

Bridgelux® Vesta® Flex Dual 0-10V Control Module

Product Data Sheet DS 460

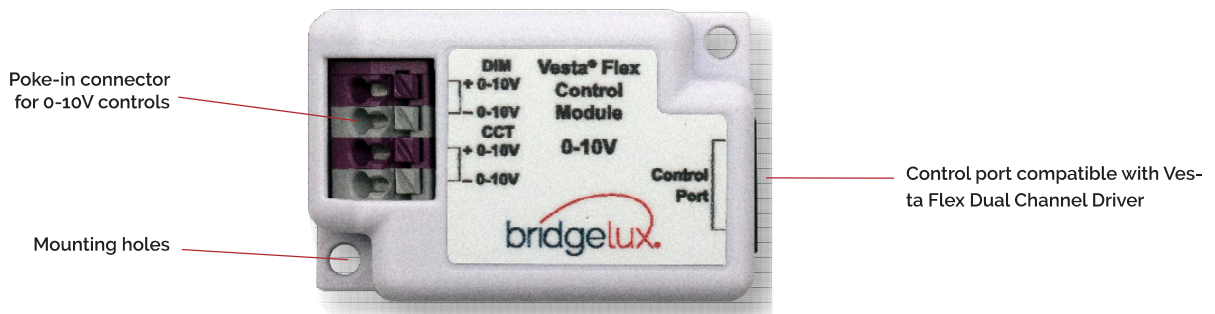


Product Feature Map

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 two pairs of analog 0-10V signal wires, one pair for intensity dimming and one pair for CCT tuning.

Please visit www.bridgelux.com for more information on compatible Vesta Flex Dual Channel Driver and Vesta Series Tunable White arrays and modules.



Product Nomenclature

The part number designation for Bridgelux Vesta Flex Dual 0-10V Control Module is explained as follows:

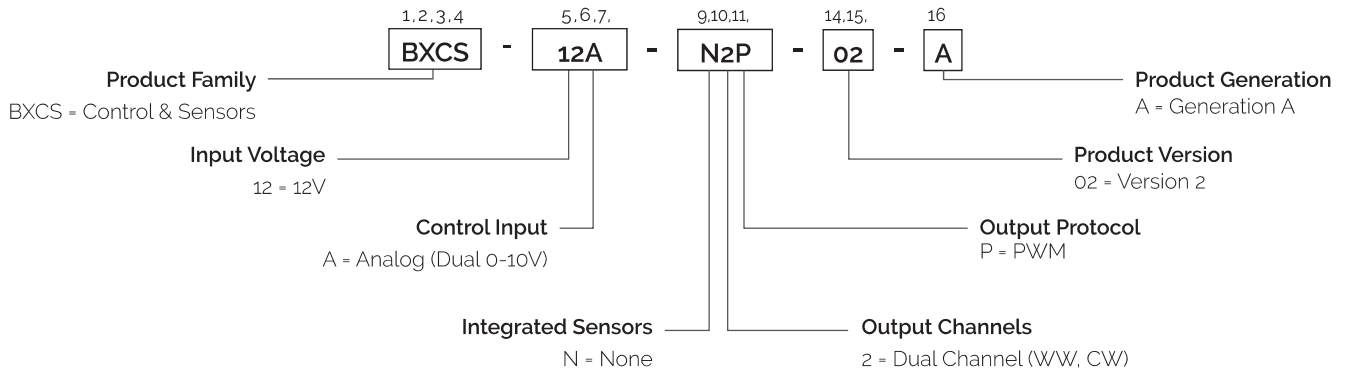


Table 1: Product Selection Guide

| Part Number | Control Protocol |
|-------------------|------------------|
| BXCS-12A-N2P-02-A | 0-10V |

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 | 0.2W (max) |
| Start up time | < 0.3 sec from supply of input power to voltage output on RJ45 port |

Control Characteristics

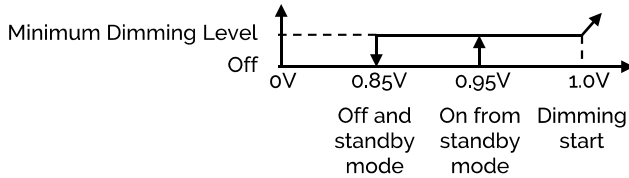
Table 3: Supported Control Specifications

| Supported Control Method | Specification |
|--------------------------|---------------------------|
| Current Sinking | IEC 60929 Annex E (0-10V) |
| Current Sourcing | ANSI E1.3-2001 (1-10V) |

