

DMXcas

INSTALLATION + COMMISSIONING GUIDE

Eight-channel DMX-to-Casambi Gateway
DMX input | Casambi Gateway output

Project:
Type:
Contact:



PRODUCT ROLE DMXcas receives eight consecutive channels from one DMX-512 universe and publishes all eight as Gateway channels into the paired Casambi network.

At a glance	Verified installation value
Power	12-24 VDC, Class 2; 30 mA no-load; 100 mA maximum full load
DMX interface	One 3-wire, non-isolated DMX-512 input
Gateway payload	Always 8 consecutive DMX channels, mapped to Casambi Gateway Channels 1-8
Default block	DMX addresses 1-8; configurable start address 1-505

RELEASE 1.00 - AUGUST 2026

1 Product overview

DMXcas is a Bluetooth Low Energy, Casambi-enabled DMX-512 receiver and Gateway. It listens to eight consecutive DMX channels beginning at its configured DMX Start Address and publishes those eight 8-bit values to the Casambi network as Gateway Channels 1 through 8. The channel count is fixed at eight.

DMXcas receives DMX and publishes the selected eight-channel block into the Casambi network: DMX is the input and Casambi is the destination. DMXcas does not generate a DMX universe and is not a DMX splitter, terminator, power supply, LED driver, or relay controller.

ONE FIXED PROFILE DMXcas has one supported Casambi profile: the eight-channel Gateway profile. It always receives and publishes eight channels; there is no reduced-channel operating mode.

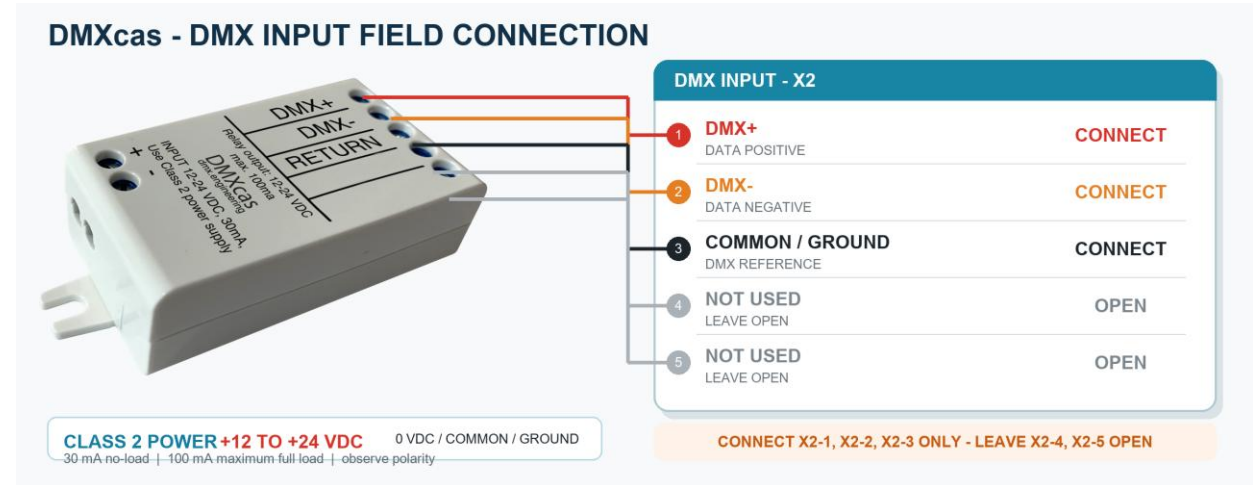
1.1 Technical data

Item	Rating / description
Supply	12-24 VDC Class 2, polarity sensitive
No-load current	30 mA
Maximum full-load current	100 mA
DMX input	Single universe, 3-wire, non-isolated DMX-512 receiver
Received DMX channels	Always 8 consecutive channels
Casambi output	Always 8 Gateway channel-level updates, values 0-255
DMX Start Address	1-505; default DMX address 1
Ambient temperature	-25 to +45 C (-13 to +113 F)
Maximum case temperature	+75 C (+167 F), Tc point on bottom
Overall size	72.6 x 30.0 x 18.0 mm (2.86 x 1.18 x 0.71 in), including mounting ears
Radio	Casambi CBM-003B or Fanstel BT840F production variant; 2.4 GHz BLE

1.2 Signal behavior

- DMX Start Address S maps DMX S through S+7 to Gateway Channels 1 through 8.
- Only changed channel values are published to Casambi. Each channel can have an independent transmit-delay vendor parameter.
- If DMX input is lost, DMXcas stops publishing new gateway values; it does not force all eight channels to zero.

