DMX ENGINEERING LLC

DMX SuperMUX

INSTALLATION + CONFIGURATION + OPERATIONS GUIDE

Wired DMX merge, split and test

Project:	
Area / Unit:	
Contact:	

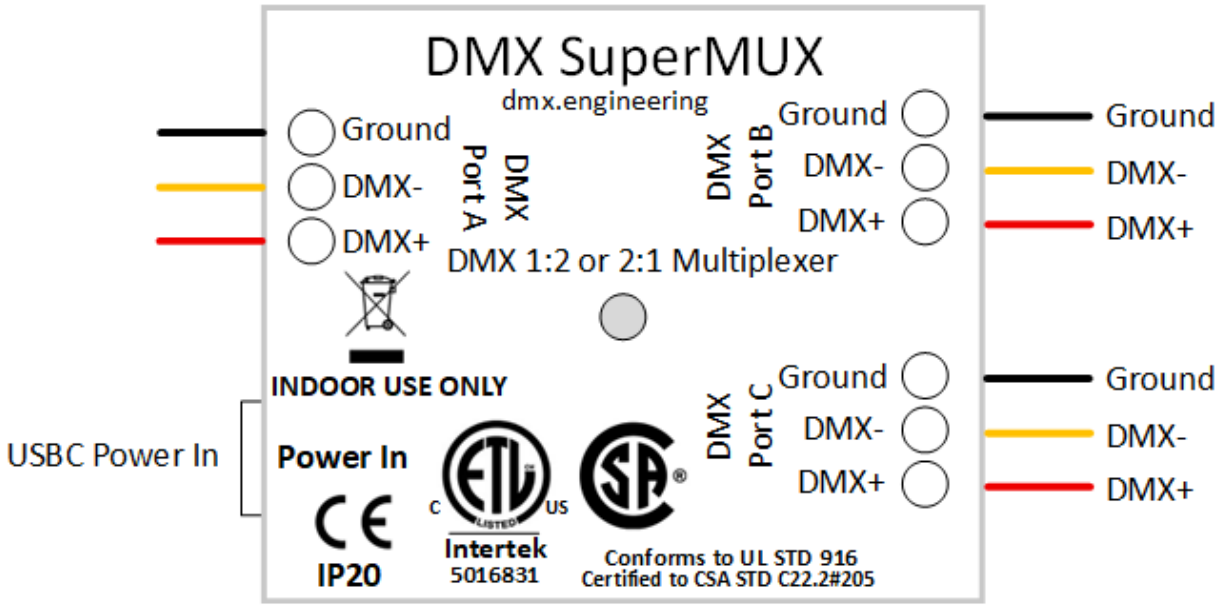


Figure 1. Current SuperMUX terminal label. The center circle is the status light pipe.

PRODUCT ROLE Combine B and C into A, split A to B and C, or generate a test signal on one selected port. Configure locally through the web interface or open that interface in the DMX Engineering app.

At a glance	Installation value
Power	Regulated 5 V USB-C
DMX	512 channels; non-isolated shared reference
Merge / Split	Six merge strategies and four split sub-modes
Test	Static, Chase, Fade and Random on A, B or C
Environment	Indoor dry location; IP20 marking

Guide contents

Guide contents 2
1 Installation 3
2 Center light and first connection 5
3 Navigation and applying changes 7
4 Merge strategies 8
5 Merge custom block assignment 10
6 Merge channel map 12
7 Merge monitor and diagnostics 15
8 Split Mirror and Quick Assign 18
9 Split Route and Custom Channel Map 21
10 Split output monitor 25
11 DMX test generator 27
12 DMX Wizard 29
13 Wi Fi settings 31
14 Other settings and About 34
15 Maintenance and persistence 39
16 Commissioning and troubleshooting 40
17 Installation record 41

Installers: begin with Sections 1–3. Choose the walkthrough for the required mode, then complete Section 16. Operators: use the illustrated steps and the adjacent control reference for the screen being used.

Screen examples show the SuperMUX web interface with illustrative values. Network names, passwords and channel levels are examples, not your installation settings. Cropped screen views are identified in their captions. No live device configuration was changed to make these illustrations.

1 Installation

1.1 Power and placement

Use regulated 5 V USB-C power. Install indoors in a dry protected location. IP20 does not provide water protection. Keep terminals accessible, provide cable strain relief and protect the unit from conductive debris. Disconnect power before changing field wiring.

The DMX ports are not galvanically isolated. Connect the reference conductor as well as both data conductors, and keep the connected equipment at a compatible common reference. Do not apply supply voltage to a DMX terminal.

Label	Connection
Ground	DMX common/reference; black in the supplied label illustration.
DMX−	Data negative; yellow in the illustration.
DMX+	Data positive; red in the illustration.
USB-C Power In	Regulated 5 V power. Does not replace the wired DMX ports.

1.2 Select the port directions

Merge: controller 1 → B; controller 2 → C; A → receiving chain. Split: controller → A; B and C → separate receiving chains. Test: the selected port drives the receiver; remove any external transmitter from that port.

Use DMX-rated twisted-pair cable and a reference conductor. Daisy-chain each output; do not create passive Y branches. Terminate the far end of each receiving chain as required. The reviewed Rev B board has fixed 120 Ω termination across each port and no software termination switch. Account for the fixed resistors and avoid unnecessary parallel terminators.

1.3 Inspect before power on

- Verify Ground, DMX− and DMX+ by terminal label, not cable color alone.
- Confirm no two transmitters drive the same line.
- Check shorts, loose strands, strain relief and power. Disconnect any service/programming dongle for normal operation.

Use the approved hardware specifications for wire size, tightening torque, dimensions and temperature limits.

1.4 Wire the correct input and outputs

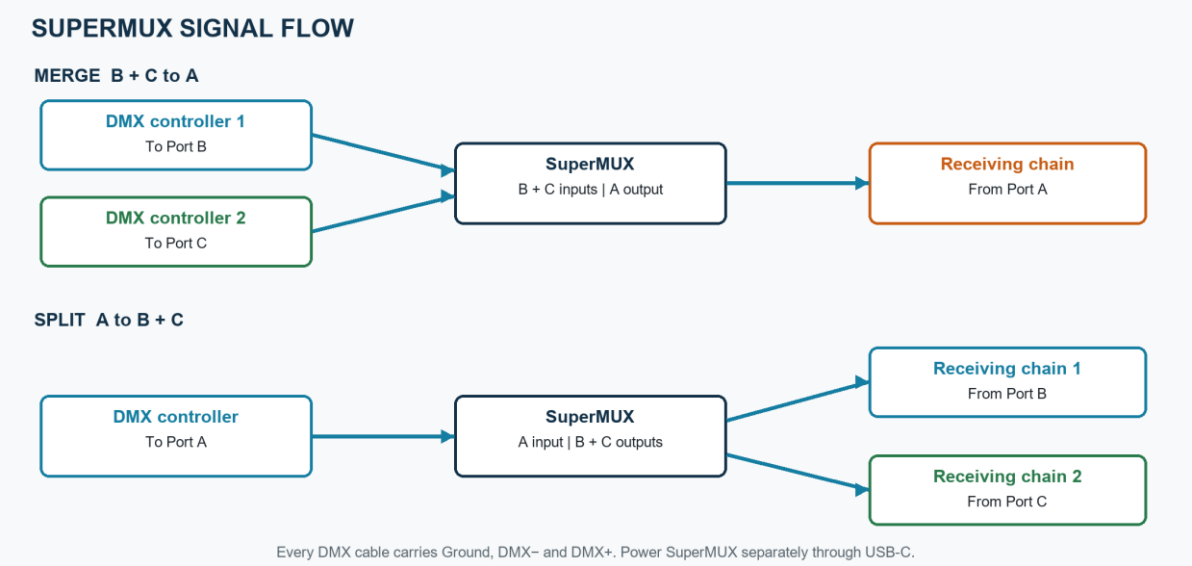


Figure 2. Signal direction in Merge and Split. Every line includes the DMX reference conductor.

1. **Choose the process.** Use the upper diagram for Merge or the lower diagram for Split.
2. **Remove power.** Disconnect USB-C and stop the connected sources while wiring.
3. **Land all three conductors.** Match Ground, DMX− and DMX+ to the label at each port.
4. **Check the receiving chains.** Follow the termination guidance in Section 1; never put two transmitters on one line.
5. **Apply power and connect.** Join the hotspot and confirm the same wiring choice on the first screen.

CHECK YOUR RESULT Merge output is A. Split input is A. A physical mode change requires a wiring check.

2 Center light and first connection

2.1 Center NeoPixel light pipe

The circular light pipe in the center of the label is the general status indicator. The separate blue board LEDs are disabled so they do not wash out this light. Browser channel displays show DMX values separately.

Indication	Meaning
Startup colors	White, blue, green and cyan startup sequence.
Blue and green alternating	Brief connection indication, approximately five seconds; temporarily overrides DMX status.
Solid red	No recent qualifying DMX activity: neither B nor C in Merge, no A input in Split, or no successful transmitted-frame activity in Test.
Off after startup	Normal indication while qualifying DMX activity is present. It does not stay green while DMX runs.

The activity timeout is approximately 1.5 seconds. Valid all-zero DMX counts as activity. A red light can coexist with an output stream carrying held values; it does not force blackout. The light is not a Wi-Fi status display or electrical DMX analyzer.

2.2 Direct hotspot connection

1. Power the unit. With no configured building network, join SuperMUX-xxxx. The suffix identifies the unit unless customized. The default password is 12345678. Stay connected if the phone or computer reports no internet.

2. Open http://192.168.4.1. Select the actual physical wiring: Merge for B + C inputs and A output, or Split for A input and B + C outputs.

3. Choose Use DMX Wizard or Go to controls. Confirm the intended unit and firmware version before changing configuration.

2.3 Building network connection

Connect the browser device to the same reachable network and open the station IP shown in Settings. http://dmxsm.local may work where local-name discovery is supported. Prefer the individual IP when several units are present or name resolution fails. 192.168.4.1 is the hotspot address, not the building-network address.

2.4 First connection walkthrough

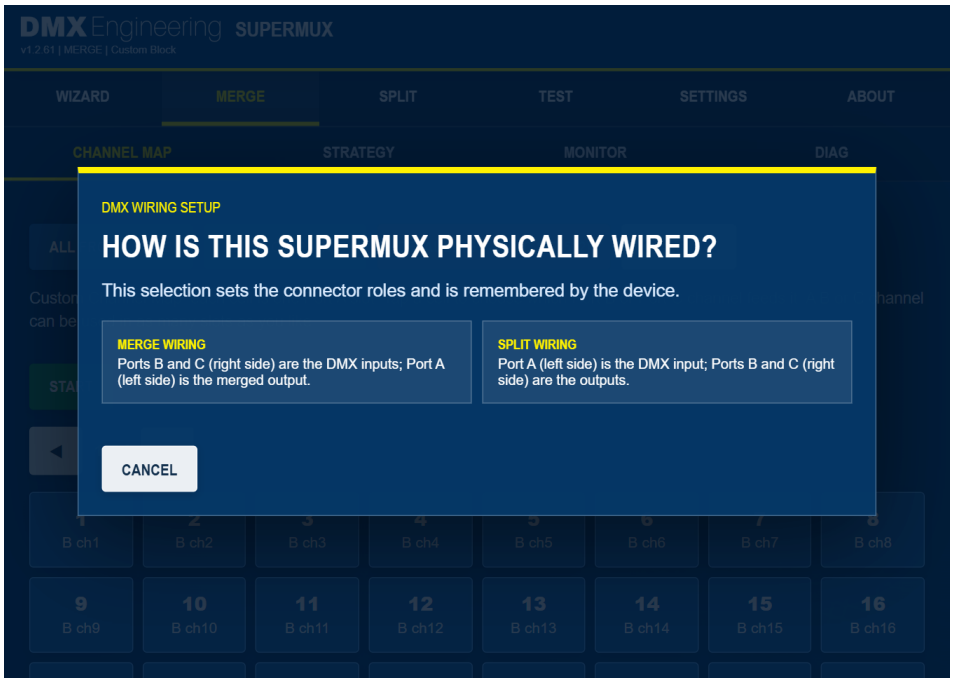


Figure 3. First-connection wiring question. Choose the actual cable arrangement.

