



# Bridgelux<sup>®</sup> Vesta<sup>®</sup> Flex DALI-2 DT8 Control Module

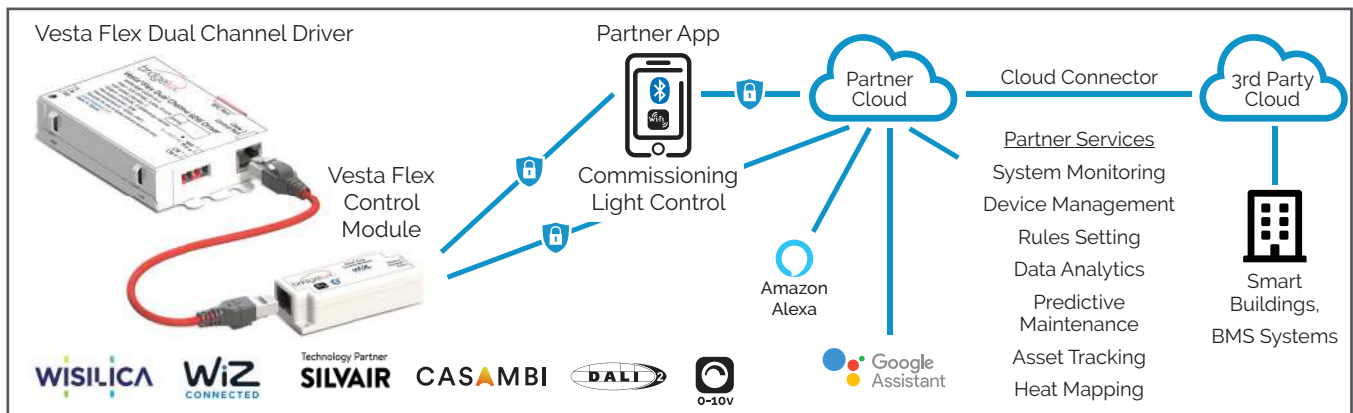
Product Data Sheet DS 459



# Vesta Flex Platform

The Bridgelux Vesta Flex Dual Channel Driver and Control Module family is a bundled system, guaranteed to work together out of the box, that enables seamless control of the Bridgelux Vesta Series Tunable White Arrays and Modules. The Driver's high resolution dimming and tuning algorithm provides for smooth and flicker-free CCT tuning, dimming to 0.1%, and dim-to-off. These specification grade drivers and control modules are separate devices which, when connected via an ethernet cable, form a smart and flexible lighting control system. These Vesta Flex Control Modules are intended for use with a Vesta Flex Dual Channel Driver and to be factory installed as incorporated products. The platform offers a number of driver and control module options to choose from, enabling application flexibility and interoperability with third party systems. These different control modules support wired control protocols such as DALI-2 DT8 and 0-10V as well as wireless control protocols with WiFi and Bluetooth mesh. These platforms come with ready-built iOS and Android apps and web portals which provide for commissioning, light management, and services designed to expand the capability of modern lighting systems. Vesta Flex is a future-ready solution, designed to quickly adapt to new control systems without requiring luminaire recertification.

## Vesta Flex Platform Overview



## Lighting systems with DALI-2 DT8 wired control devices

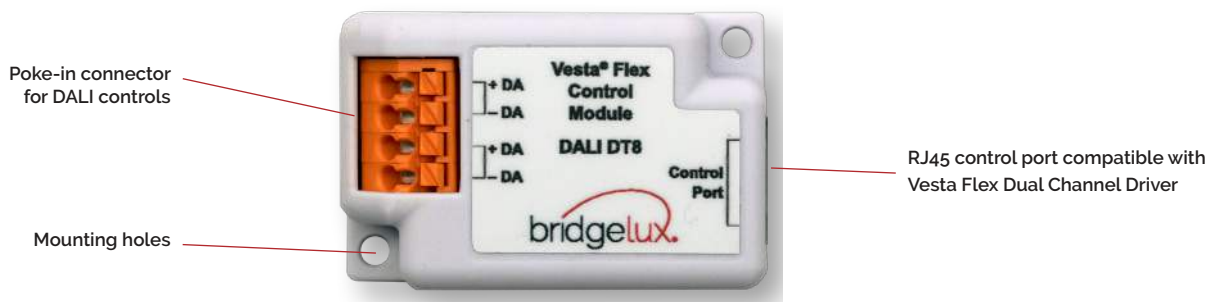
- DALI-2 DT8 certified
- Two-channel control of color temperature and intensity
- Commission and manage lighting fixtures via DALI2 DT8 certified controller
- Linear and logarithmic dim curve options, programmable via DALI-2 DT8 certified controller
- Dim-To-Dark below minimum dimming level

# Product Feature Map

Bridgelux Vesta Flex Control Module features a control port with an RJ45 terminal which enables plug-and-play connectivity with any Vesta Flex Dual Channel Driver control port. The Control Module receives auxiliary power from the Driver via the RJ45 control port and communicates with the Driver via a dual channel PWM signal.