2 Terminals and installation



THREE DMX CONNECTIONS ONLY Connect X2-1 (DMX+), X2-2 (DMX-), and X2-3 (common/ground). Leave X2-4 and X2-5 unconnected.

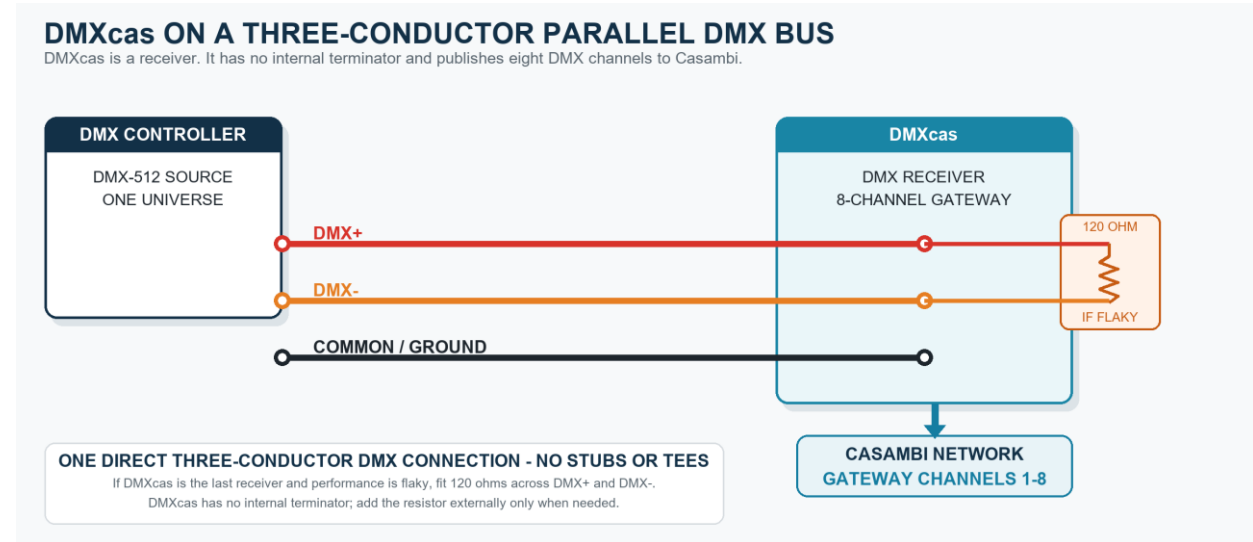
2.1 Terminal mapping

Position	Signal	Field connection
Power +	+12 to +24 VDC	Class 2 supply positive
Power -	0 VDC / common / ground	Supply negative; system common, commonly called ground
X2-1	DMX+	DMX data positive input
X2-2	DMX-	DMX data negative input
X2-3	Common / ground	DMX reference/common, commonly called ground; must be connected
X2-4	Not used	No field connection; leave unconnected
X2-5	Not used	No field connection; leave unconnected

2.2 Installation procedure

1. **De-energize the circuit.** Turn off the Class 2 supply and the DMX controller/fixtures before landing conductors.
2. **Mount DMXcas.** Use the mounting ears or a suitable listed nonmetallic enclosure. Keep the radio side clear of metal and dense wiring.
3. **Connect Class 2 power.** Observe polarity. Do not connect a constant-current LED-driver output.
4. **Connect the DMX input.** Land DMX+, DMX-, and common/ground. The reference conductor is required because the interface is non-isolated.
5. **Inspect the DMX topology.** Use one continuous parallel-connected fixture-to-fixture bus without stubs, tees, or passive star branches.