1. **Join the hotspot.** In the phone/computer Wi-Fi list, select SuperMUX-xxxx. Enter the configured password; the default is 12345678.
2. **Stay connected.** A no-internet warning is expected on the hotspot. Keep this Wi-Fi connection.
3. **Open the page.** Enter http://192.168.4.1 in the browser address bar.
4. **Choose the wiring.** Select MERGE WIRING for B/C inputs or SPLIT WIRING for A input. The choice activates that wiring mode.
5. **Continue setup.** Choose Wizard or normal controls, then configure and START the intended process.

CHECK YOUR RESULT The displayed running mode matches the cables. Your browser is connected locally; internet access is not required.

3 Navigation and applying changes

Screen	Purpose
WIZARD	Guided shortcuts for merge, split, test and monitoring.
MERGE	Channel Map, Strategy, Monitor and Diag tabs.
SPLIT	Routing and Output Monitor views.
TEST	Generator controls and live selected-port output.
SETTINGS	Favorites name, Wi-Fi, Wizard preferences, frame rate and reset.
ABOUT	Product information, hotspot password and support.

3.1 START

Opening MERGE, SPLIT or TEST previews the page; it does not by itself activate that process. Select the strategy or pattern and press START. START applies the process and requests a nonvolatile save. Require “Started and saved.” If it says “Started, but saving failed,” the live process may have changed without a confirmed saved configuration.

When changing between Merge and Split, read the wiring confirmation, rewire as needed and then accept. Cancel leaves the change unapplied. Changing the physical wiring selection in Settings also activates it; it is not merely a label.

3.2 Live routing controls

Assign, Apply, Clear and map-edit controls send routing changes immediately and can affect a running custom process before START. After finishing, START the intended mode and strategy to save it. Treat these as live controls during a show.

Test port, pattern, level, range and speed edits are pending until START. There is no global SAVE button and no user Save Preset or Load Preset library. Wizard shortcuts can activate modes immediately; see section 12.

3.3 Power cycles and reconnection

Normal power-off/on is not a factory reset. Successfully saved configuration should survive. Verify with a commissioning power-cycle test. Full flash erase, incompatible flash layout or Reset Device can remove settings.

Opening or refreshing the current web interface does not change the running process. Check the header and running-strategy message before editing. Pausing a monitor affects only its display, never DMX transmission.

4 Merge strategies

Merge takes DMX at Ports B and C and produces Port A. Open MERGE → Strategy, choose a strategy and press START. The running-strategy message distinguishes the active choice from a pending selection.

Strategy	How Port A is produced
Custom Block	Copies consecutive source channels into assigned destination blocks. Uses the same map as Channel Map.
Custom Channel Map	Each A slot uses a chosen B or C channel, or outputs zero. Supports nonconsecutive assignments and repeated sources.
Port B Priority	A follows B while B has valid DMX. If B is lost and C is present, A follows C.
Port C Priority	A follows C while C has valid DMX. If C is lost and B is present, A follows B.
HTP	Highest Takes Priority: each A value is the higher of the same-numbered B and C values.
LTP	Latest Takes Precedence: each channel follows the input that most recently changed that channel's value.

4.1 Whole universe strategies

B Priority, C Priority, HTP and LTP use all 512 same-numbered channels and ignore the custom map. B 20 = 80 and C 20 = 180 produces A 20 = 180 under HTP; B Priority produces 80 while B remains present, even if C is brighter.

LTP responds to a value change, not simply another received frame. A later change to zero can take control from an earlier 255. If changes are observed with the same timestamp, the implementation favors B. With one input active, these strategies follow that input after loss detection.

4.2 Input loss

Allow roughly a few seconds for signal flags and priority failover to settle. Valid all-zero DMX is a present input and does not trigger failover. If both inputs stop, output can retain the last values. Custom maps retain each chosen source's last received values and do not automatically substitute the other port. Removing a cable or losing Wi-Fi is not a blackout command.

4.3 Custom workflows

Use Custom Block for consecutive ranges, or Custom Channel Map for individual assignments. Both edit the same underlying map. They are not separate layers. OPEN CHANNEL MAP TABLE opens the individual-slot editor. Select one workflow and review the final map before saving.

4.4 Select and start a merge strategy

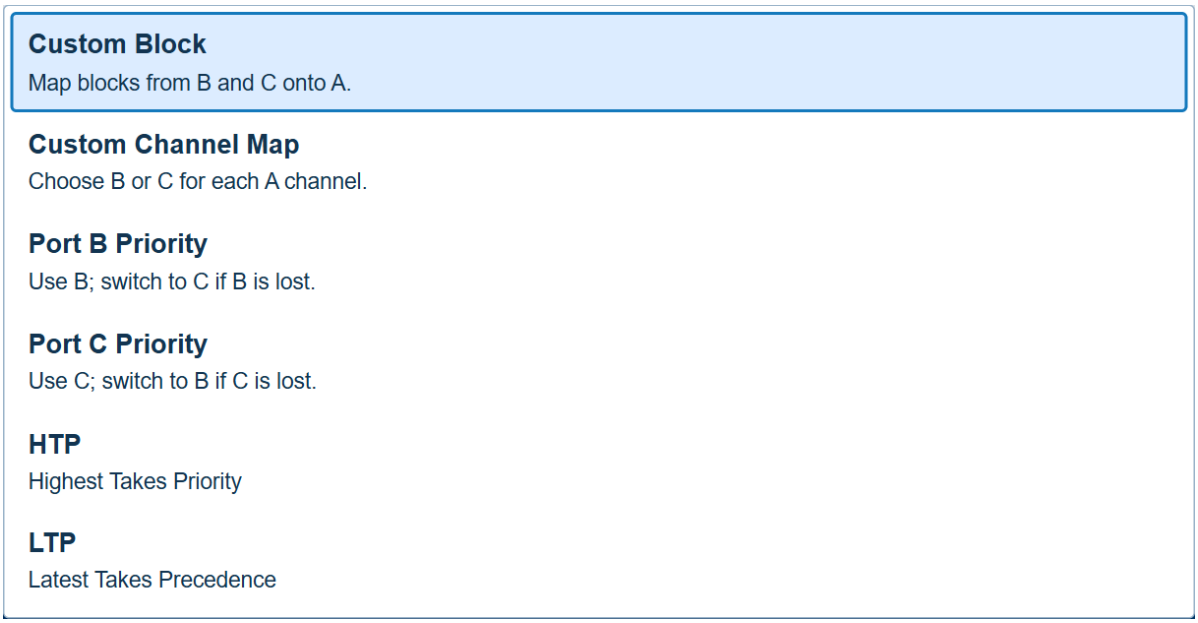


Figure 4. Expanded Merge Strategy selector. All six choices are shown.

1. **Open MERGE then Strategy.** Confirm B and C are inputs and A is the output.
2. **Open the strategy selector.** Choose the required strategy; the description explains how it builds A.
3. **Set any custom assignments.** For Custom Block or Custom Channel Map, use the relevant walkthrough next.
4. **Press START.** Accept a wiring confirmation only when the wiring is correct. Wait for Started and saved.
5. **Prove the response.** Use different B/C levels. For HTP, the higher value wins; for LTP, change one input channel at a time.

CHECK YOUR RESULT The running-strategy message names the selection and the physical receiver follows the expected rule.

5 Merge custom block assignment

Open MERGE → Strategy → Custom Block. The allocation bar summarizes A slots owned by B, C or neither. Each input has a Current summary and three fields.

Field or control	Operation
Port B or C Start Address	First source channel to read, 1–512.
Port A Offset Address	First destination slot on A, 1–512.
Channel Count	Consecutive channels. Source start + count − 1 and destination start + count − 1 must each be ≤ 512.
ASSIGN PORT B BLOCK	Replaces B's assignments with the entered block; preserves C assignments.
ASSIGN PORT C BLOCK	Replaces C's assignments with the entered block; preserves B assignments.
APPLY BOTH BLOCKS	Validates and applies both entered blocks together. Use when moving the boundary between ports.
CLEAR PORT B BLOCK or C BLOCK	Removes that source's assignments; affected A slots output zero in a custom strategy.
CLEAR BOTH BLOCKS	Clears both sources. All A slots output zero in a custom strategy.

5.1 Worked examples

For B 1–511 plus C 1 in the last slot: enter B Start 1, A Offset 1, Count 511; C Start 1, A Offset 512, Count 1. APPLY BOTH BLOCKS, verify the summaries, then START. A 1–511 must follow B 1–511; A 512 must follow C 1.

For B 101–120 at A 1–20: enter B Start 101, A Offset 1, Count 20. B 101 becomes A 1, B 102 becomes A 2, and so on. Values are copied without scaling.

5.2 Overlap and fragmented maps

Two sources cannot own the same A slot. Adjust offsets/counts, APPLY BOTH BLOCKS for a coordinated move, or CLEAR BOTH BLOCKS and rebuild. Power cycling does not remove a saved assignment.

The summaries come from the channel map. Individual cell edits can fragment a source's block. Review Channel Map before assigning that source again, because replacing a block can replace its individual assignments. After clearing, START the custom strategy to save the zero assignments.

5.3 Assign two blocks step by step

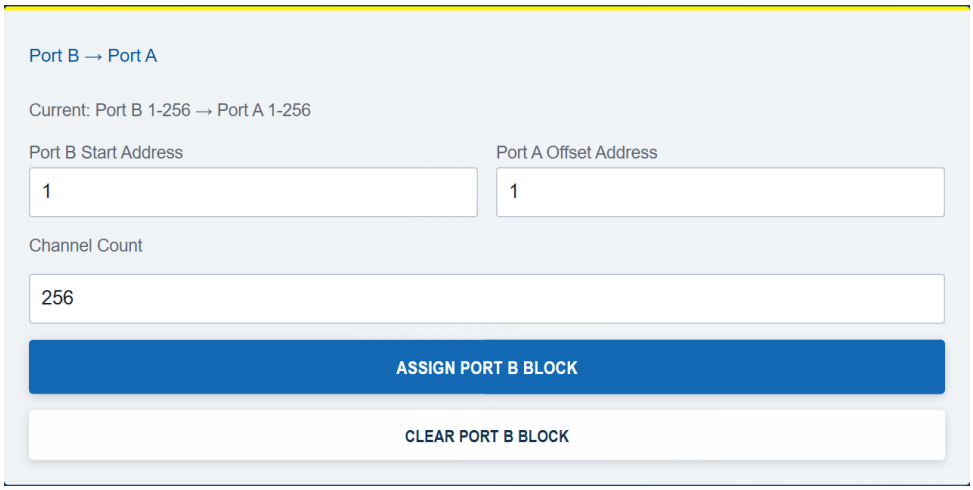


Figure 5. Port B block editor. Default example: B 1–256 to A 1–256.

