DMX ENGINEERING LLC

SceneDMXcas

INSTALLATION + COMMISSIONING GUIDE

Two-channel DMX-to-Casambi Scene Controller
Scene selection | Intensity scaling

Project:	
Type:	
Contact:	

PRODUCT ROLE SceneDMXcas receives two consecutive DMX channels. The first selects one of up to 20 mapped Casambi scenes; the second scales the selected scene from zero to its stored maximum intensity.

At a glance	Verified installation value
Power	12-24 VDC, Class 2; 30 mA nominal/no-load
DMX interface	One 3-wire, non-isolated DMX-512 input
DMX footprint	2 consecutive channels: scene selector, then intensity scalar
Scene capacity	Up to 20 Casambi scenes assigned through Vendor Parameters
Default block	DMX addresses 1-2; configurable start address 1-511

1 Product overview

SceneDMXcas is a Bluetooth Low Energy, Casambi-enabled DMX-512 receiver and scene Gateway. It listens to two consecutive DMX channels beginning at its configured DMX Start Address. The first channel selects one of 20 mapping slots; the second supplies the intensity scalar for the selected Casambi scene.

The scenes must already exist in the target Casambi network. During commissioning, each SceneDMXcas mapping slot is assigned to one of those scenes. Runtime DMX then recalls the mapped scene at a level between zero and the scene's stored maximum. SceneDMXcas does not create scenes, generate a DMX universe, or act as a splitter, terminator, power supply, LED driver, or relay controller.

ONE FIXED PROFILE SceneDMXcas uses one two-channel profile: DMX Start Address S is the scene selector and S+1 is the scene-intensity scalar.

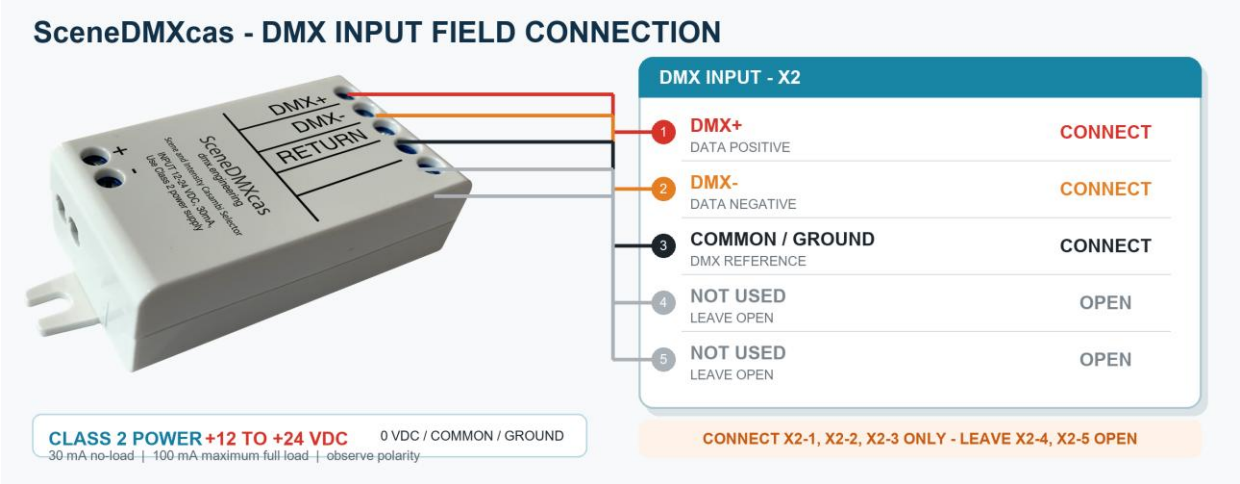
1.1 Technical data

Item	Rating / description
Supply	12-24 VDC Class 2, polarity sensitive
No-load current	30 mA
DMX input	Single universe, 3-wire, non-isolated DMX-512 receiver
Received DMX channels	Always 2 consecutive channels
Channel S	Scene selector: 0 = no command; 1-20 = mapped scene slots
Channel S+1	Intensity scalar: 0-255 (0-100% of the scene's stored maximum)
DMX Start Address	1-511; 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 selector values 1 through 20 correspond directly to Scene Mapping Slots 1 through 20.
- Selector value 0 sends no scene command. Values 21 through 255 are outside the supported selector range and must not be used.
- An intensity value of 255 recalls the scene at its stored maximum; lower values proportionally scale the complete scene.
- A scene command is sent when either of the two DMX values changes. If DMX input is lost, SceneDMXcas stops sending new scene commands and does not force a blackout.