3 DMX wiring and addressing



3.1 Bus requirements

- Use DMX-rated, low-capacitance shielded twisted-pair cable with approximately 120-ohm characteristic impedance. Do not substitute microphone or ordinary audio cable.
- Keep DMX+ and DMX- on the same twisted pair. Carry common/ground continuously and maintain identical polarity at every device.
- Connect the three conductors in parallel from one receiver to the next with no stubs or tees. This is commonly called a daisy-chain, but electrically it is one continuous parallel-connected wire bus.
- At each intermediate receiver, land incoming and outgoing conductors together on the same DMX+, DMX-, and common/ground terminal positions when the terminal is rated for two conductors.
- Use an optically isolated DMX splitter when branches are required. Keep DMX separated from line voltage, dimmer outputs, motors, relays, and switching power wiring.

NO INTERNAL TERMINATION DMXcas does not contain or switch a 120-ohm terminator. When DMXcas is the last receiver and performance is flaky, install 120 ohms across DMX+ and DMX-. Do not terminate DMXcas when the bus continues beyond it; terminate the actual far end only.

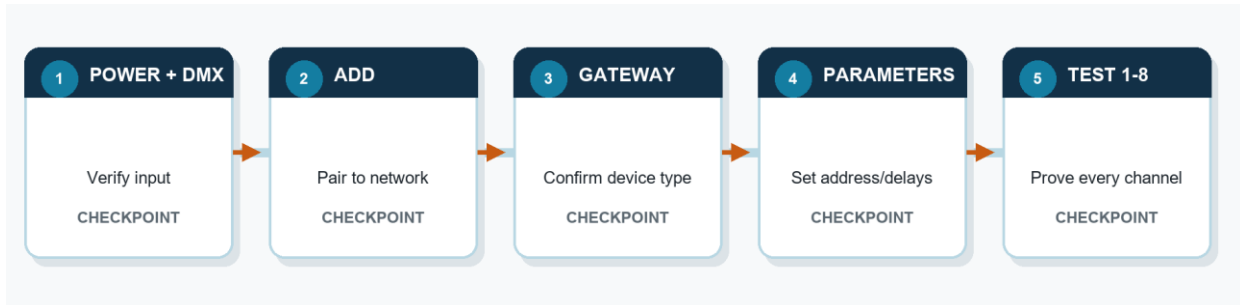
3.2 Addressing rule

Set the DMXcas DMX Start Address to the first channel of the required eight-channel block. Valid start addresses are 1 through 505 so the complete block remains within one 512-channel DMX universe. The factory default is DMX address 1, which maps DMX addresses 1-8 to Casambi Gateway Channels 1-8.

FIXED MAPPING DMX S maps to Gateway Channel 1; DMX S+1 through S+7 map in order to Gateway Channels 2 through 8. The complete visual mapping is shown in Section 4.2.

4 Add DMXcas to the Casambi app

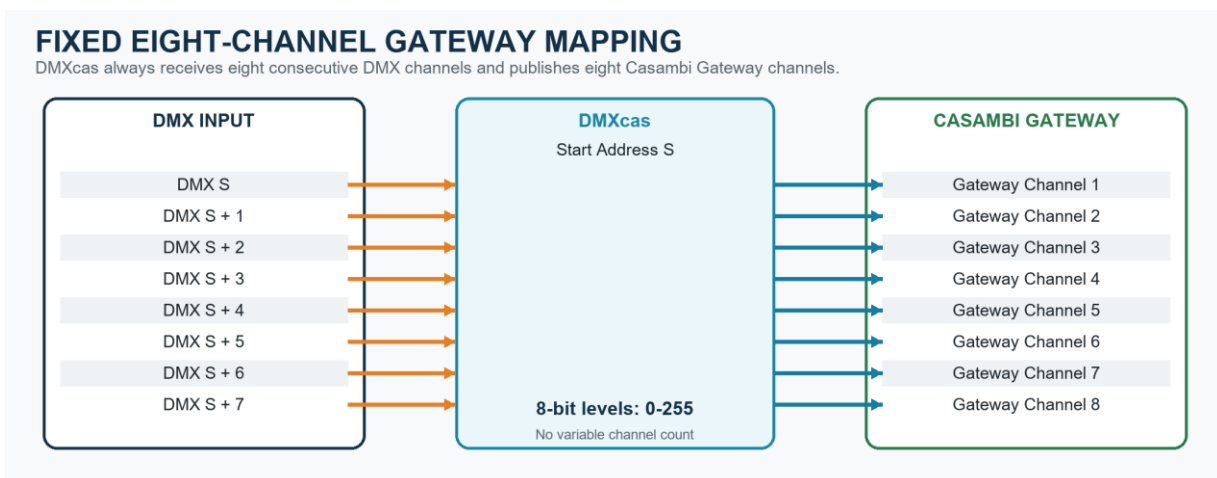
Use the standard Casambi App and the project network specified for the installation. DMXcas has one eight-channel profile and enumerates to the Casambi network as a Gateway.