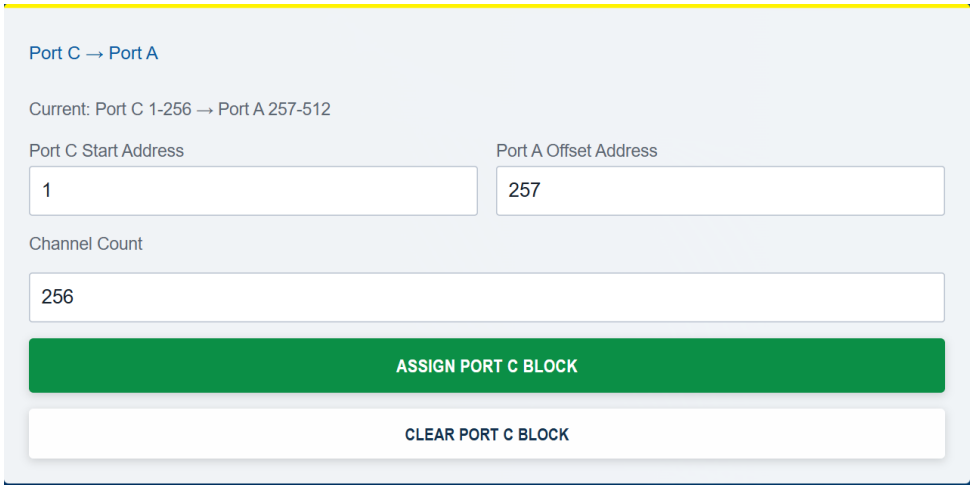


Figure 6. Port C block editor. Default example: C 1–256 to A 257–512.

1. **Enter the B range.** Set Start, A Offset and Count in the upper panel.
2. **Enter the C range.** Set the lower panel without overlapping the B destination.
3. **Apply both together.** Scroll below the panels and press APPLY BOTH BLOCKS. Check both Current summaries.
4. **Start and save.** Press START above the block section; require the saved confirmation.
5. **Verify boundaries.** Move the source levels and check the first/last slot of both blocks.

CLEARING CLEAR BOTH BLOCKS is below APPLY BOTH BLOCKS. It removes all A assignments. In a custom strategy, A sends zero; press START to retain the cleared map.

6 Merge channel map

MERGE → Channel Map shows destination A slots. The top number is the output address. The assignment names B or C and its source channel, or OFF. Use the arrows to move through all 512 slots.

6.1 Individual slot dialog

Click a cell. In “Port A slot,” choose Take from Port B, Port C, or Nothing (output 0), and enter source channel 1–512. Apply sends the assignment. Set to 0 disables that destination. Cancel closes without applying.

One source may feed several destinations: A 1 and A 201 can both follow B 25. This duplicates a received value without creating another physical input.

Bulk control	Result
All from Port B	All A slots take the same-numbered B channels.
All from Port C	All A slots take the same-numbered C channels.
Default B 1–256 C 257–512	B 1–256 feeds A 1–256; C 1–256 feeds A 257–512.
Clear All	Every A destination becomes OFF. All output values become zero while a custom strategy runs.
START	Starts the selected Merge strategy and saves the current configuration.

6.2 Interaction with blocks and strategies

The map remains editable in Custom Block. A cell edit changes the same data used by the block controls, so it can alter or fragment an assigned block. There is no automatic lock or separate override layer.

The Channel Map tab is shown for custom strategies and hidden for whole-universe HTP, LTP and Port Priority, which ignore it. Clear All does not mute those strategies. For a custom-map blackout, select a custom strategy, clear the map and START. OFF does not stop the transmitter; it sends zeros in those slots.

6.3 Verify the finished map

Check the first, last and boundary address of every range, then move source values and inspect Monitor. START and require the saved confirmation. Save Preset and Load Preset are intentionally absent; keep reusable configurations in an external commissioning record.

6.4 Find the output slot to edit

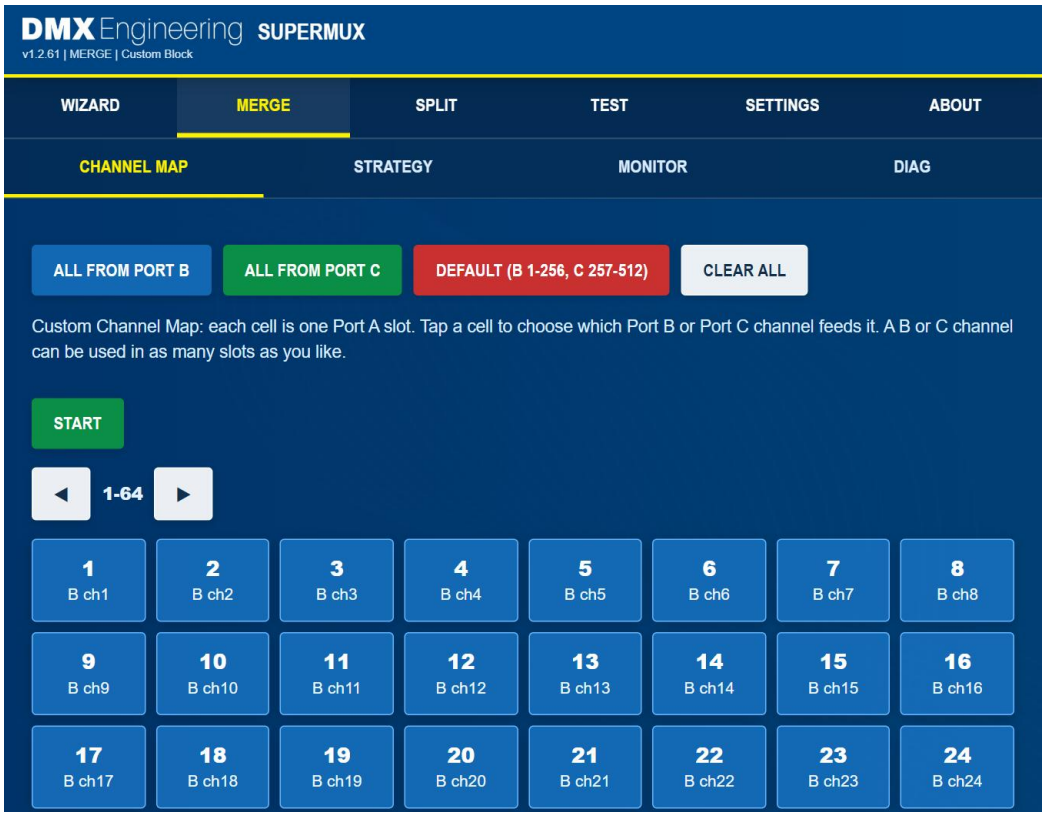


Figure 7. Merge Channel Map, upper rows. Use the arrows to reach all 512 output slots.

1. **Choose a custom strategy.** The map tab is available for Custom Block and Custom Channel Map.
2. **Open Channel Map.** Read the top number as the destination slot on A, not the source address.
3. **Use the page arrows.** Find the required output address. Each cell shows its current B/C source or OFF.
4. **Select the cell.** Click it to open the assignment dialog shown on the next page.

CHECK YOUR RESULT You are editing one specific A output slot. Bulk controls at the top affect all 512 slots.

6.5 Apply an individual source channel

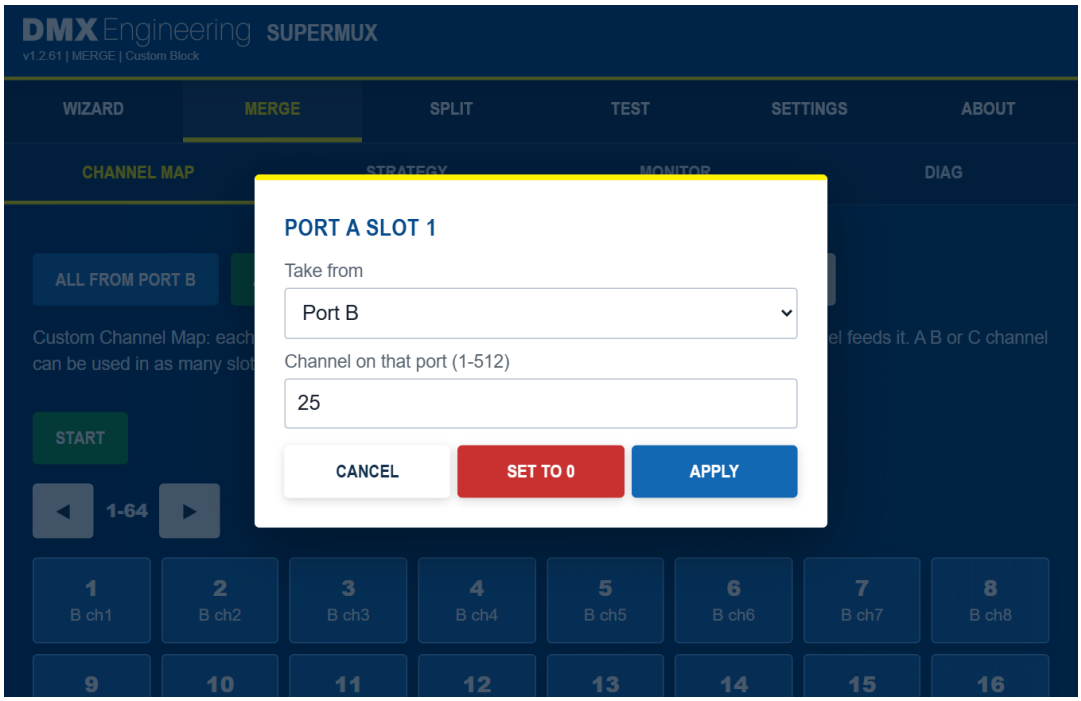


Figure 8. Example assignment: A slot 1 takes B channel 25.

1. **Select Take from.** Choose Port B, Port C or Nothing.
2. **Enter the source address.** In this example, enter 25 to feed A 1 from B 25.
3. **Press Apply.** This sends the map change immediately. Cancel closes without applying; Set to 0 disables that slot.
4. **Check the map.** The A 1 cell should read B ch25. Move B 25 and check A 1 in Monitor and on a receiver.
5. **Press START.** Save the finished custom process. Repeat for other destinations as needed.

CHECK YOUR RESULT A 1 follows B 25, while unedited destinations retain their assignments.

7 Merge monitor and diagnostics

7.1 Monitor

MERGE → Monitor displays Port A's transmitted software values. Page arrows move through the channels. Live starts periodic refresh; Stop freezes the display only. It does not stop merging or DMX.

Read the address separately from its 0–255 value. Custom-mode colors identify sources, with an unchanged-value indication able to override that color. Port A/B/C FPS reports frame activity. B/C Quality is a software score based on signal presence and receiver errors/drops, not a physical signal-amplitude measurement. A constant scene may legitimately appear unchanged.

7.2 Diag

MERGE → Diag is a diagnostic snapshot. Press Refresh for a new sample. IN1 means physical B and IN2 means physical C in Merge.

Readout	Interpretation
Stuck Channels	Values unchanged for the monitoring interval; a steady scene may legitimately appear stuck.
IN1 or IN2 FPS	Measured incoming frame activity, not the output rate setting.
IN1 or IN2 Signal	ACTIVE or LOST according to the receiver timer.
IN1 or IN2 Errors	Receiver error counters. Compare snapshots to detect a rising count.
IN1 or IN2 Drops	Receiver drop counters; investigate continued increases.
IN1 or IN2 Jitter	Average and minimum–maximum receive interval in milliseconds.
First 16 channel comparison	Two input values and their difference for each of the first 16 channels.