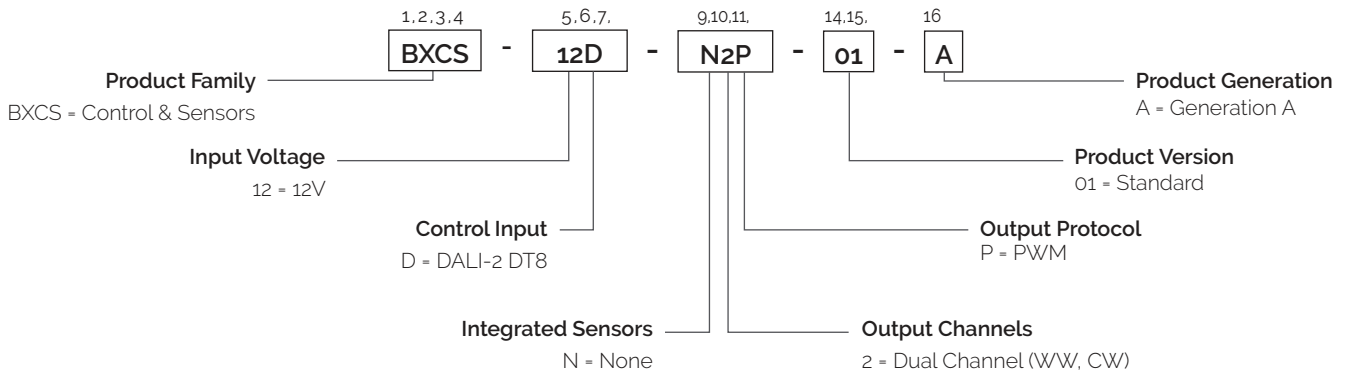
The control module receives its control inputs via a pairs of DALI-2 signal wires that communicate with a DALI-2 DT8 compatible controller.

Please visit [www.bridgelux.com](http://www.bridgelux.com) for more information on Vesta Flex Dual Channel Driver and Vesta Series Tunable White arrays and modules.



## Product Nomenclature

The part number designation for Bridgelux Vesta Flex Bluetooth control module is explained as follows:



**Table 1: Product Selection Guide**

Part Number	Control Protocol
BXCS-12D-N2P-01-A	DALI-2 DT8



# Electrical Characteristics

## Control Port Connection

Vesta Flex Control Modules are designed to connect and communicate with all Vesta Flex Dual Channel Drivers out of the box. Any 8P8C category ethernet cable with RJ45 connectors may be used to connect the Control Module and the Driver via the RJ45 port. The communication between the control module and the driver is asymmetric. The Vesta Flex Dual Channel Driver will not work without this asymmetric communication signal from the Vesta Flex control module.

The Vesta Flex Driver automatically detects which control module is connected to it and adjusts its settings accordingly. This feature allows to simply plug-and-play any Vesta Flex Control Module with any Vesta Flex Dual Channel Driver regardless of the chosen communication protocol on the Vesta Flex Control Module.

Bridgelux recommends the use of an ethernet cable that is commonly available and recognized by the Telecommunications Industries Association (TIA), e.g. Cat 5e, Cat 6 and Cat 6a cables.

The maximum length of such an ethernet cable is 300m.

**Table 2: Electrical Characteristics**

Parameter	Specification
Power load in transmit and receive mode	0.5W (max)
Power load in standby mode	0.25W (max)
Start up time	< 0.3 sec from supply of input power to voltage output on RJ45 port

## DALI Connectivity

The DALI-2 enabled Vesta Flex Control Module uses the Device Type 8 (DT8) protocol compatible with industry standard DALI-2 DT8 enabled control gear featuring CCT tuning and intensity dimming functionality.

Provisioning, commissioning and managing light fixtures via DALI-2 certified controller.

DALI-2 specifies a logarithmic dimming characteristic in accordance with IEC 62386-102: 9.3. Alternative dimming characteristics may be realized by programming a DALI-2 DT8 certified controller.

The Vesta Flex DALI-2 Control Module remembers its previously set control state in the event of a power outage, even if a DALI-2 control input is absent after a mains power cycle.