4.1 Pair and identify

1. **Power DMXcas and apply valid DMX.** Confirm correct supply polarity and keep the phone within Bluetooth range.
2. **Open More > Nearby devices.** Locate the unpaired DMXcas and use Identify when available to confirm the intended physical unit.
3. **Add it to the project network.** Use the network credentials and network type specified by the commissioning authority.
4. **Confirm the device type.** DMXcas must enumerate as a Gateway using the single eight-channel profile.
5. **Name the Gateway.** Use the project schedule identifier and location, for example DMX-GW-01 | Ballroom Controller.
6. **If needed, change Vendor Parameters.** Set the DMX Start Address and any approved per-channel transmit delays. Keep DMXcas powered for at least 3 seconds after changes so the deferred flash write can complete.
7. **Map and test all eight channels.** Associate Gateway Channels 1-8 with the intended Casambi groups, scenes, or control logic, then exercise DMX values 0, midpoint, and 255 on every channel.

4.2 Fixed channel mapping



5 Provisioning and Vendor Parameters

Provisioning DMXcas means pairing it to the correct Casambi network, confirming that it enumerates as the eight-channel Gateway, choosing the eight-channel DMX address block, mapping Gateway Channels 1-8 to the project intent, and proving the complete signal path from the DMX controller into the Casambi system.

Profile	Behavior	DMX use
8-Channel Gateway	Publishes eight independent Gateway channel levels to the Casambi network	Always DMX Start Address through Start Address + 7

5.1 Transmit-delay staggering

The eight independent transmit delays are provided to prevent a large simultaneous DMX change from flooding a busy Casambi network with eight Gateway updates at once. Each delay is a per-channel stabilization interval: when that DMX channel changes, its timer starts; another change restarts the timer; and DMXcas publishes the latest value only after the timer expires. Leave the delays at 0 ms when the network responds reliably. On a large or heavily loaded network, stagger the channels so their Casambi updates are spread over time instead of being released together.

Tune the stagger progressively. Keep Channel 1 at 0 ms and increase Channel 2 alone until an eight-channel simultaneous change produces reliable results. Then use that successful interval as the step for the remaining channels: Channel 3 uses two steps, Channel 4 uses three steps, and so on. For example, if 100 ms is effective, set Channel 1 = 0 ms, Channel 2 = 100 ms, Channel 3 = 200 ms, Channel 4 = 300 ms, continuing through Channel 8 = 700 ms. A network containing many devices may require a significantly larger step. Increase one channel at a time, re-test all eight channels together, and use the smallest interval that gives consistent operation.

COMMISSION THE DELAY, DO NOT GUESS A transmit delay is intentional latency. Large values make rapid moves and fades feel slow, and a continuously changing DMX level keeps restarting that channel's timer. Tune on the completed Casambi network under realistic traffic, then record all eight values.

5.2 Vendor parameters

Vendor Parameters are manufacturer-defined settings exposed by the DMXcas Casambi profile. The DMX Start Address selects the fixed eight-channel input block; the Channel Transmit Delay parameters control the per-channel stagger described in Section 5.1.