Display note: the comparison heading says Port B vs Port C, but its small value labels still say A and B. In this comparison only, the first value is physical Port B and the second is physical Port C. The first value is not merged Port A output.

7.3 Limits of browser monitoring

Samples arrive slower than DMX frames, so brief changes may be missed. These screens do not measure polarity or electrical levels at the connector. Use a physical receiver for acceptance testing. If the browser freezes while the receiver still follows changes, resume Live or reconnect before diagnosing the DMX engine.

7.4 Read the live merge output

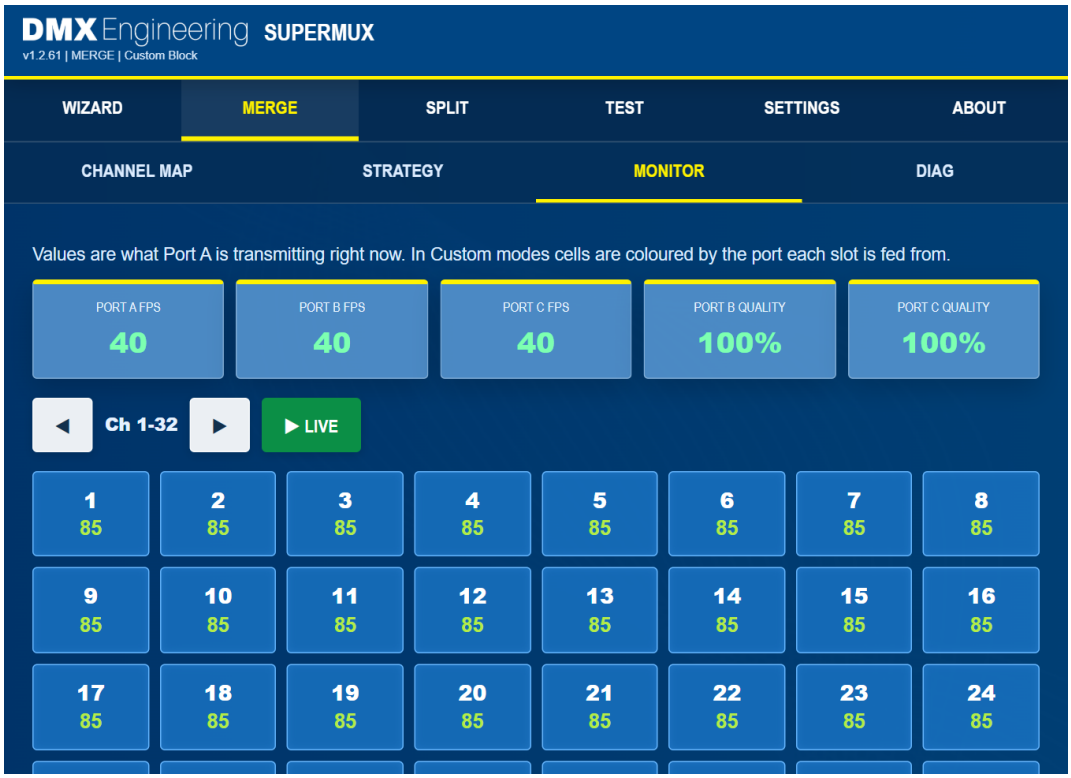


Figure 9. Merge Monitor showing example output values. Only the upper rows are pictured.

1. **Open MERGE then Monitor.** Check the port FPS and B/C Quality indications.
2. **Press Live.** The button changes to Stop while periodic updates run.
3. **Choose the channel page.** Use arrows to reach the destination address being tested.
4. **Move a known source.** Compare the displayed value with the strategy's expected result and the physical receiver.
5. **Freeze only when needed.** Stop pauses the browser sample; DMX continues. Resume Live before comparing moving levels.

CHECK YOUR RESULT The channel value follows the configured process. A paused screen is not a stopped output.

7.5 Check input diagnostics

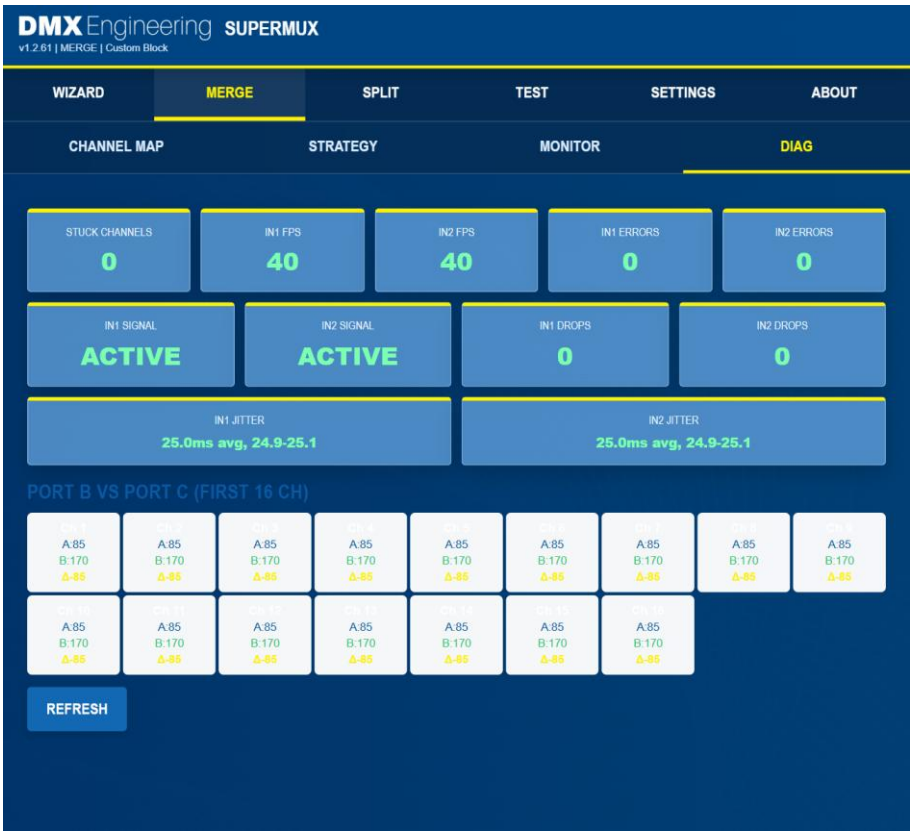


Figure 10. Diagnostics snapshot. IN1 is physical B; IN2 is physical C.

1. **Open Diag.** Press Refresh to take a new snapshot.
2. **Check signal and rate.** Both test sources should show ACTIVE and a plausible FPS.
3. **Compare counters.** Refresh again. Increasing Errors or Drops needs investigation; a single cumulative number is not a trend.
4. **Read the first 16 channels.** The small A/B labels in this display mean the first/second input, physically B/C.
5. **Check steady scenes carefully.** Stuck Channels is an unchanged-value indicator, not proof of a fault.

CHECK YOUR RESULT Use these readings to locate the affected input, then verify with the physical DMX receiver.

8 Split Mirror and Quick Assign

Split uses A as input and B/C as outputs. Open SPLIT → Routing, select the Split Sub-Mode and START to activate/save it. Remove any source transmitter from B and C.

8.1 Mirror

Mirror sends every A channel to the same address on both outputs. A 1 becomes B 1 and C 1; A 512 becomes B 512 and C 512. Use it for two receiver chains needing an identical universe.

8.2 Quick Assign

Quick Assign creates multiple consecutive ranges. Choose the output, source start, length and destination offset. ASSIGN RANGE adds the entry after validation. The list displays each source and destination span.

Control or rule	Behavior
Destination Output	Physical output B or C.
Port A Start Address	First source address, 1–512.
Length	Number of consecutive channels. Both source and destination must end at or below 512.
Destination Port Offset Address	First destination channel on that output.
ASSIGN RANGE	Adds a validated range as a live routing change.
Remove	Deletes the selected listed range.
Clear All Ranges	Removes all ranges. Unassigned channels output zero.
Overlap and capacity	No overlapping destinations on the same output. Source reuse is allowed. Up to 32 groups.

8.3 Worked example

For A 101–120 at B 1–20: select B, Start 101, Length 20, Offset 1, then ASSIGN RANGE. To duplicate it at C 201–220: select C, Start 101, Length 20, Offset 201 and ASSIGN RANGE. Select Quick Assign and START; confirm both groups in Output Monitor.

A rejected range does not establish the requested route. Review the list after each change. If A stops transmitting, the current routing can continue to output held input values; the center light turns red after its activity timeout.

8.5 Start a mirrored split

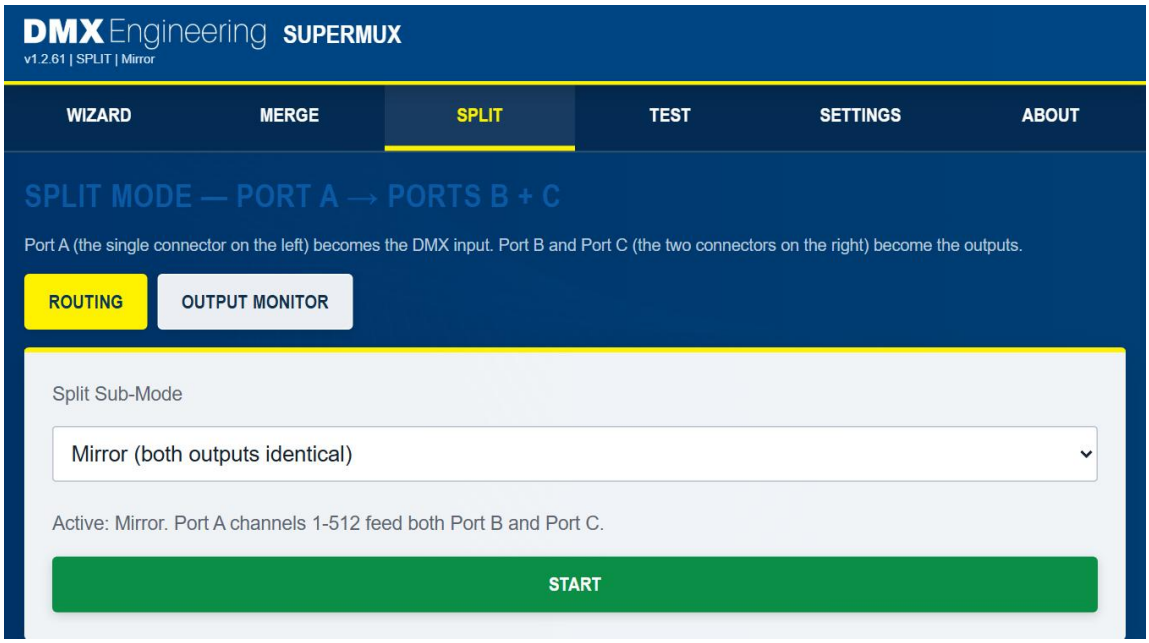


Figure 11. Split Routing with Mirror selected.

1. **Check the cables.** A receives the controller. B and C connect to separate receiver chains.
2. **Open SPLIT then Routing.** Choose Mirror in Split Sub-Mode.
3. **Press START.** Confirm a wiring change if requested and wait for the saved message.
4. **Change an A channel.** The same address on both B and C should follow. Test channel 512 as well.

CHECK YOUR RESULT Both outputs carry identical 512-channel copies of A.

