



Installation Instructions for the Vivisys EasyConnect board

WARNING – DO NOT connect any live AC mains power conductors to the EasyConnect board.

WARNING – Ensure that the EasyConnect board and the C-Bus Bus Coupler and associated C-Bus cabling are well separated from mains wiring, earthed metal structures and electrical noise sources.

WARNING – The maximum voltage and currents for this product as listed in this document **MUST** be observed for safe operation and to avoid product damage.

NOTE – Connection of the C-Bus network to the Bus Coupler is described in the Clipsal Bus Coupler Installation Instructions.

Introduction

The Vivisys EasyConnect Digital I/O Interface board works in conjunction with the standard Clipsal 5102BCLEDL Bus Coupler to allow connection of various your low voltage devices. The standard bus coupler connects to floating switches only, and powers two LEDs, but the EasyConnect board extends this by allowing the connection of on/off non-floating voltage sources, and turning the LED outputs into two solid state relay outputs.

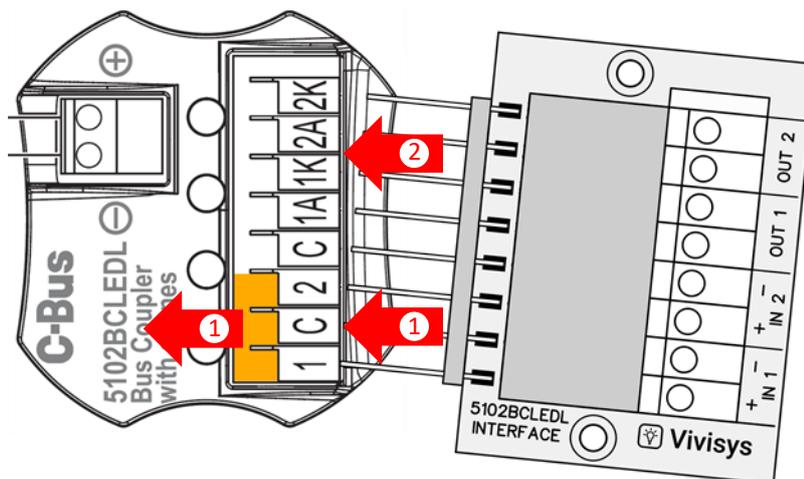
Making it easy, one EasyConnect board (used with a standard Clipsal 5102BCLEDL Bus Coupler) brings the following to the C-Bus system:

- Two non-floating on/off DC voltage inputs, typically in the 5 to 48 V DC range.
- Two solid state relay outputs for driving loads up to 48 V DC and 0.30 A.
- The ability to easily connect devices such as garage door openers, sliding gates, door locks, water sensors, etc.

The EasyConnect board is powered from the 5102BCLEDL Bus Coupler. For further information on how to use the inputs

Connection to Bus Coupler

1. To insert the EasyConnect board into the Bus Coupler, first press back the bottom two or three orange terminal release tabs, and gently press in the bottom prongs from the EasyConnect board into the terminals.
2. Now firmly press and rotate the other prongs into their terminals. This effectively inserts one prong at a time making the exercise much easier.

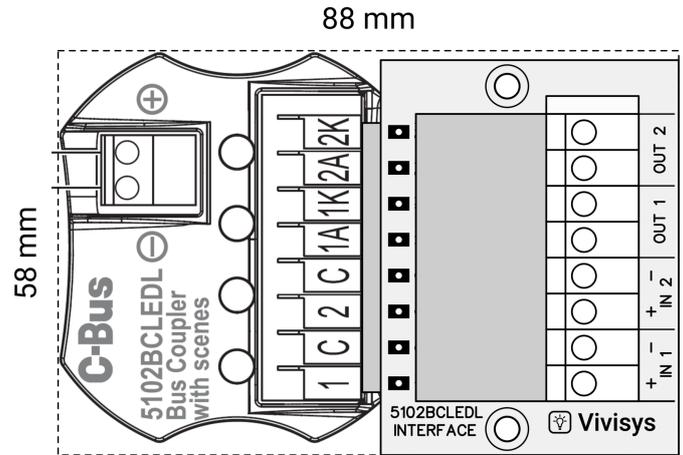


Connection of the C-Bus network to the Bus Coupler is made using the two-terminal connector on the top of the Bus Coupler, and is described in more detail in the Clipsal Bus Coupler Installation Instructions.

Specifications and device wiring

The devices to be connected are wired to the input and output terminals in accordance with the following information. Read the specifications table to ensure maximum ratings are not exceeded, and to ensure trouble-free operation.