Parameter	Range / default	Firmware behavior
DMX Start Address ID 0	1-505 Default: DMX address 1	First address of the fixed eight-channel DMX input block
Channel 1 Transmit Delay ID 1	0-2500 ms Default: 0 ms	Waits for DMX Channel 1 to remain unchanged before publishing its latest value
Channel 2 Transmit Delay ID 2	0-2500 ms Default: 0 ms	Waits for DMX Channel 2 to remain unchanged before publishing its latest value
Channel 3 Transmit Delay ID 3	0-2500 ms Default: 0 ms	Waits for DMX Channel 3 to remain unchanged before publishing its latest value
Channel 4 Transmit Delay ID 4	0-2500 ms Default: 0 ms	Waits for DMX Channel 4 to remain unchanged before publishing its latest value

Parameter	Range / default	Firmware behavior
Channel 5 Transmit Delay ID 5	0-2500 ms Default: 0 ms	Waits for DMX Channel 5 to remain unchanged before publishing its latest value
Channel 6 Transmit Delay ID 6	0-2500 ms Default: 0 ms	Waits for DMX Channel 6 to remain unchanged before publishing its latest value
Channel 7 Transmit Delay ID 7	0-2500 ms Default: 0 ms	Waits for DMX Channel 7 to remain unchanged before publishing its latest value
Channel 8 Transmit Delay ID 8	0-2500 ms Default: 0 ms	Waits for DMX Channel 8 to remain unchanged before publishing its latest value

5.3 Last-touched control: an LTP-style feature

DMXcas publishes a Gateway channel only when its corresponding DMX value changes. This creates an LTP-style (Latest Takes Precedence), or 'last touched wins,' handoff between DMXcas and other Casambi controls. If an operator changes a fixture from the Casambi App, a Casambi switch, a scene, or other network control, DMXcas does not repeatedly retransmit an unchanged DMX level and snap the fixture back. The operator's newer action remains effective until that DMX channel changes again; the next actual DMX change then becomes the latest command.

DESIGNED FOR SHARED CONTROL This change-driven behavior is a feature, not a loss of control. It permits local or app-based overrides without requiring the DMX controller to be disconnected. To deliberately reclaim a channel from DMX, move that DMX channel to a new value.

In lighting-control terminology, LTP normally describes how competing sources are resolved. DMXcas does not merge two DMX input streams; its change-only Casambi publishing provides the same practical latest-action behavior on each of the eight Gateway channels. When valid DMX stops, DMXcas likewise sends no zero or blackout command, so the Casambi network remains at the last accepted state or follows newer project control logic. Test both manual override and loss-of-DMX behavior before turnover.

6 Startup and acceptance testing

Check	Acceptance requirement
Power	DMXcas remains powered and visible in Nearby devices.
Network	Gateway is paired to the correct Casambi network and has the scheduled name.
Profile	Device enumerates as the single eight-channel Gateway profile.
Address	DMX Start Address matches the documented eight-channel block.
Channels 1-8	Each DMX input controls only its corresponding Casambi Gateway channel.
Range	DMX values 0, midpoint, and 255 produce the intended Casambi results.
DMX bus	No flicker, random updates, or intermittent response.
DMX loss	Observed network behavior matches the approved sequence of operations.
Record	Address, mapping, delays, termination, and tester results are entered on the closeout schedule.

6.1 Troubleshooting

Symptom	Likely cause	Corrective action
Not visible in Nearby devices	No/incorrect power; out of range; already paired	Measure 12-24 VDC at input. Move phone closer. Check device/network status.
Visible but will not pair	Already paired; weak signal; wrong network access	Unpair only with authorization. Confirm credentials and signal.
Gateway paired but no updates	No DMX; wrong polarity/common; wrong start address	Verify DMX+, DMX-, common/ground, source output, and DMX Start Address.
Wrong Gateway channel	Address block or project mapping mismatch	Inject one DMX channel at a time and compare the fixed S through S+7 mapping.
Updates delayed or missing during fades	Nonzero transmit-delay parameter	Return the affected Channel Transmit Delay to 0 ms and re-test.
Flicker or random updates	Cable/topology/termination/noise issue	Check DMX-rated cable, continuous bus, polarity, grounding, and separation from power. If DMXcas is last, try 120 ohms across DMX+ and DMX-.
Uncertain DMX quality	Field signal not proven	Use a Swisson XMT-series tester or City Theatrical DMXcat at DMXcas to verify signal arrival, channel values, and timing.