8.6 Add a range with an address offset

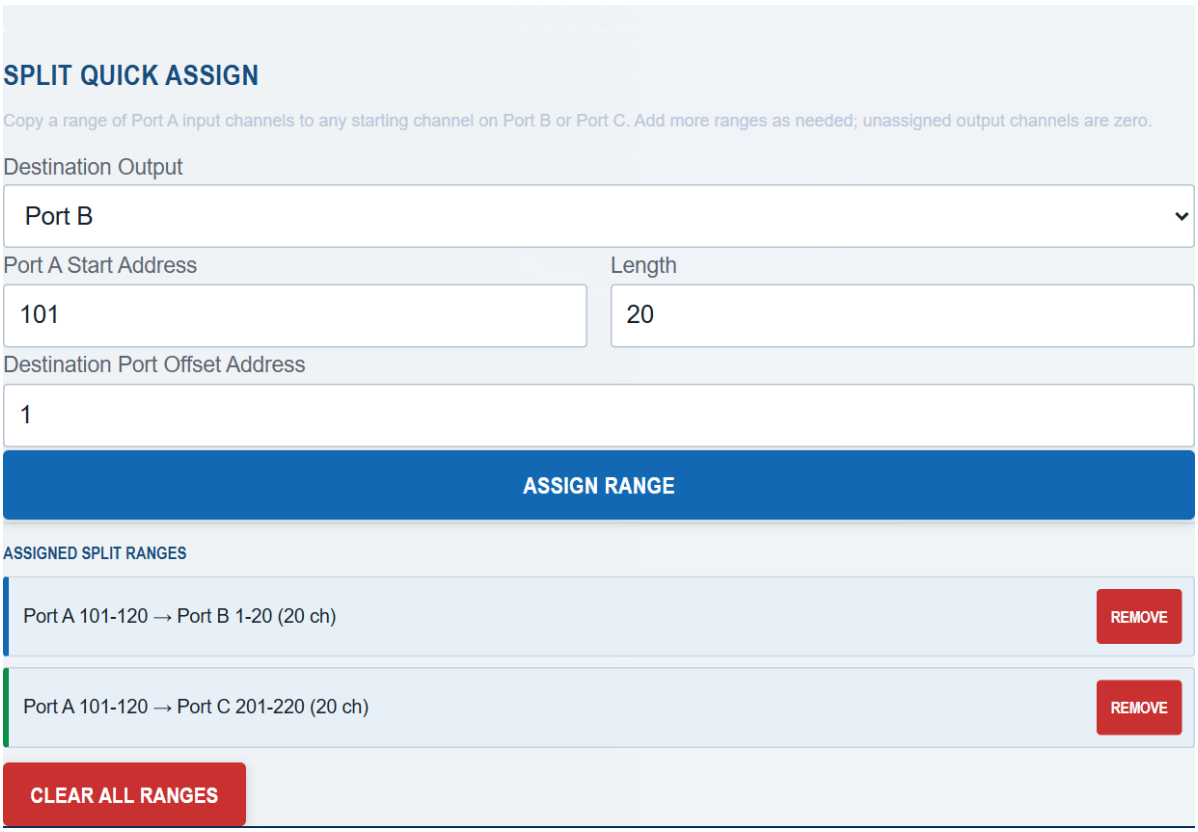


Figure 12. Quick Assign editor and example range list, cropped to the control panel.

1. **Choose Quick Assign.** Select the destination output B.
2. **Enter the range.** A Start 101, Length 20 and Destination Offset 1 copies A 101–120 to B 1–20.
3. **Press ASSIGN RANGE.** Check the new range in Assigned Split Ranges.
4. **Add the second output.** For the duplicate shown, choose C, A Start 101, Length 20 and Offset 201; assign it.
5. **START and verify.** Save the sub-mode. Check both destination ranges. Use Remove for one range or Clear All Ranges for the entire list.

CHECK YOUR RESULT B 1–20 and C 201–220 follow A 101–120. Unassigned destinations are zero.

9 Split Route and Custom Channel Map

9.1 Route per channel output assignment

Route keeps the channel address unchanged and selects the output receiving each A channel. Use page arrows for all 512 addresses. Refresh Map reloads assignments from the device.

Click a cell to cycle OUT B → OUT C → BOTH → OFF. OUT B sends A channel n to B channel n and zero to C channel n. OUT C reverses this. BOTH copies to both outputs; OFF makes the channel zero on both.

Bulk control	All 512 assignments
All → Port B	Send only to B; cells show OUT B.
All → Port C	Send only to C; cells show OUT C.
All → Both	Copy to both ports; cells show BOTH.
All Off	Zero both outputs; cells show OFF.

These controls change routing when confirmed. Select Route and START to activate/save the intended process. There are no Save Preset or Load Preset controls.

9.2 Custom Channel Map

Select Editing Port B or Editing Port C. Each cell represents an output destination and displays its A source address. Click a cell, enter Take from Port A channel 1–512, then Apply. Cancel leaves it unchanged. Use arrows to reach other destinations.

Reset this port to 1-to-1 restores only the selected output. It does not reset the other port. For example, B output 10 and C output 200 may both take A 300, duplicating that source value.

The custom-map dialog has no OFF source. Use Route for same-address B/C/Off selection or Quick Assign for ranges with unused destinations at zero. Only the active sub-mode determines the transmitted values; stored mappings for another sub-mode are not additional routing layers.

9.4 Route channels to B or C



Figure 13. Per-channel routing panel, including bulk controls and all cells on the current page.

1. **Choose Route.** Open SPLIT → Routing and select Route in the sub-mode list.
2. **Set a starting point.** Use All → Both, All → Port B, All → Port C or All Off as appropriate; confirm the bulk change.
3. **Edit individual cells.** Click to cycle OUT B, OUT C, BOTH and OFF. The address stays the same.
4. **Review and save.** Use page arrows and Refresh Map to check the device. Press START after the routing is correct.
5. **Check both receivers.** A channel assigned OUT B must be zero at the corresponding C destination.

CHECK YOUR RESULT Labels describe the physical outputs: OUT B is B and OUT C is C.

9.5 Remap one Split output address



Figure 14. Custom Channel Map panel. The selected tab chooses the output being edited.

1. **Choose Custom Channel Map.** Open the Split sub-mode selector.
2. **Choose the output.** Press Editing Port B or Editing Port C before selecting a destination cell.
3. **Select an output channel.** Use the arrows to reach it, then click the cell.
4. **Choose its A source.** Enter 1–512 in the dialog and Apply. The next page shows an example.
5. **START and verify.** Save and test the assigned source. Reset this port to 1-to-1 affects only the selected output.

CHECK YOUR RESULT The cell number is the output address; its A number is the input address feeding it.

9.6 Example A 300 to B output 10

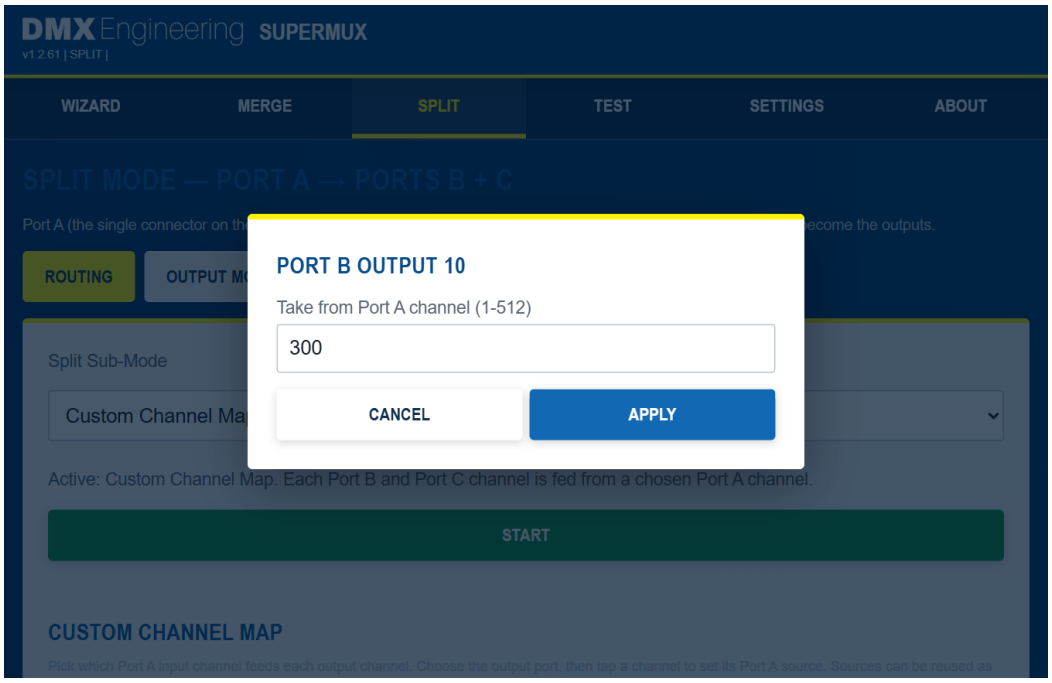


Figure 15. Split map dialog with B output 10 assigned to A channel 300.

1. **Read the title.** Confirm Port B output 10 before changing the source.
2. **Enter 300.** This is the channel to read on A, not the destination channel.
3. **Press Apply.** The route changes on the unit. Cancel leaves the old route.
4. **Test and save.** Move A 300, confirm B 10 follows, then START the Custom Channel Map process.

CHECK YOUR RESULT B 10 follows A 300. The same A source may be used at multiple B/C destinations.

10 Split output monitor

SPLIT → Output Monitor shows all 512 transmitted values for B and all 512 for C. Panels resize and stack on narrower windows. The top number in a cell is its channel address; the bottom is its value. Brighter cells represent higher values.

Item	Meaning
Routing	Returns to the routing editor.
Output Monitor	Opens both full output displays.
Pause or Live	Stops/resumes browser refresh, not DMX transmission.
Live status	Reports Port A signal and whether output frames updated.
No Port A signal	Input activity timed out; output may hold previous levels.
Port A RX line	Receive-frame, break, data-event and rejection counts, last length and start code.
Stale or connection error	No fresh browser sample; reconnect or resume before drawing conclusions.

10.1 Verify routes and boundaries

Use a known source level and change one A channel. Find its expected B/C destinations and confirm OFF or unassigned slots are zero. Check 1, 512 and the first/last address of each range. Use different adjacent source levels; a uniform universe can conceal an offset error.

Zero may be a valid source level, an OFF route or an unassigned destination. Held nonzero values may indicate source loss. Check signal status before treating a value as fresh.

10.2 Compare with the physical output

Resume a paused display before comparing it with a moving receiver. The monitor is a sample of transmitted software buffers, not a measurement of the connector. If readings disagree, record version, sub-mode, assignment, exact source/destination addresses and both observed values.