**Table 3: Supported Control Specifications**

Supported Control Method	Specification
DALI-2 DT8	IEC 62386-101, -102, -209

# Terminal Configuration

**Figure 1: Terminal Configuration**



**Table 4: Input Terminal Specification**

Item	Specification
Connector	Phoenix PTSA 1.5/4-3,5-F MC
Connector type	Push-in
Wire AWG	16-24
Wire type	solid or stranded copper
Wire strip length	9mm +/-1mm

**Table 5: Input Terminal Configuration**

Input Terminal Label	Signal
+ DA	(+) DALI-2 signal
- DA	(-) DALI-2 signal
+ DA	(+) DALI-2 signal
- DA	(-) DALI-2 signal

Notes for Table 5:

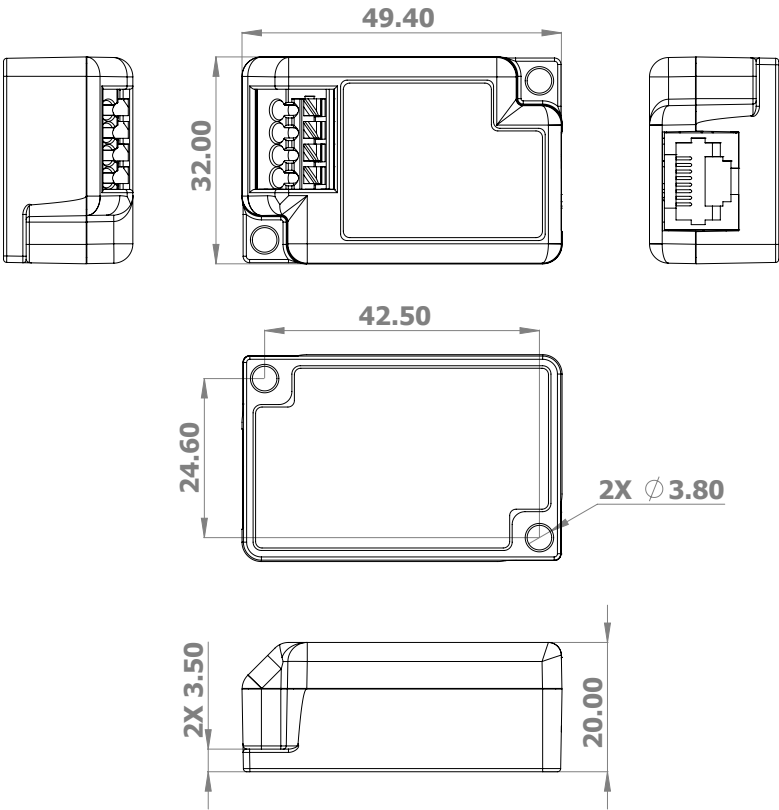
1. The + DA and the - DA terminals are internally connected to allow for multiple Vesta Flex DALI-2 Control Modules to be connected in a series configuration.

# Mechanical Characteristics

**Table 6: Control Module Mechanical Characteristics**

Characteristics	Specification
Dimensions (mm)	50 (L) x 32 (W) x 20 (H)
Enclosure material	Plastic
Weight (grams)	20.0
Ingress protection	IP 20

**Figure 2: Mechanical Drawing**



Notes for Figure 2:

1. Drawing dimensions are in millimeters.
2. Unless otherwise specified, all linear tolerances are +/-0.50mm.
3. Use #6, M3 or M3.5 fastener in the mounting holes for anchoring the control module in position.
4. Refer to Bridgelux assembly drawing 1030-000215 for complete product configuration

# Environmental and Regulatory Standards

**Table 7: Environmental Conditions**

Parameter	Specification
Ambient Operating Temperature	-20 C to +45 C
Humidity Ratings	Maximum 85% Relative Humidity, non condensing
Operating Environment	For indoor use only
Storage Temperature	-20 C to +70 C
MTBF	> 100,000 hrs at maximum ambient temperature