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.

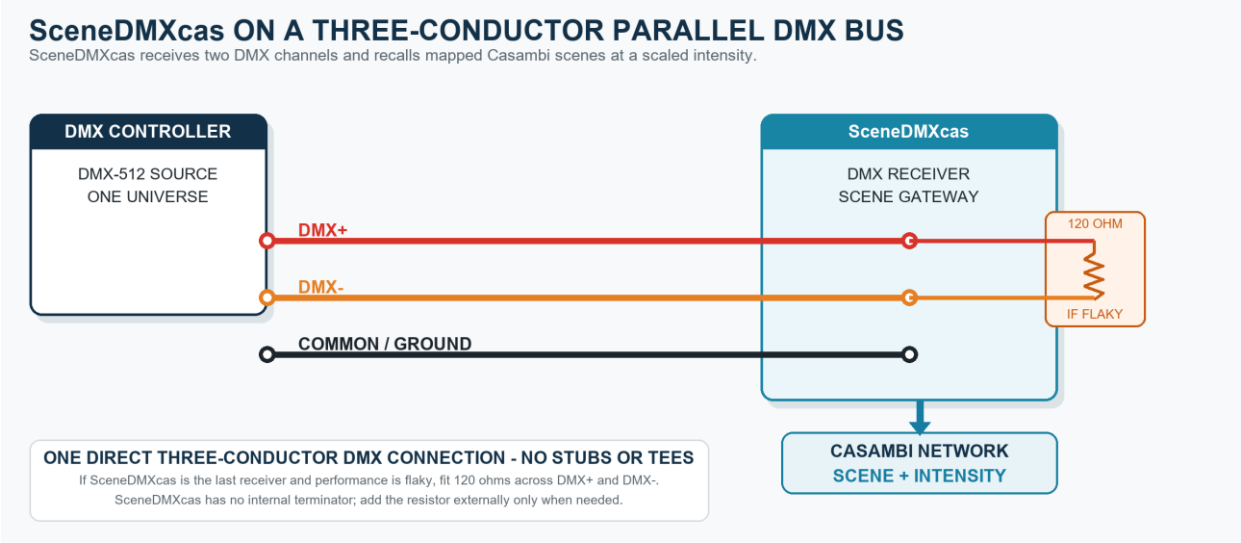
2.1 Terminal mapping

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 SceneDMXcas.** 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 SceneDMXcas does not contain or switch a 120-ohm terminator. When SceneDMXcas is the last receiver and performance is flaky, install 120 ohms across DMX+ and DMX-. Do not terminate SceneDMXcas when the bus continues beyond it; terminate the actual far end only.

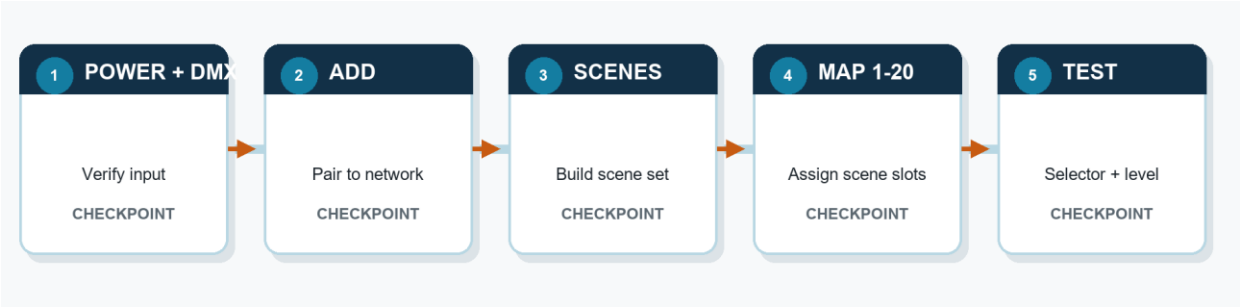
3.2 Addressing rule

Set the SceneDMXcas DMX Start Address to the first channel of the required two-channel block. Valid operational start addresses are 1 through 511 so both channels remain inside one 512-channel DMX universe. The factory default is DMX address 1, which uses DMX 1 for scene selection and DMX 2 for intensity.