10.3 Follow both output universes

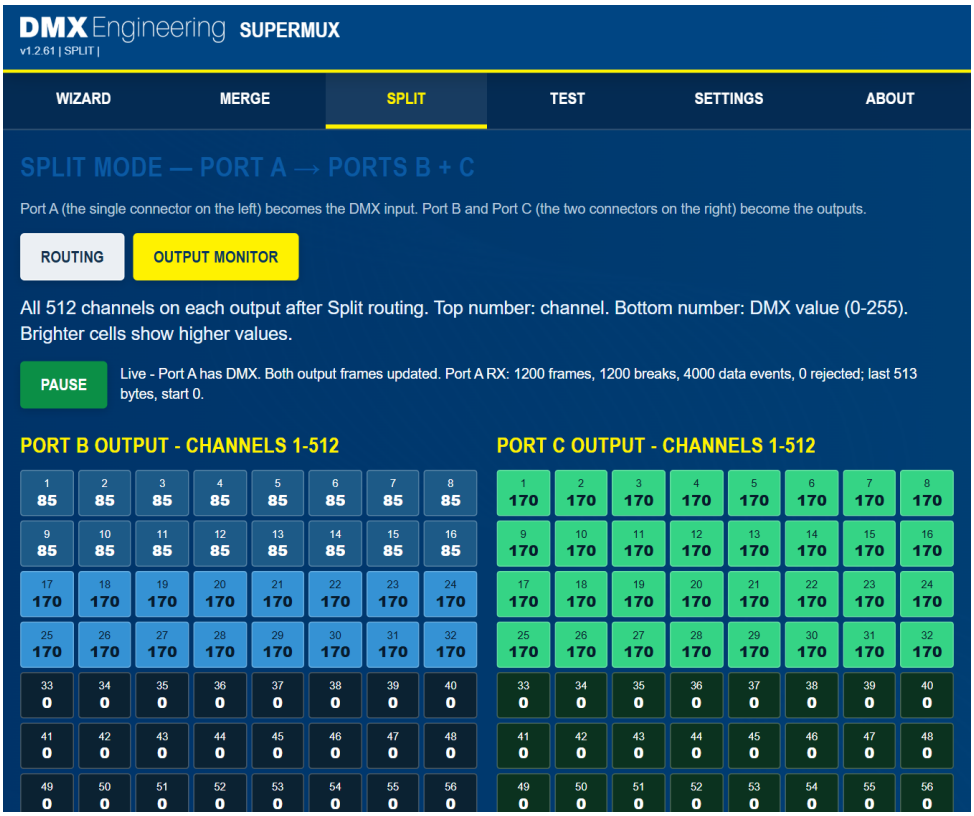


Figure 16. Top of the two 512-channel output grids; scroll down for the remaining channels.

1. **Start the intended Split sub-mode.** Then open Output Monitor.
2. **Read the status line.** Confirm fresh output and Port A input activity before comparing values.
3. **Find the destination cells.** Top numbers are addresses and bottom numbers are 0–255 values.
4. **Move one source channel.** Verify only the configured destinations respond. Scroll to verify boundaries and channel 512.
5. **Use Pause deliberately.** Pause freezes the screen, not the outputs. Resume Live for fresh values.

CHECK YOUR RESULT Both software output displays match the route and the physical receiver checks.

11 DMX test generator

TEST sends a full 512-channel frame on one selected port without an external source. Remove any transmitter from that port and connect a receiver. The other ports are not additional selected test outputs.

Control	Use
Output port	Select physical Port A, B or C.
Pattern	Static, Chase, Fade or Random.
Value Static or Chase	0–255; steady level or moving-channel level.
Start and End Channel	Inclusive range 1–512; keep End at or above Start. Channels outside the range are normally zero.
Speed	1–100; step interval rather than frequency. 1 ≈ 10 ms, 50 ≈ 500 ms, 100 ≈ 1 second. Higher is slower.
START	Applies pending controls, starts the selected output and saves.
Test Output live and arrows	Sampled transmitted values on the selected port, with channel paging.

11.1 All four patterns

Static puts Value on every selected channel. Chase moves one channel at Value through the range and sets the others to zero. Fade raises and lowers the whole range between 0 and 255; Value does not limit it. Fade advances about three counts per step, so a cycle takes about 170 step intervals. Output frame rate limits the frequency of transmitted changes.

Random chooses new levels for the range. Random pattern behavior: frames between random steps are cleared to zero instead of retaining the previous random levels, so the output can pulse or flicker. Use Static for reliable level verification.

Chase can briefly use its initial or retained position before the next step after a range change. Allow one step interval before judging the range. Changing patterns does not guarantee a restart at the first channel or level.

11.2 Physical output test and stopping

Select the port, Static, Value 85, Start 1, End 512, then START. Verify 85 on all receiver channels. Change Value to 170 and START again to prove response. Repeat on other ports as required after moving the receiver cable.

There is no separate STOP button. START Static with Value 0 to send zeros. To restore service, restore the correct wiring and START Merge or Split. Merely opening another page does not stop Test. Verify the selected port and running mode after service before handing the installation back.

11.3 Send a known level to one port

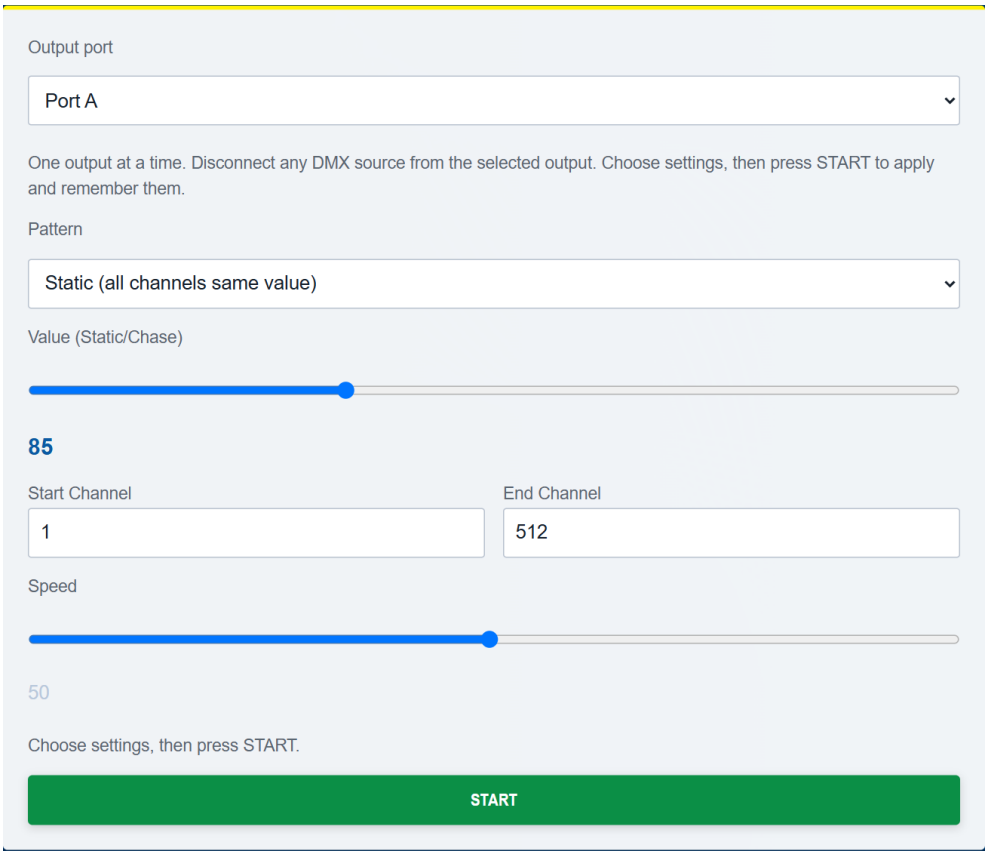


Figure 17. Complete Test control panel, cropped from the page. Example: Port A, Static 85, channels 1–512.

1. **Disconnect other transmitters.** Connect a DMX receiver to the chosen test port.
2. **Choose the output port.** Select A, B or C to match that cable.
3. **Choose Static and Value 85.** Enter Start 1 and End 512. Static does not depend on Speed.
4. **Press START.** Wait for the saved response, then read the physical receiver and live output table below the controls.
5. **Prove a change.** Set Value 170 and START again. To send zero, START Static 0. Restore service wiring and START Merge/Split afterward.

CHECK YOUR RESULT All 512 selected-port channels read 85, then 170. A valid frame alone is not sufficient.

12 DMX Wizard

12.1 First visit and wiring selection

The first-connection prompt asks for physical wiring. Merge means B + C inputs and A output; Split means A input and B + C outputs. Choosing one saves and activates it. Cancel closes the prompt without confirming a wiring arrangement.

Use DMX Wizard opens guided choices; Go to controls opens the normal interface. Either records the first-visit choice. Open the Wizard again from the main menu or Settings when needed.

Wizard choice	Shortcut behavior
Merge two inputs	Activates Merge with HTP and opens Strategy.
Split one input	Activates Split and Route per-channel assignment. Review existing routes; it does not necessarily create a fresh all-Both map.
Test lights	Activates Test. Review the existing generator configuration and START the intended settings.
Monitor signal	Selects Merge and its Monitor with live refresh. It is not a passive monitor for every wiring arrangement.

12.2 Shortcuts can change the process

Wizard shortcuts can activate modes immediately, unlike opening normal mode pages. Follow the wiring confirmation and check the resulting settings before connecting a live lighting system. After configuration, START the intended process to confirm the saved state.

12.3 Wizard preferences

Settings includes Enable DMX Wizard, Show Wizard on next visit and Open Wizard. These control the setup experience, not the DMX routing strategy. Use a Settings save control to store changed preferences and read the response. Open Wizard opens it immediately.

Record the installation’s intended physical wiring. The initial wiring choice is remembered, but simply reopening the current interface does not switch the running mode. Check running mode and strategy after service, particularly after using Test. Do not assume a Wizard selection is only a help link.

12.4 Use the Wizard deliberately

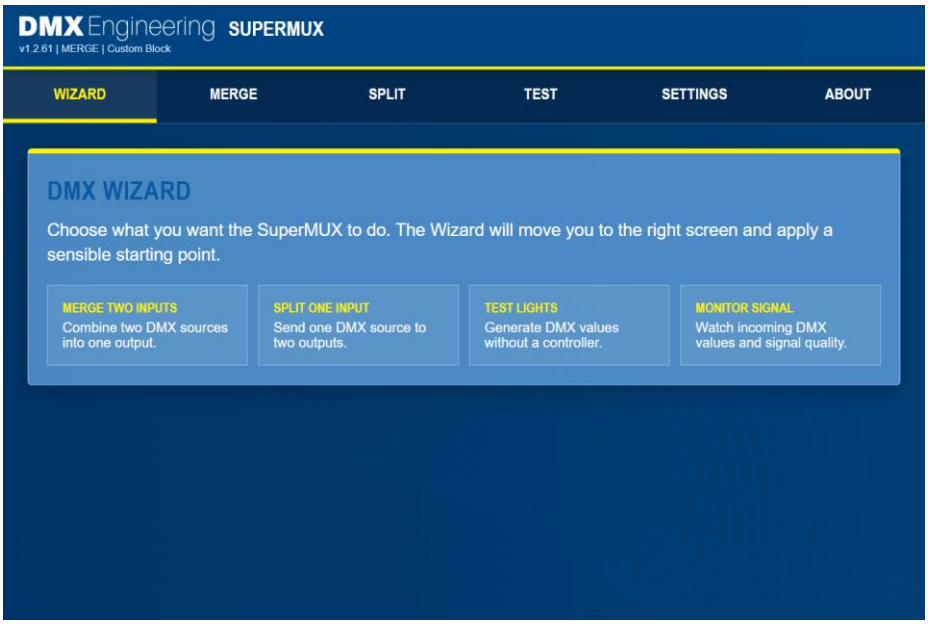


Figure 18. Wizard choices. These shortcuts can activate a process.

1. **Open WIZARD.** Or choose Open Wizard from Settings.
2. **Choose the intended job.** Merge two inputs chooses HTP; Split one input chooses Route; Test lights opens Test; Monitor signal uses Merge Monitor.
3. **Follow the wiring confirmation.** Do not confirm a different port direction until the cables match.
4. **Review the settings it opens.** Stored routes or test settings can still be present.
5. **Finish with START.** Save the actual strategy or pattern you intend to leave running.

CHECK YOUR RESULT The Wizard is an active setup shortcut, not a passive help window.