**Table 8: Regulatory Approvals and Compliance**

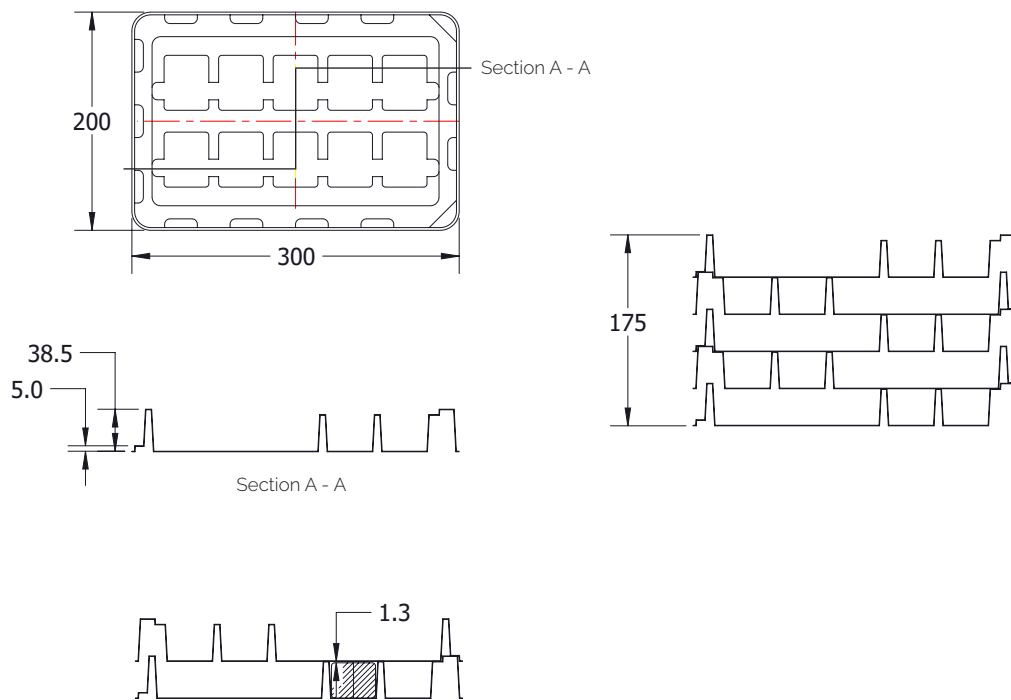
Specification	Description
UL/IEC 60730-1, file number E503792	International standard for safety of electrical controls; <ul style="list-style-type: none"> <li>• Purpose of control: Operating Control, Lighting Control Module</li> <li>• Construction of control: Incorporated</li> <li>• Type 1 Action</li> <li>• Pollution Degree 2</li> <li>• Impulse Voltage: 330V</li> </ul>
UL 2043	Standard for fire test for heat and visible smoke release for discrete products and their accessories installed in air-handling spaces, e.g. plenums
RoHS 3	Restriction of Hazardous Substances directive

# Packaging

**Table 9: Packaging Configuration**

	Tray	Box
Quantity (pcs)	20	100
Dimensions (mm)	300 (L) x 200 (W) x 38.5 (H)	315 (L) x 215 (W) x 220 (H)
Weight (kg)	0.45	2.6

**Figure 3: Tray Design**



Notes for Figure 3:

1. Each tray holds 20 Control Modules. There are 10 pockets in each tray. Each pocket holds 2 Control Modules.
2. Five trays are stacked on top of each other and placed in a shipping box. Each shipping box holds 100 Control Modules.
3. Drawing dimensions are in millimeters.
4. Unless otherwise specified, all tolerances are +/-1.0mm.



# Design Resources

## Application Notes

Please contact your Bridgelux sales representative for assistance on obtaining application support when designing with the Bridgelux Vesta Flex Dual Channel Driver and Control Modules. For a list of available resources, visit [www.bridgelux.com](http://www.bridgelux.com).

## 3D CAD Models

CAD models depicting the Vesta Flex Wireless Control module are available in both IGES and STEP formats. Please contact your Bridgelux sales representative for assistance.

# Precautions

## CAUTION: PRODUCT HANDLING

Handle the Vesta Flex Control Module with care to prevent any damage from mechanical shock.

It is recommended to handle this module in a static-free environment.

Do not open or disassemble the product.

To maintain product warranty, the installer is responsible for ensuring that the module's operating conditions do not exceed the maximum conditions stated within this data sheet.

## CAUTION: PRODUCT INSTALLATION

Incorrect installation of the Vesta Flex wireless control module can cause irreparable damage to the module, connected Vesta Flex Driver and/or connected LEDs.

When connecting the Vesta Flex wireless control module with the Vesta Flex Dual Channel Driver, make sure that the RJ45 connectors are locked in the RJ45 ports.

The product is intended for factory installation in a panel or into a controlled equipment.

# Disclaimers

## MINOR PRODUCT CHANGE POLICY

The rigorous qualification testing on products offered by Bridgelux provides performance assurance. Slight cosmetic changes that do not affect form, fit, or function may occur as Bridgelux continues product optimization.

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At Bridgelux, we help companies, industries and people experience the power and possibility of light. Since 2002, we've designed LED solutions that are high performing, energy efficient, cost effective and easy to integrate. Our focus is on light's impact on human behavior, delivering products that create better environments, experiences and returns—both experiential and financial. And our patented technology drives new platforms for commercial and industrial luminaires.

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46430 Fremont Blvd  
Fremont, CA 94538 USA  
Tel (925) 583-8400  
[www.bridgelux.com](http://www.bridgelux.com)

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