FIXED TWO-CHANNEL FOOTPRINT DMX S selects Scene Mapping Slot 1-20. DMX S+1 scales the selected scene's intensity from 0 to 255. Keep the selector at 0-20 only; values 21-255 are unsupported.

4 Add SceneDMXcas to the Casambi app

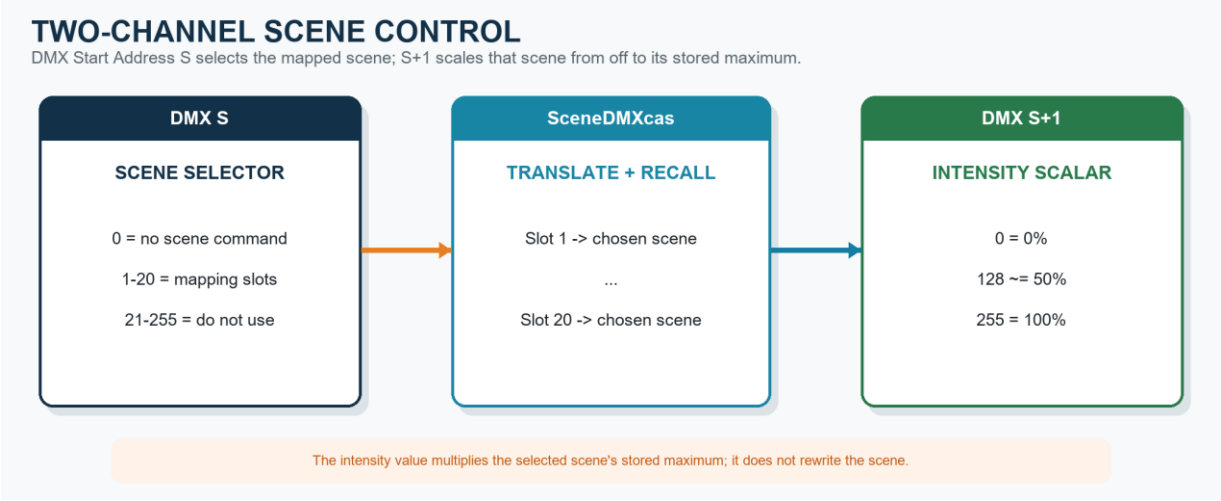
Use the standard Casambi App and the project network specified for the installation. SceneDMXcas enumerates to the Casambi network as a Gateway. Create and verify the required Casambi scenes before assigning them to the 20 SceneDMXcas mapping slots.



4.1 Pair and identify

1. **Power SceneDMXcas and apply valid DMX.** Confirm correct supply polarity and keep the phone within Bluetooth range.
2. **Open More > Nearby devices.** Locate the unpaired SceneDMXcas 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.** SceneDMXcas must enumerate as the scene-control Gateway profile.
5. **Name the Gateway.** Use the project schedule identifier and location, for example SCENE-GW-01 | Ballroom.
6. **Open Vendor Parameters.** Set the DMX Start Address, then assign Scene 1 through Scene 20 to the required pre-made Casambi scenes. Leave unused mappings unassigned. Keep SceneDMXcas powered for at least 3 seconds after changes so the deferred flash write can complete.
7. **Test selector and intensity.** For every assigned slot, send the slot number on DMX S and test intensity values 0, midpoint, and 255 on DMX S+1. Confirm the correct scene is recalled and no other scene is selected.

4.2 Fixed two-channel mapping



5 Provisioning and Vendor Parameters

Provisioning SceneDMXcas means pairing it to the correct Casambi network, choosing the two-channel DMX address block, creating the required Casambi scenes, assigning those scenes to Mapping Slots 1-20, and proving scene selection and intensity from the DMX controller.

Profile	Behavior	DMX use
Scene Gateway	Recalls one mapped Casambi scene at an 8-bit intensity scalar	DMX S = scene slot; DMX S+1 = intensity

5.1 Build the Casambi scenes first

Create each required scene in the project network and set every luminaire, group, color, and maximum level before assigning the scene to SceneDMXcas. The DMX intensity channel is a scalar against those stored scene levels: 255 requests the stored scene maximum, 128 requests approximately half of each stored level, and 0 requests zero intensity.

> **SCALING DOES NOT EDIT THE SCENE** SceneDMXcas recalls the selected scene with a level scalar. It does not permanently change the scene's stored luminaire levels, colors, groups, or animation settings.

