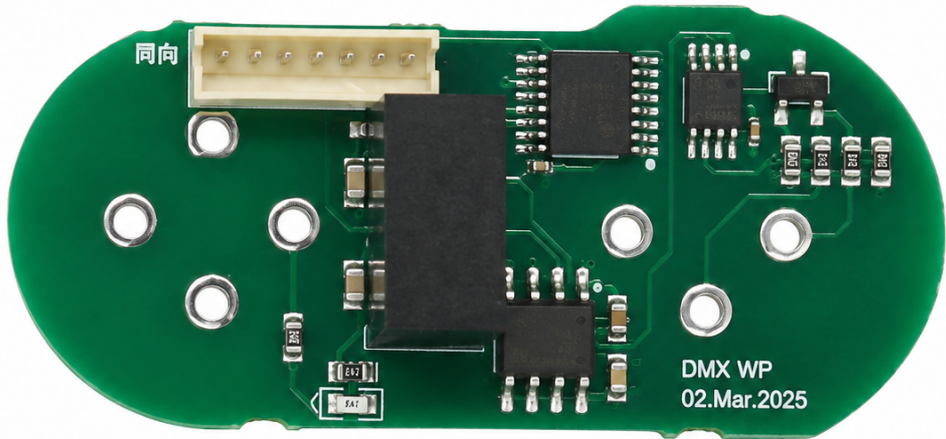


DMX WP

Installation and User Guide / Isolation: page 6

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This bare board is for compatible waterproof 3-pin XLR connectors. Electronic components and the internal 7-pin header are assembled; the two XLR connectors are not soldered.



Appearance reference only. Use the pin tables and the actual connector numbering for wiring; this picture is not a soldering pinout.

1 Key information

Item	Description
Purpose	Isolated DMX input interface for an FB4 mainboard
Power	Nominal 3.3 V DC through the 7-pin connector
DMX ports	Waterproof 3-pin XLR: male IN, female THRU
Signal path	Isolated reception and passive THRU; no regeneration
Termination	None onboard; external 120 ohm at the chain end

2 Variant and installation scope

WP pad holes accept thicker waterproof XLR pins; NWP pad holes accept thinner standard A-series XLR pins. Their circuits and interface pin assignments are the same. Hole diameters are not specified here; verify the connector layout and mechanical fit.

The kit has both XLR connectors soldered. It still needs a suitable enclosure, panel mounting and an FB4 internal harness. The bare board needs XLR assembly first. Check the accessories supplied with your order.

Interfaces and power

3 7-pin FB4 interface

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. The solder-side view is mirrored. Do not infer polarity from wire colours.

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

RO is a receive output in the 3.3 V logic domain. The mainboard must provide suitable pull-ups for SCL, SDA and INT. Follow your FB4 documentation for firmware and menu settings.

4 3-pin XLR interfaces

Male port = DMX IN from the upstream controller. Female port = DMX THRU to the next device. Both ports use the same assignment:

Pin	Signal
1	Signal common / shield
2	Data-
3	Data+

IN and THRU pins 1, 2 and 3 connect directly, pin for pin. Passive THRU requires no board power. Reception and RO output to FB4 require power. The board does not drive or actively repeat DMX.

5 Supply and line termination

Apply nominal 3.3 V DC to pin 7 and FB4 ground to pin 1. Do not apply 5 V, 12 V or 24 V. The internal isolated 5 V rail is for onboard circuits only, not an external supply output.

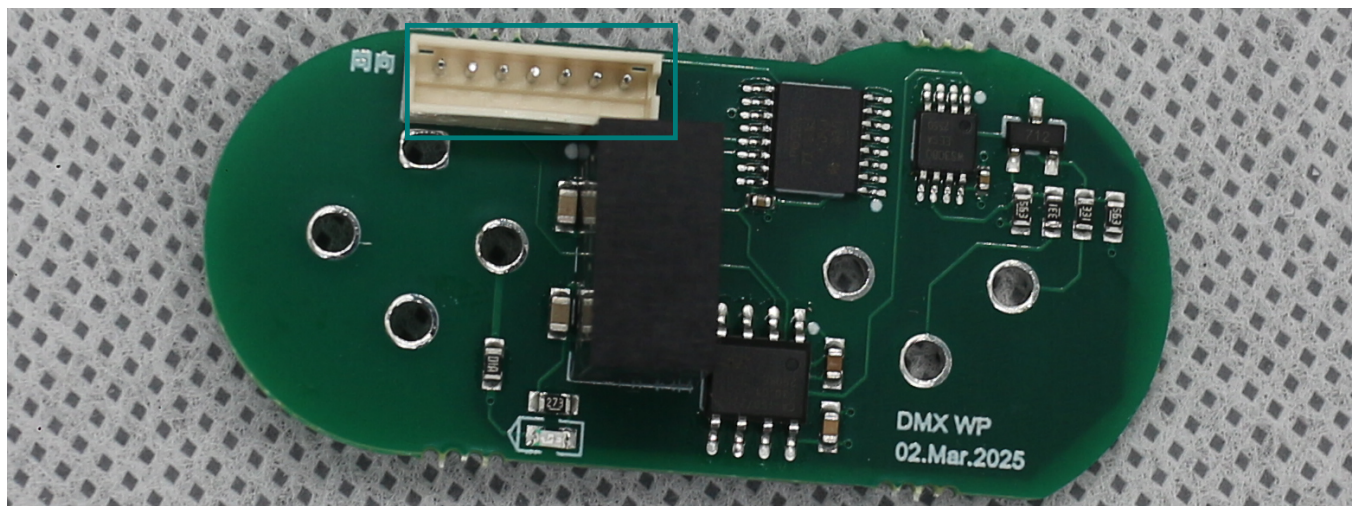
No termination resistor is fitted. Use DMX data cable in a daisy chain. At the last device, fit an external 120 ohm terminator between Data- and Data+, which are XLR pins 2 and 3 on this product.