13 Wi Fi settings

13.1 SuperMUX Access Point

Access Point Name changes the suffix after SuperMUX-; up to 16 characters. Leave it blank for the automatic identifier. Access Point Password accepts 8–32 characters. Show reveals the entry. Reset to Default fills 12345678 but requires Save WiFi Settings to commit.

Hotspot-name/password changes take effect after restart. Record the new values before restarting and reconnect with them. Reload Settings reads the unit again and can replace unsaved entries. “Now broadcasting” reports the current hotspot state/name.

13.2 Join Your WiFi Network

Use a compatible 2.4 GHz network. Scan for Networks, select an SSID or enter it manually, enter its password, then Save WiFi Settings. SSIDs are case-sensitive and up to 32 characters. Show reveals the password; avoid including passwords in support screenshots.

Saving changed station credentials starts a connection attempt without normally requiring a reboot. “Saved” confirms storage, not authentication. Read the high-contrast status bar for connection status and the station IP.

Status	Meaning and next action
Joined network	Use its displayed station IP. The setup hotspot turns off after a stable join, approximately five seconds.
Hotspot only	No station SSID is configured. Use the direct hotspot at 192.168.4.1.
Configured but disconnected	Check credentials and coverage. The recovery hotspot appears after about 30 seconds offline.
Unknown or load failed	Reload or reconnect; do not overwrite settings with a blank form that failed to load.

13.3 Startup and recovery

With saved credentials, startup tries the building network first. If unavailable for about 30 seconds, the recovery hotspot starts while station retries continue. A stable station connection turns it off again. With no saved SSID, the hotspot starts immediately.

To intentionally use hotspot-only operation, clear the station SSID and save. Normal power cycling should not blank credentials. If it does, record the unit identity and version and contact support before erasing or factory-resetting the device.

13.4 Set the direct hotspot identity

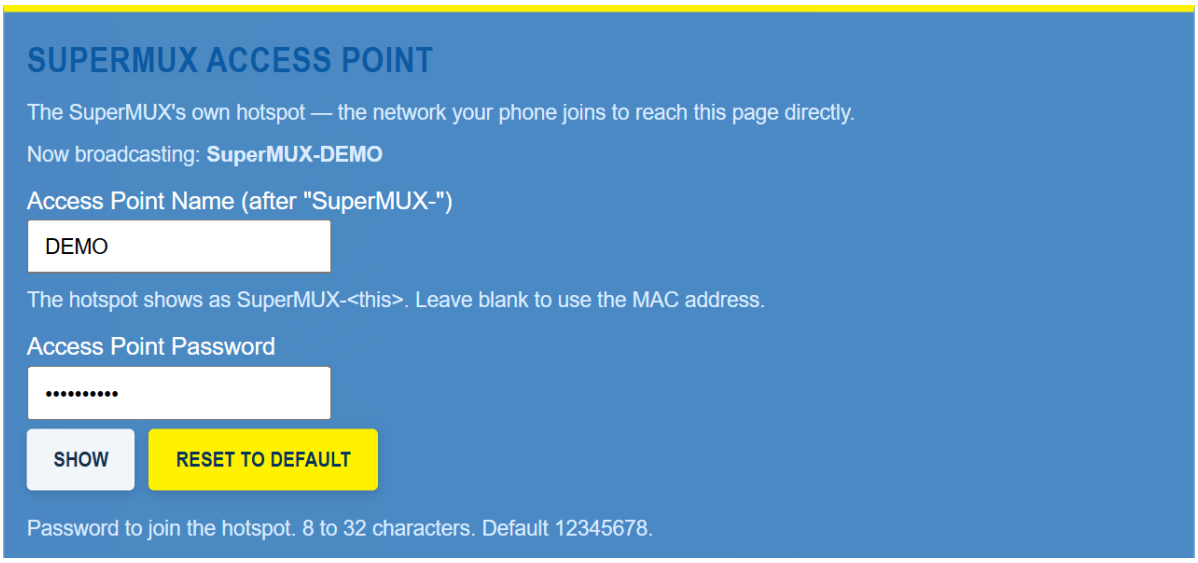


Figure 19. Settings hotspot section. Example credentials are illustrative.

1. **Open SETTINGS.** Wait for saved settings to load before editing.
2. **Enter the suffix.** The hotspot uses SuperMUX- followed by this text; blank selects the automatic identifier.
3. **Enter the hotspot password.** Use 8–32 characters. Show reveals it; Reset to Default fills 12345678.
4. **Save WiFi Settings.** This button is below the Join section. Require Saved and verified in flash.
5. **Restart when instructed.** Hotspot identity changes need restart. Rejoin using the new name and password.

CHECK YOUR RESULT The saved hotspot identity survives a normal power cycle. Keep its password with the installation record.

13.5 Join the building network

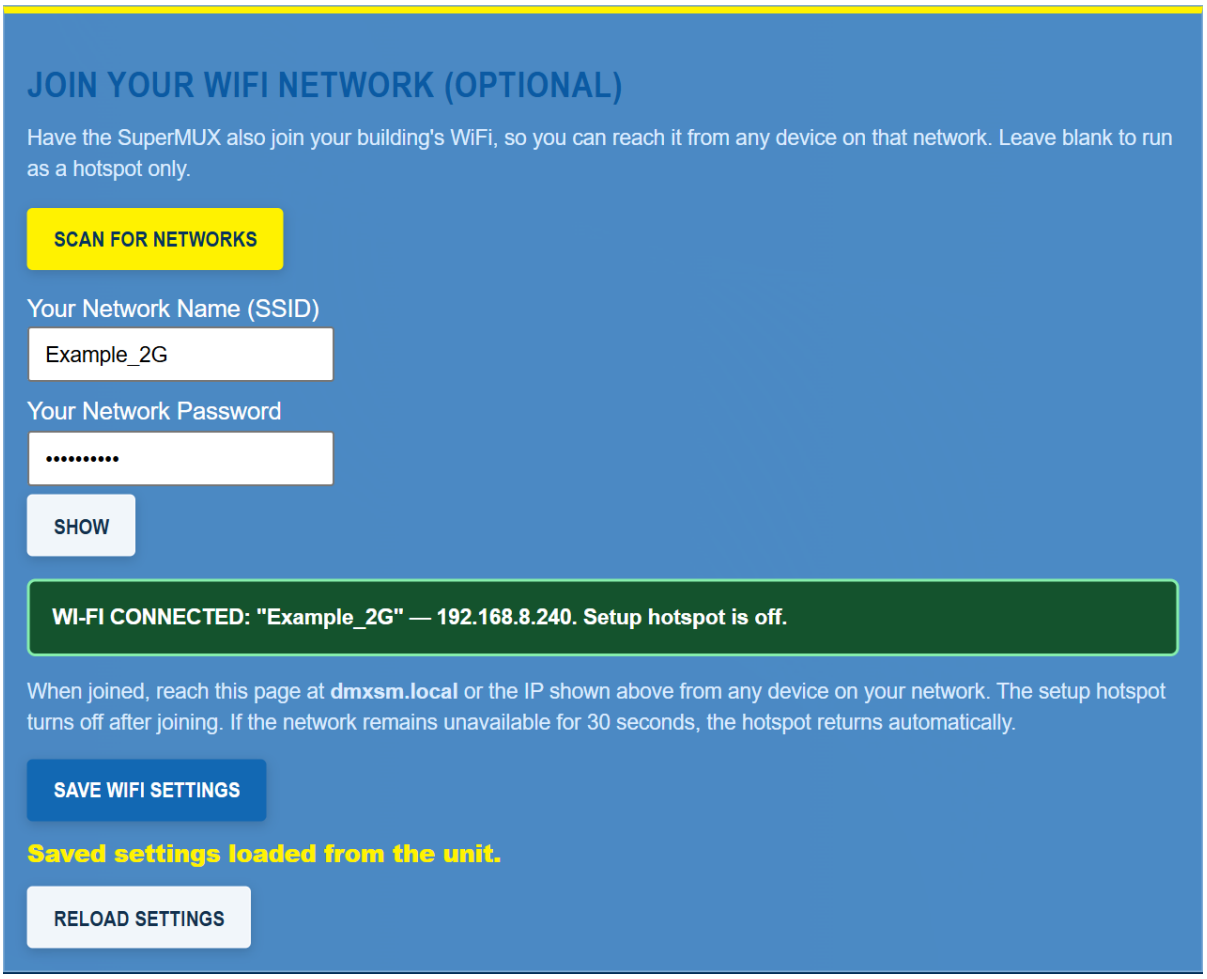


Figure 20. Join Your WiFi Network with a green connected status bar and example network name.

1. **Scan and select.** Use Scan for Networks and select the intended 2.4 GHz SSID, or type it exactly.
2. **Enter the network password.** This is separate from the hotspot password.
3. **Save WiFi Settings.** Wait for the save confirmation and connection result; a save message alone does not prove association.
4. **Move the phone or computer.** After the hotspot turns off, join the same building network.
5. **Open the station IP.** Use the address in the status bar or dmxsm.local if supported. Verify the same unit and test a normal power cycle.

CHECK YOUR RESULT Green connected status identifies the station address. If disconnected for about 30 seconds, the setup hotspot returns.

14 Other settings and About

14.1 Output frame rate

Settings → DMX Output sets 1–44 frames per second; default 40. Move DMX Frame Rate, then Save Frame Rate. This is the requested output rate, not an incoming-frame measurement. Low output rates make fades and chases coarse.

14.2 Device and reset

Physical DMX Wiring displays the remembered arrangement. Change Wiring Setup reopens its prompt. Choosing another arrangement activates it; rewire before confirming.

Reset Device restores defaults and first-time setup after confirmation. It resets routing and settings, including saved network credentials; it is not a restart button. Record required settings first. The active network connection may not disappear at the same instant that saved data resets; reconnect and verify the resulting configuration.

14.3 About and support

ABOUT contains the product description and support contacts. About This Board displays the configured hotspot password; treat screenshots of this screen as sensitive.

Field	Information
Product	DMX SuperMUX
Email	sales@dmx.engineering
Telephone	480-993-7972
Location	Mesa, Arizona
Website	https://dmx.engineering

14.4 Network access and identity

The embedded interface has no separate web login. Users able to reach it can potentially control the unit. Use a suitable installation network. The hotspot password controls joining Wi-Fi; it is not a web account password.

Before changing or updating a unit, confirm its IP, firmware and identity. An app can retain a stale address after switching between hotspot and building network. Refresh discovery or open the actual address in a browser. The hotspot address and station address are different paths to the same device.

14.5 Wizard frame rate and device controls



Figure 21. Wizard preference controls.

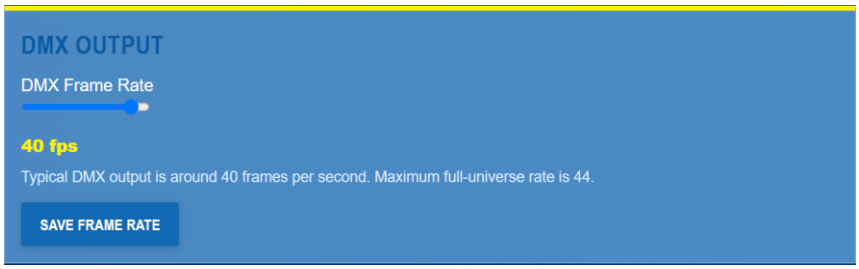


Figure 22. Output frame rate and its save button.