5.2 Vendor parameters

Vendor Parameters are manufacturer-defined settings exposed by the SceneDMXcas profile. Parameter ID 0 selects the first channel of the two-channel DMX footprint. Parameter IDs 1-20 bind selector values 1-20 to pre-made Casambi scenes.

Parameter	Range / default	Firmware behavior
DMX Start Address **ID 0**	1-511 Default: DMX address 1	DMX S selects the scene slot; S+1 supplies intensity
Scene 1 **ID 1**	Choose a Casambi scene Default: unassigned	DMX selector value 1 recalls the assigned scene

Parameter	Range / default	Firmware behavior
Scene 2 **ID 2**	Choose a Casambi scene Default: unassigned	DMX selector value 2 recalls the assigned scene
Scene 3 **ID 3**	Choose a Casambi scene Default: unassigned	DMX selector value 3 recalls the assigned scene
Scene 4 **ID 4**	Choose a Casambi scene Default: unassigned	DMX selector value 4 recalls the assigned scene
Scene 5 **ID 5**	Choose a Casambi scene Default: unassigned	DMX selector value 5 recalls the assigned scene
Scene 6 **ID 6**	Choose a Casambi scene Default: unassigned	DMX selector value 6 recalls the assigned scene
Scene 7 **ID 7**	Choose a Casambi scene Default: unassigned	DMX selector value 7 recalls the assigned scene
Scene 8 **ID 8**	Choose a Casambi scene Default: unassigned	DMX selector value 8 recalls the assigned scene
Scene 9 **ID 9**	Choose a Casambi scene Default: unassigned	DMX selector value 9 recalls the assigned scene
Scene 10 **ID 10**	Choose a Casambi scene Default: unassigned	DMX selector value 10 recalls the assigned scene
Scene 11 **ID 11**	Choose a Casambi scene Default: unassigned	DMX selector value 11 recalls the assigned scene
Scene 12 **ID 12**	Choose a Casambi scene Default: unassigned	DMX selector value 12 recalls the assigned scene
Scene 13 **ID 13**	Choose a Casambi scene Default: unassigned	DMX selector value 13 recalls the assigned scene
Scene 14 **ID 14**	Choose a Casambi scene Default: unassigned	DMX selector value 14 recalls the assigned scene
Scene 15 **ID 15**	Choose a Casambi scene Default: unassigned	DMX selector value 15 recalls the assigned scene
Scene 16 **ID 16**	Choose a Casambi scene Default: unassigned	DMX selector value 16 recalls the assigned scene
Scene 17 **ID 17**	Choose a Casambi scene Default: unassigned	DMX selector value 17 recalls the assigned scene
Scene 18 **ID 18**	Choose a Casambi scene Default: unassigned	DMX selector value 18 recalls the assigned scene
Scene 19 **ID 19**	Choose a Casambi scene Default: unassigned	DMX selector value 19 recalls the assigned scene
Scene 20 **ID 20**	Choose a Casambi scene Default: unassigned	DMX selector value 20 recalls the assigned scene

5.3 Runtime command behavior

SceneDMXcas compares the current selector and intensity with the last accepted DMX values. When either value changes and the selector is nonzero, it sends a zero-duration Casambi scene-level command using the translated scene ID and current intensity. An unchanged DMX pair is not retransmitted continuously.

> **KEEP THE SELECTOR IN RANGE** Use selector values 0-20 only. Value 0 intentionally sends no scene command. Values 21-255 are outside the 20-entry mapping table and are not supported.

Because unchanged values are not repeatedly transmitted, a later Casambi app, switch, or automation action can remain in effect until either DMX channel changes again. When DMX is lost, SceneDMXcas sends no forced zero or blackout command. Confirm that this behavior matches the project sequence of operations.