Table 4: Control Signal Characteristics

| Control Method | Signal Parameter | Specification |
|----------------|------------------------------------------------------|---------------|
| 0-10V | Current sink per channel | 2mA (max) |
| 1-10V | Current source per channel | 10mA (max) |
| 0-10V, 1-10V | Voltage for highest dimming level and CCT tune range | > 9.0V |
| | Voltage for lowest dimming level and CCT tune range | < 1.0V |

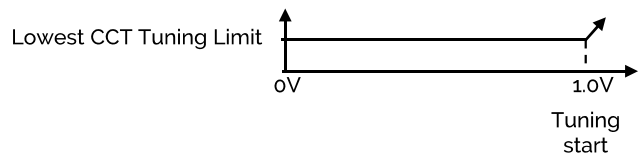
Figure 1: Control Signal Dim-To-Off Hysteresis



Notes for Figure 1:

1. When the Vesta Flex 0-10V Control Module is dimmed down and the signal voltage reaches 0.85V, then the Driver output power goes to zero and the Driver goes in standby mode. When the Control Module is dimmed up and the dimming control signal voltage reaches 0.95V, then the Driver exits standby mode and turns on its output power at minimum output current. That hysteresis prevents any potential flicker when the dimming control voltage drops below 1.0V.

Figure 2: Control Signal at Lowest CCT Limit



Notes for Figure 2:

1. When the Vesta Flex 0-10V Control Module is tuned to its lowest CCT limit and the signal voltage drops below 1.0V, then Driver output maintains its current state resulting in a constant CCT at the lowest limit.

Terminal Configuration

Figure 3: Terminal Configuration

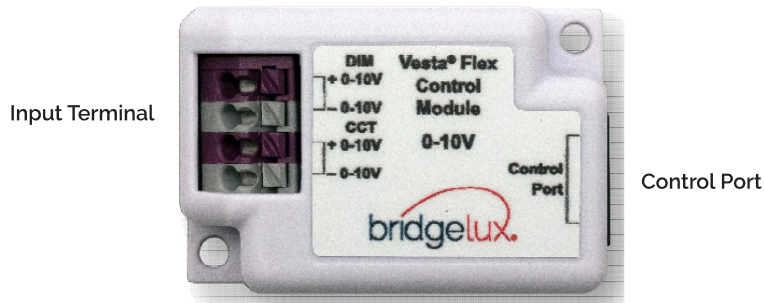


Table 5: Input Terminal Specification

| 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 6: Input Terminal Configuration

| Input Terminal Label | Signal |
|--------------------------|---------------------------------|
| + 0-10V Dim | (+) 0-10V for intensity dimming |
| - 0-10V Dim ¹ | (-) 0-10V for intensity dimming |
| + 0-10V CCT | (+) 0-10V for CCT tuning |
| - 0-10V CCT ¹ | (-) 0-10V for CCT tuning |

Notes for Table 6:

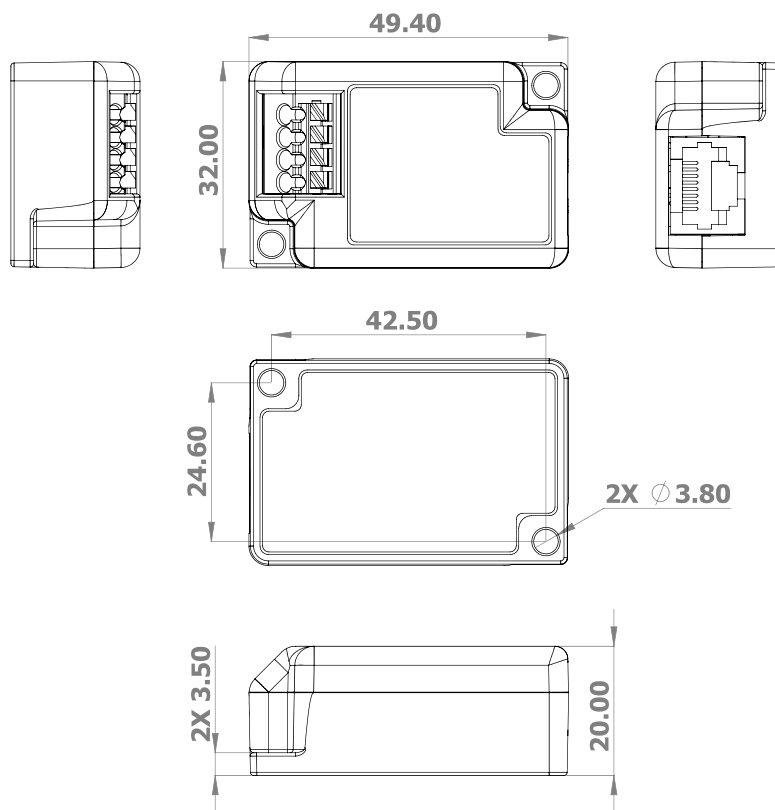
1. The - 0-10V Dim and the - 0-10V CCT terminals are internally connected to a common ground.

Mechanical Characteristics

Table 7: 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 4: Mechanical Drawing



Notes for Figure 4:

1. Drawing dimensions are in millimeters.
2. Unless otherwise specified, all linear tolerances are ± 0.50 mm.
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 1030-000214 for complete product configuration.

Environmental and Regulatory Standards

Table 8: 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 | > 1 Million hrs at maximum ambient temperature |

Table 9: Regulatory Approvals and Compliance

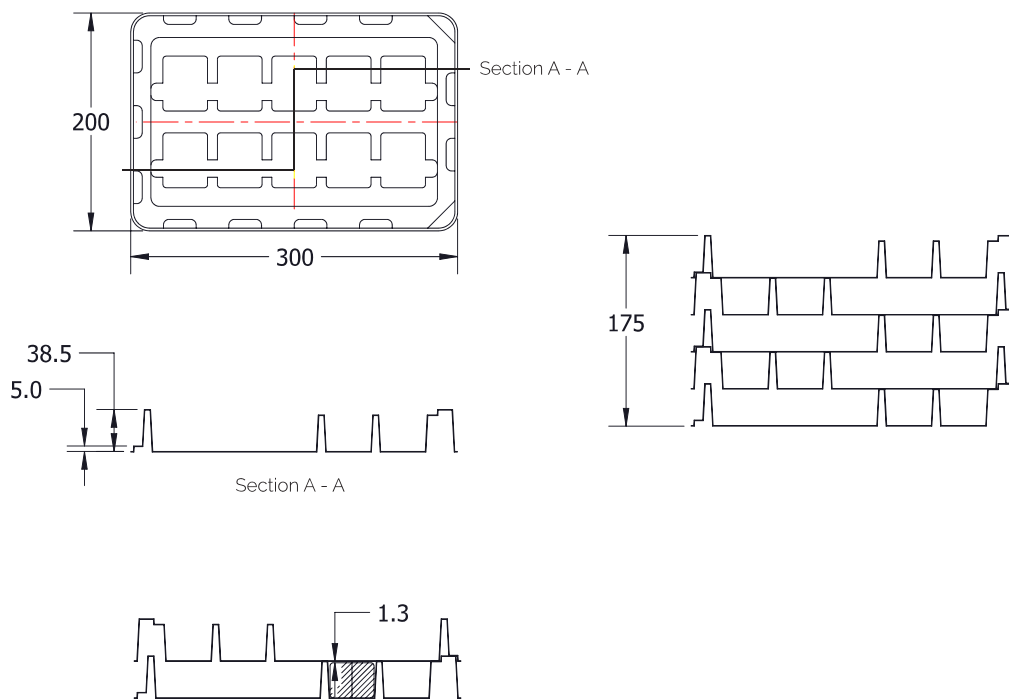
| Specification | Description |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UL/IEC 60730-1, file number E503792 | International standard for safety of electrical controls; <ul style="list-style-type: none"> • Purpose of control: Operating Control, Lighting Control Module • Construction of control: Incorporated • Type 1 Action • Pollution Degree 2 • Impulse Voltage: 330V |
| 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 10: 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 5: Tray Design



Notes for Figure 5:

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.

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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