7-pin connector orientation

DMX WP / 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.

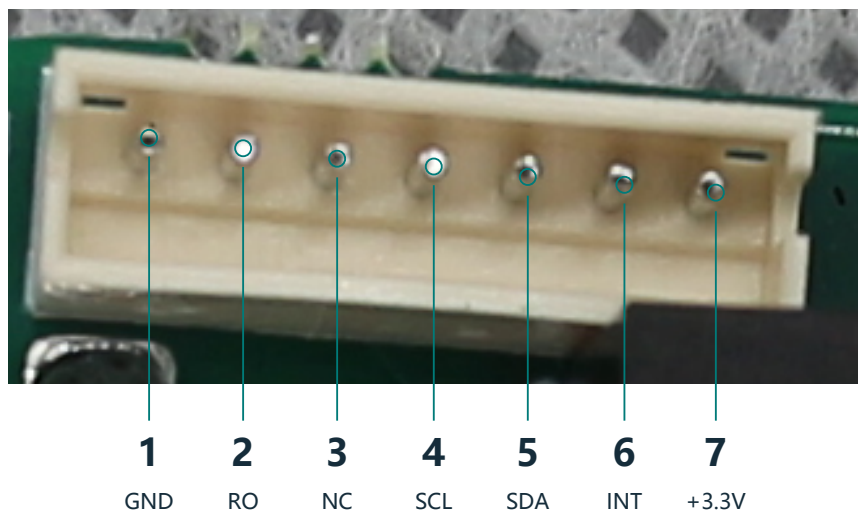
A Locate J1 on the board



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.

Installation and care

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

6 Assembly and first use

1. Disconnect FB4 and DMX system power. Check that the waterproof connector pins match the WP pads.
2. Fit the male connector for IN and the female for THRU. Align pin numbers and PCB pads; fully seat the connectors without tilt or interference.
3. Solder the pins, avoiding bridges, cold joints and overheating. Check pin-to-pin XLR continuity and check the supply for shorts.
4. Mount the assembly so the panel or enclosure carries insertion forces. Secure the internal harness without strain on the header.
5. Verify the 7-pin harness before connecting FB4, DMX IN and THRU.

Check polarity, soldering and insulation before power-up. Confirm the supply, test FB4 reception with a known working DMX source, then test the next device through THRU. The onboard LED indicates isolated-side power, not DMX activity.

7 Waterproof assembly and maintenance

Use the specified mating connector or cap according to the connector manufacturer. Keep seals clean, intact and correctly seated. Protect the PCB in a suitable enclosure and seal panel openings and cable entries. Keep exposed circuitry clear of moisture, metal and live conductors.

Inspect caps, seals, latches, panel fixings and cables regularly. Waterproof connectors alone do not establish an IP rating for the PCB or complete enclosure. No immersion capability or enclosure waterproof certification is stated here.