6 Startup and acceptance testing

Check	Acceptance requirement
Power	SceneDMXcas 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 SceneDMXcas scene-control Gateway profile.
Address	DMX Start Address matches the documented two-channel block.
Scene mappings	Every used selector value 1-20 recalls only the assigned pre-made scene.
Intensity	Values 0, midpoint, and 255 scale the selected scene as intended.
Selector zero	Selector 0 sends no new scene command.
DMX bus	No flicker, random updates, or intermittent response.
DMX loss	Observed network behavior matches the approved sequence of operations.
Record	Address, scene-slot schedule, 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 response	No DMX; wrong polarity/common; wrong start address	Verify DMX+, DMX-, common/ground, source output, and DMX Start Address.
Wrong scene	Incorrect Scene 1-20 Vendor Parameter assignment	Set selector to one slot at a time and compare against the closeout scene schedule.
Correct scene, wrong level	Intensity channel or stored scene maximum is wrong	Verify DMX S+1 at 0, midpoint, and 255; then inspect the scene's stored levels in Casambi.
No response at selector 0	Normal operation	Use selector 1-20 to issue a scene command; 0 intentionally sends none.
No response above selector 20	Unsupported selector value	Restrict the controller to selector values 0-20.
Flicker or random updates	Cable/topology/termination/noise issue	Check DMX-rated cable, continuous bus, polarity, grounding, and separation from power. If SceneDMXcas 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 SceneDMXcas to verify signal arrival, channel values, and timing.

6.2 Scene mapping schedule

Complete this schedule during commissioning and attach it to the project closeout record. Unused slots should be marked UNUSED and still tested for no unintended scene recall.

Slot	Casambi scene name	Purpose / area	Test
1			Pass / Fail
2			Pass / Fail
3			Pass / Fail
4			Pass / Fail
5			Pass / Fail
6			Pass / Fail
7			Pass / Fail
8			Pass / Fail
9			Pass / Fail
10			Pass / Fail
11			Pass / Fail
12			Pass / Fail
13			Pass / Fail
14			Pass / Fail
15			Pass / Fail
16			Pass / Fail
17			Pass / Fail
18			Pass / Fail
19			Pass / Fail
20			Pass / Fail

7 Closeout, replacement, and support

7.1 Closeout record

Field	Project record
Project / area	
SceneDMXcas name in app	
Casambi network	
Profile	Scene Gateway - 2 DMX channels
DMX Start Address	
DMX channel use	Selector _____ Intensity _____
Scene Mapping Slots 1-20 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 SceneDMXcas using the scene Gateway profile. Confirm the replacement is unpaired, powered, and within Bluetooth range. Re-enter the DMX Start Address and all Scene 1-20 assignments if they are not carried through, then test every used selector value, intensity scaling, and the DMX-loss response.

7.3 Regulatory and installation notes

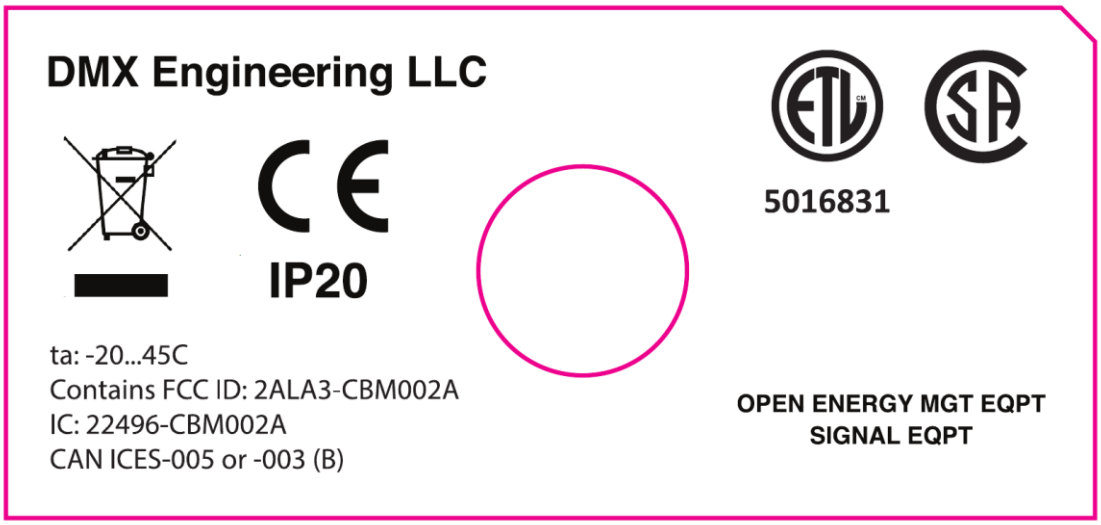
- Indoor use only. Install as an open-type Class 2 device in accordance with the National Electrical Code and local requirements.
- Operation is subject to the two FCC Part 15 conditions: the device may not cause harmful interference and must accept interference received, including interference that 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 rear 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.