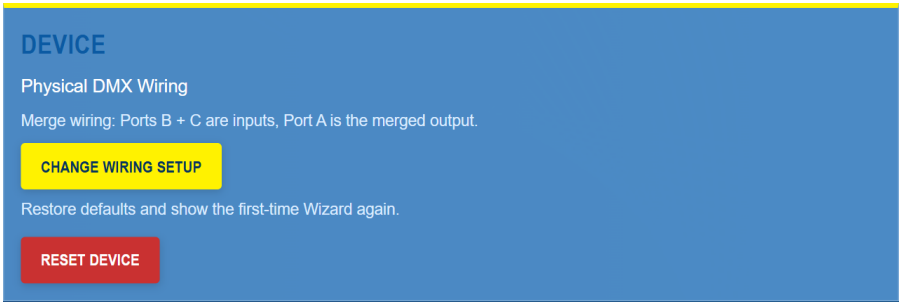


Figure 23. Physical wiring selection and Reset Device.

1. **Save preferences.** Change Wizard preferences and use a Settings save control.
2. **Set output frame rate.** Move the slider and press Save Frame Rate; default is 40 fps.
3. **Change wiring carefully.** Change Wiring Setup activates the selected arrangement. Rewire before confirming.
4. **Reset only intentionally.** Reset Device restores defaults, including saved credentials. It is not a reboot button.

14.6 Find identity and support information

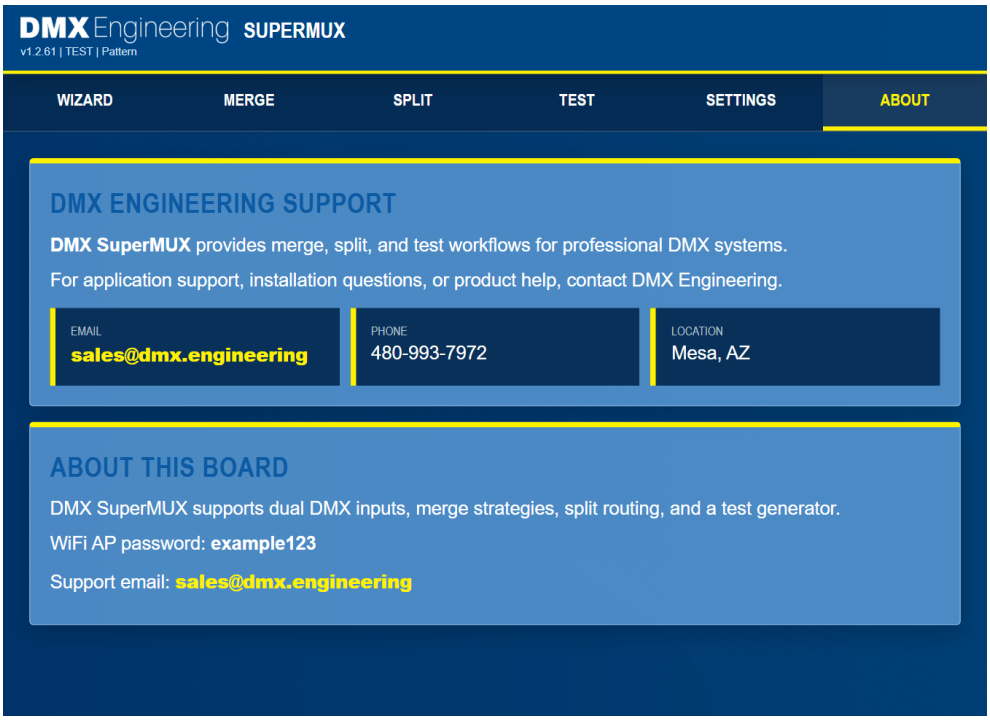


Figure 24. About screen with example hotspot password. Do not share real credentials in screenshots.

1. **Open ABOUT.** Use the support email or telephone shown for product questions.
2. **Check the unit.** Read firmware from the page header; in the app also verify product, IP and MAC.
3. **Protect the hotspot password.** About displays it in clear text; avoid sharing this screen without masking your actual password.
4. **Prepare a useful report.** Include mode, strategy, source/destination addresses and expected versus observed levels.

CHECK YOUR RESULT Support can identify the exact process and failing route without receiving your Wi-Fi passwords.

14.7 Open SuperMUX from the mobile app

The DMX Engineering app provides device discovery, identity and firmware-update access. SuperMUX mapping is configured in its embedded web page, using the same controls shown in this guide.

1. **Join the correct Wi-Fi.** Join the SuperMUX hotspot for direct access, or the same reachable network as the unit.
2. **Scan or add the IP.** Use device discovery. If discovery is blocked by the network, add the known address manually.
3. **Verify the card.** Open the unit and check Product SuperMUX, firmware version, IP, connection type and MAC. Do not identify a unit by an old IP alone.
4. **Open the controls.** Press Configure DMX mapping (web GUI). Follow the illustrated procedures in this manual.
5. **Reconnect after Wi-Fi changes.** If the unit joins the building network, move the phone to that network and refresh discovery before opening it again.

App action	SuperMUX behavior
Configure DMX mapping web GUI	Opens the unit's own browser controls.
Update Firmware	Opens the app update workflow for the selected device.
Cloud Save or Get	The casNEO CS1/CL1 cloud setup controls are not supported for SuperMUX. Use START to store its map on the unit.
Identity and connection	Check MAC and product along with the current AP or station address.

IF THE APP OPENS AN OLD ADDRESS Refresh device discovery. As a direct check, open the verified unit address in Safari, Chrome or another browser. Do not re-enter credentials solely because an app window has a stale address.

14.8 Give the unit a Favorites name

A Favorites name identifies this particular SuperMUX in the DMX Engineering app. The app displays the name together with its current IP address. The name is saved on the unit, so another phone can read the same name.

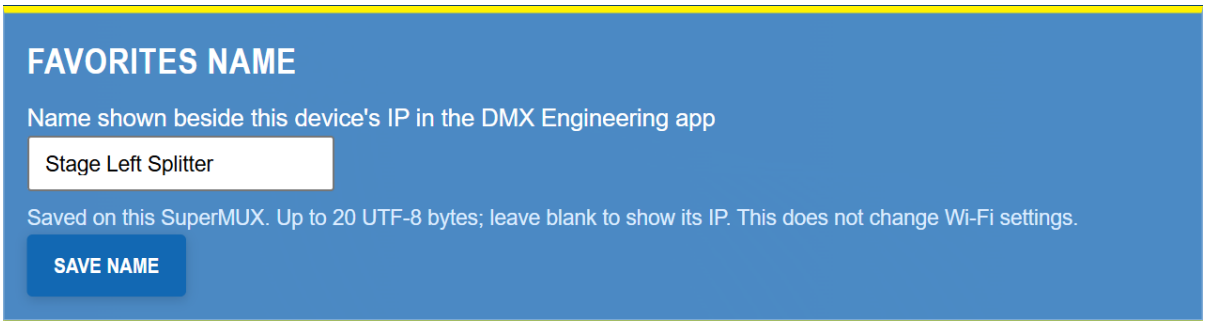


Figure 25. Favorites name in Settings. This example identifies the installation location.

1. **Open SETTINGS.** Wait for the saved settings to load before entering a name.
2. **Enter a useful name.** For example, Stage Left Splitter. The limit is 20 UTF-8 bytes; ordinary English letters, digits and spaces each use one byte. Other characters may use more.
3. **Press Save Name.** This is separate from START and Save WiFi Settings. Wait for the saved confirmation. If saving is not confirmed, reconnect and check the name before repeating.
4. **Refresh the app.** Return to device discovery or reopen the device. Check the name and current IP. The pencil beside the device name in the app can also rename the unit.
5. **Prove persistence.** Power-cycle normally and confirm the same name returns. To remove it, save an empty name; the app falls back to displaying the IP.

Changing this name does not change the Wi-Fi hotspot name, network credentials, IP configuration or DMX routing. Reset Device or a full flash erase removes it with the other saved settings.

15 Maintenance and persistence

15.1 Firmware updates

Record unit identity, current version, wiring, mode, maps, Wi-Fi details and frame rate. Use a released SuperMUX image for the correct hardware. Maintain stable power/network and plan for a restart. The operating pages do not provide a general file-upload screen; use the supported DMX Engineering release/update workflow.

After updating, reconnect to the correct station IP or recovery hotspot, read the new version, inspect settings and perform a physical DMX test. Supported OTA writes an inactive firmware slot and is intended to retain the separate configuration store. A full programmer erase is not equivalent to OTA.

If interrupted, allow recovery and check identity/version before retrying. If neither station access nor the recovery hotspot returns, contact support for recovery instructions rather than repeatedly erasing the unit.

15.2 What is saved

Item	Persistence
Mode and strategy	START requests a save. Reopening the current interface does not itself change mode.
Merge and Split maps	Edits can be live; START stores the intended final configuration.
Test controls	Port, pattern, value, range and speed save with START; check active mode after reconnecting.
Favorites name, Wi-Fi and frame rate	Use Save Name, Save WiFi Settings or Save Frame Rate as applicable and confirm success.
Monitor pause and page	Browser display state, not a lighting preset.
Received DMX levels	Not saved as a scene. Do not expect held values to survive power loss.
Normal power cycle	Retains successfully saved configuration.
Reset Device or full erase	Removes configuration; recommission afterward.

Keep the installed firmware identification and release notes with the commissioning record. Document revision and firmware version are separate identifiers.

16 Commissioning and troubleshooting

16.1 Acceptance checks

- Confirm power, terminal polarity and intended input/output directions.
- Prove nonzero and changing levels with a physical receiver, not framing alone.
- Test each mapped range's first/last address and boundaries. On full-universe tests include 480, 481, 511 and 512.
- Verify priority, HTP or LTP with distinct B/C levels, then remove one source to test loss behavior.
- Check red idle indication and recovery when valid input returns. Valid all-zero frames should count as activity.
- START and require saved confirmation. Power-cycle and verify network, assignments, frame rate and physical output.

Symptom	Checks
Red light with active output	Held frames can continue after input loss. Red is not a blackout command.
Clear All did not mute HTP	HTP ignores custom maps. Select/START a custom strategy for a cleared-map blackout.
Block conflict after restart	Assignments persist. APPLY BOTH BLOCKS for a coordinated move or clear and rebuild.
App shows station IP but opens hotspot IP	Confirm the computer network; refresh discovery or browse directly to the verified station address.
Saved but Wi-Fi not joined	Read actual status; verify credentials and coverage. Wait for recovery hotspot if necessary.
Monitor frozen but DMX changes	Resume Live or reconnect. Browser refresh and physical transmission are separate.
Unexpected zero tail	Check source frame length, source addresses and destination endpoints. Verify through channel 512 and record the exact failing range.
No useful Test output	Verify physical port and START. Remove other transmitters, use Static 85 on 1–512 and inspect the receiver.

17 Installation record

Keep this record with the installation. Store passwords separately in the approved secure location.

Record	Entry
Project and location	_____
Unit identity and name	_____
Firmware version and date	_____
Physical wiring	Merge / Split / service Test
Strategy or sub-mode	_____
Blocks or map attachment	_____
Output frame rate	_____
Network SSID and station IP	_____
Hotspot name	_____
Output and channel 512 tested	_____
Save and power-cycle verified	_____
Commissioned by and date	_____

17.1 Identification and revision

The installed product label is the identification reference. The illustration is the supplied production label artwork; it does not independently establish certification status or replace approved regulatory documentation.

Document revision 1.00 is the first release. It covers installation, all Merge and Split modes, Test, the embedded browser screens, the center status light, Favorites name and saved Wi-Fi settings.

For detailed electrical and mechanical ratings, use the approved installation and hardware specifications for the supplied unit.