General	
PCB Dimensions (W×H×D)	42 mm x 56 mm
Terminal wire size	0.25 - 2.0 mm ²
Isolation (terminal block to C-Bus Coupler)	3750 Vrms
Operating temperature range	0 – 45 deg C
Operating humidity range	10-95% RH
Inputs	
Input voltage to register as ON state	5 - 18 V
Input voltage to register as OFF state	< 1.5 V typ.
Internal series resistance	720 Ω
Min/Max input current for ON state	5 mA / 25 mA
Outputs	
Maximum voltage	48 V
Maximum current	0.30 A
OFF state leakage	1 μA max (typ. 100 pA)
ON state resistance	2 Ω max (1 Ω typ.)



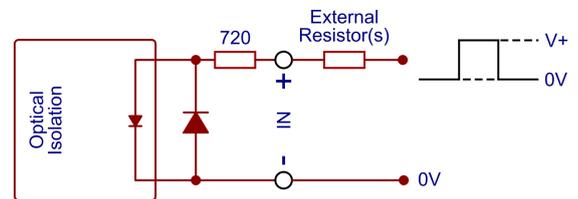
Two plastic standoffs are supplied for use as required.



NOTE – Ensure that the EasyConnect board and the C-Bus Bus Coupler and associated C-Bus cabling are well separated from mains wiring, earthed metal structures and electrical noise sources.

Input operation

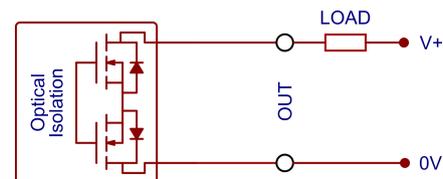
The input is polarised but features reverse polarity protection. The inbuilt series resistance is sufficient to directly accept ON voltages in the range 5 to 18 Vdc. At higher voltages some series resistance is needed to limit the current to an allowable level. These resistors are to be 0.5 W e.g. readily available metal film types.



Series resistance required to limit current for voltages greater than 18 Vdc						
Voltage source (V+)	5 - 18 Vdc	19 - 24 Vdc	25 - 30 Vdc	31 - 36 Vdc	37 - 42 Vdc	43 - 48 Vdc
External Resistor(s)	Not needed	2.2 kΩ	2.7 kΩ	3.9 kΩ	2 x 2.2 kΩ in series	2 x 2.7 kΩ in series

Output operation

The outputs are a solid state contact. To avoid damage the current must not exceed 0.30 A (300 mA), and the voltage must not exceed 48 Vdc. The two output connections are not polarised and an example configuration is shown. To ensure the current is kept less than 0.30 A, the table shows the minimum load resistance to be observed at various driving voltages.



Output - load series resistance required to keep current less than 0.30 A					
Voltage source (V+)	5 V	12 V	24 V	30 V	48 V (max)
Load resistance	> 16 Ω	> 40 Ω	> 80 Ω	> 100 Ω	> 160 Ω

Toolkit setup

Having connected the unit to the C-Bus network, the Bus Coupler needs to have an independent Group Address assigned to each of the two inputs and each of the two outputs. The short and long press settings ensure that the Group Addresses follow the state of the two inputs, while the LEDs are assigned separate Group Addresses allowing them to be independent of the inputs.

Micro Function	Key 1	Key 2
Short Press	On Key	On Key
Short Release	Off Key	Off Key
Long Press	On Key	On Key
Long Release	Off Key	Off Key

Bistable Switches

Key 1 Key 2

Highlighted columns represent bistable switches where each key micro function equates to the following:

Short Press = Just Closed Long Press = Just Opened
 Short Release = Closed Long Release = Opened

Block Assignments		Recall Lvl (%)		Timer		Keys Using Block								LED Assignment	
Application	Group	Recall 1	Recall 2	Timer 1	Expiry	1	2	V3	V4	V5	V6	V7	V8	1	2
1	Primary Input 1 (BCLED)	100	100	0h0m0s	Off Key	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Primary Input 2 (BCLED)	100	100	0h0m0s	Off Key	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Primary Output 1 (BCLED)	100	100	0h0m0s	Off Key	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Primary Output 2 (BCLED)	100	100	0h0m0s	Off Key	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Primary <Unused>	100	100	0h0m0s	Off Key	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Primary <Unused>	100	100	0h0m0s	Off Key	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Primary <Unused>	100	100	0h0m0s	Off Key	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Primary <Unused>	100	100	0h0m0s	Off Key	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Further support

Please see our EasyConnect Application Note at:

<https://vivisys.com.au/wp-content/uploads/2021/06/AN-EasyConnect.pdf>

To address any further questions you may have, please contact us for technical support at the phone number or email address listed at the page footer.

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