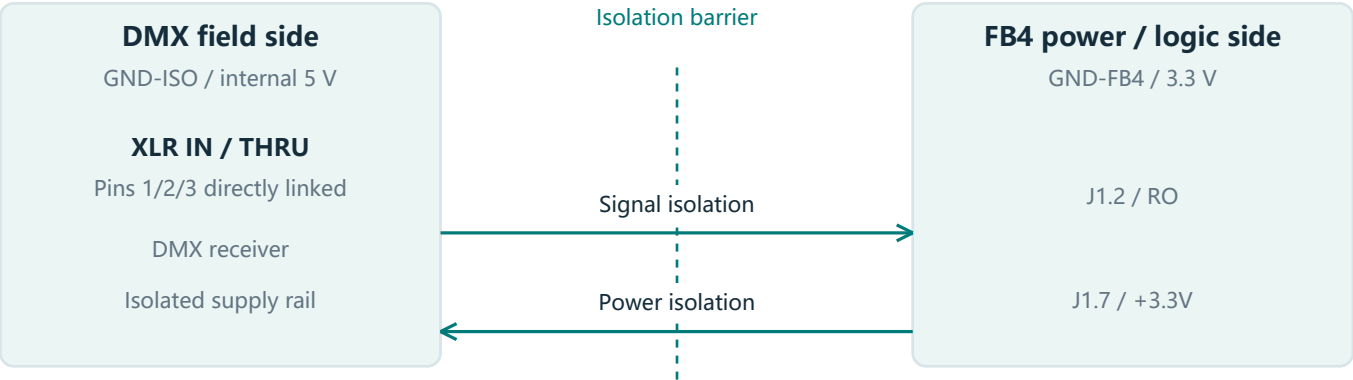
Align both connectors before soldering and check fit before installation. Female fixing pitches are marked ± 0.1 . Unmarked male tolerances follow its mechanical drawing, ISO 2768-m. The 25 mm dimension is interface spacing.

Fixing holes are shown from the front; the official rear-side cutouts are mirrored. This is not a 1:1 drilling template.

Isolation and ratings

DMX NWP / Isolated signal and power paths

Isolation separates the DMX receive field side from the FB4 power and logic side. IN and THRU pins are directly linked, pin for pin; these ports are neither isolated from each other nor actively repeated.



Isolation component specifications

Parameter	Value	Conditions
Signal isolator withstand	3.75 kVrms (3750 Vrms)	60 s
Isolated supply withstand	1500 VDC	Input-output; 60 s Leakage < 1 mA
Supply insulation resistance	≥ 1000 MΩ	Input-output; 500 VDC
Supply isolation capacitance	20 pF (typical)	Input-output; 100 kHz / 0.1 V

Scope of the specifications

Component values only. The 60 s values are short-duration withstand tests, not continuous working voltages. AC RMS (Vrms) and DC (VDC) differ; do not add these ratings. No tested complete-board withstand or working isolation voltage is specified. These values do not guarantee board/equipment withstand. Keep ground domains separate and preserve barrier insulation.

Grounding and isolation bypass risk

FG is chassis/frame ground; GND is the internal FB4-side ground; GND-ISO is the DMX-side ground (XLR pin 1). If local FG is bonded to GND and XLR pin 1 also reaches local FG through a connector shell or interconnected equipment and a common FG path, that external path bypasses isolation. DMX reception may still work, but the two sides are no longer galvanically isolated. Do not rely on the isolation barrier to block ground-loop currents or protect internal circuitry. Normal reception does not prove isolation.

Before installation, with power off and normal FG/PE bonds and system connections retained, check FG-GND, XLR pin 1-shell, and GND-ISO-GND continuity. Never disconnect protective earth (PE) to restore isolation.