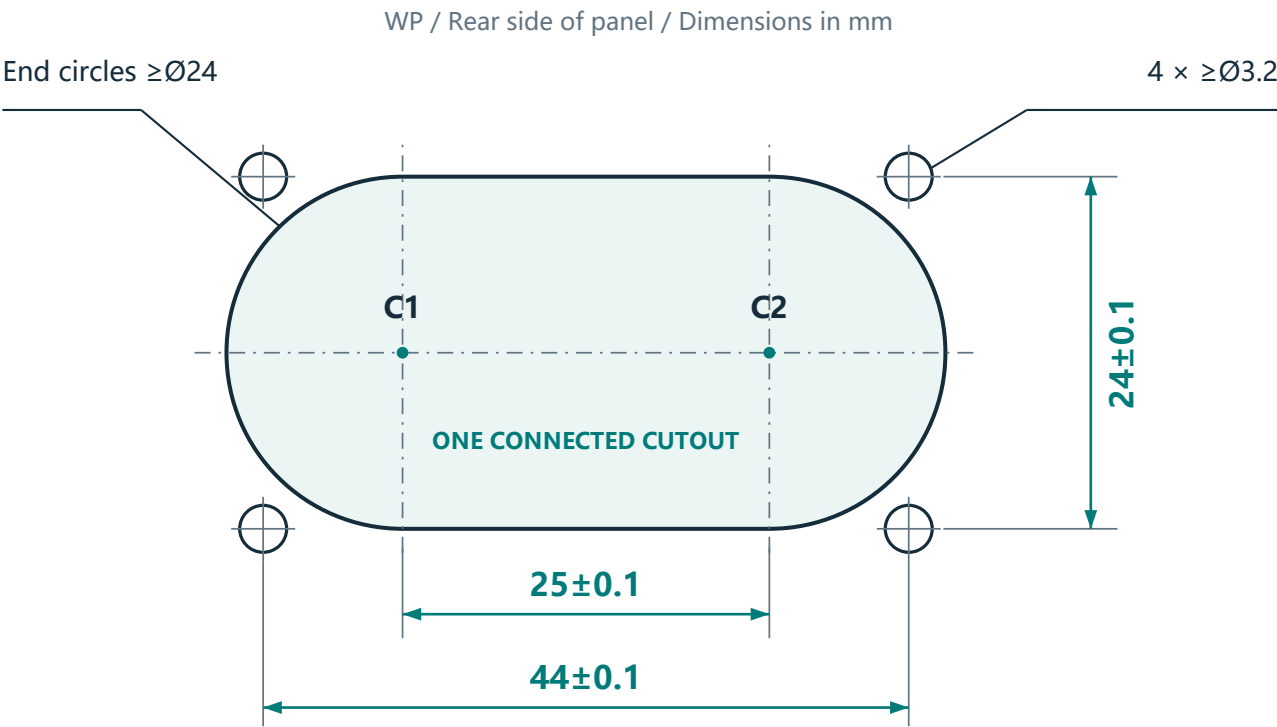
8 Troubleshooting

Symptom	Check
No reception at FB4	Check 3.3 V, the 7-pin harness, RO, the DMX source, Data-/Data+ and FB4 settings.
No signal after THRU	Check cables, solder joints and continuity of pins 1, 2 and 3 between the ports.
Intermittent errors	Check the end terminator, cables and secure connections. Avoid unplanned branches.

Waterproof panel cutout

DMX WP / Rear side of panel / Dimensions in mm

Join the opening between the two XLR interfaces into one capsule cutout so the soldered PCB assembly can pass through. C1 and C2 identify interface centres. The 25 mm dimension is interface spacing, not fixing-hole spacing.



Schematic; not a 1:1 drilling template

Feature	Dimension (mm)
XLR interface centres C1-C2	25 ± 0.1
Diameter of end circles	$\geq \text{Ø}24$
Four fixing holes	$4 \times \geq \text{Ø}3.2$
Fixing centres: horizontal / vertical	44 ± 0.1 / 24 ± 0.1
Reference overall length / height	49 REF / 24 REF

REF means reference: $49 = 25 + 24$; 24 is the opening height with $\text{Ø}24$ end circles. The diameter is a minimum. Do not assign an overall-length tolerance of 49 ± 0.1 from these values.

Fit and sealing

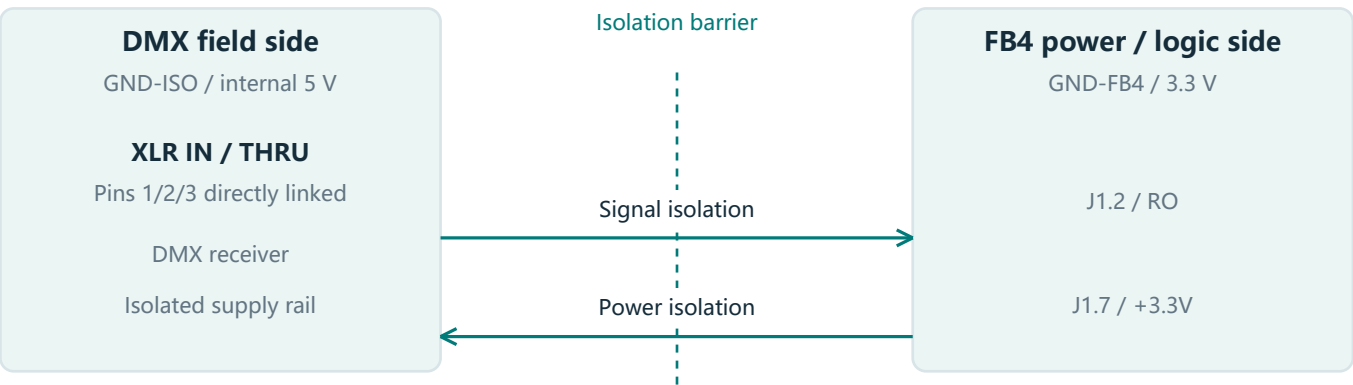
Keep the middle of the opening connected. Trial-fit the soldered assembly, then secure all four corners. The 24 ± 0.1 vertical fixing-centre spacing and the 24 reference opening height are different dimensions. Check fit, sealing and clearance with the matching seal.

Hole locations use the matching waterproof dual-XLR mechanical dimensions; the connected contour supports installation of this product as an assembly. This is not a 1:1 drilling template.

Isolation and ratings

DMX WP / 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.