6.2 Pre-commissioning record

Record	Project entry
Location / tag	
Casambi network / Gateway name	
DMX address block	_____ through _____
Transmit delays	Ch1 ____ Ch2 ____ Ch3 ____ Ch4 ____ Ch5 ____ Ch6 ____ Ch7 ____ Ch8 ____ ms
Termination	DMXcas is / is not last receiver; 120-ohm status: _____

7 Closeout, replacement, and support

7.1 Closeout record

Field	Project record
Project / area	
DMXcas name in app	
Casambi network	
Profile	8-Channel Gateway
DMX Start Address	
Controlled DMX channel range	_____ through _____
Gateway mapping attached	Yes / No
Vendor parameters changed	None / attach record
Termination status	
Commissioned by / date	

7.2 Replacement

Use the Casambi Replace device function when replacing failed hardware with an identical DMXcas using the eight-channel Gateway profile. Confirm the replacement is unpaired, powered, and within Bluetooth range. Re-enter the DMX Start Address and transmit delays if they are not carried through, then test all eight channels and the DMX-loss response.

7.3 Regulatory and installation notes

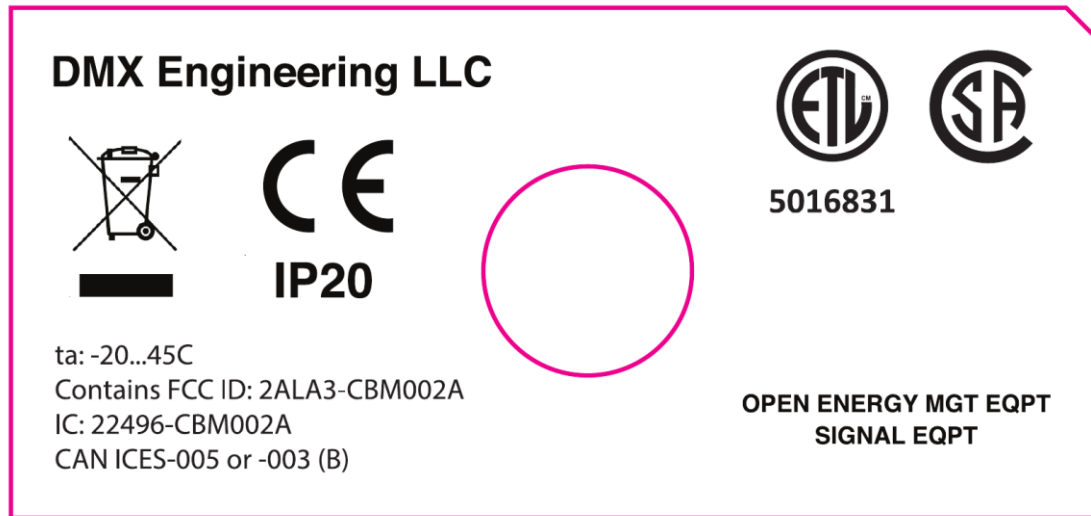
- Indoor use only. Install as an open-type Class 2 device in accordance with the National Electrical Code and local requirements.
- Operation is subject to the two FCC Part 15 conditions: the device may not cause harmful interference and must accept interference received, including interference that may cause undesired operation.
- Changes or modifications not expressly approved by DMX Engineering LLC may void the user's authority to operate the equipment.
- Use the current product label for applicable certification marks and radio identifiers; production hardware may use a CBM-003B or Fanstel BT840F radio variant.

7.4 Technical support

DMX Engineering LLC
1908 N. 101st Place
Mesa, Arizona 85207
480-993-7972
sales@dmx.engineering
<https://dmx.engineering>

7.5 Product identification and certification label

The bottom DMXcas product label is the authority for the certification marks and identifiers applied to the installed unit. Retain the ETL certification mark and control number 5016831, equipment-category wording, CE and IP20 markings, WEEE symbol, ambient rating, FCC ID, IC identifier, and Canadian interference statement exactly as shown on the approved artwork.



LABEL CONTROL Do not redraw, omit, reposition, or substitute certification marks or radio identifiers without engineering and compliance approval.