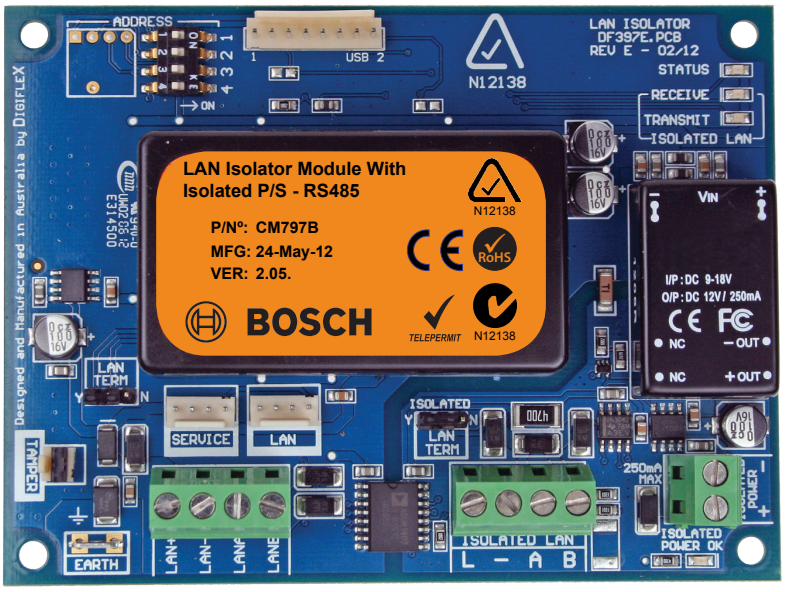
CM797B
LAN Isolator Module & Isolated P/S



Security Systems

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CM797B LAN Isolator Module

The CM797B LAN Isolator module provides 2.5KV electrical isolation between different LAN segments or between the LAN and other modules. The isolator also regenerates the LAN signals allowing the total LAN length to be increased beyond the standard length of 1200 meters and also provides a 2.5KV isolated 12V @ 250mA power supply which can be used to power keypads or LAN prox readers providing complete electrical isolation for devices located on the outside of buildings etc.

Isolator Module Compatibility	
Panels Supported	**Version**
Solution 16i	2.19
Solution 144	2.00
Solution E Series	2.00

Table 1: CM797B LAN Isolator Module Compatibility

The isolator module helps eliminate earth loops in the LAN cabling, improves surge immunity and protects LAN sections from faults and tampering. When the LAN is being connected between separate buildings, an isolator module must be installed in each building to provide the best surge protection.

The various methods for connecting the module are shown in the wiring examples in this guide.

The CM797B LAN Isolator module should be used in the following situations,

1) When keypads or LAN readers are being mounted on the outside wall of a building.
2) When modules and other devices are being installed in multiple buildings.
3) When the total LAN length is in excess of 1200 metres.
4) Whenever long or potentially noisy LAN cable runs are required.

Operation

As the CM797B is effectively transparent when used on the Solution 16i, Solution 144 and Solution E Series panels and the systems will not reports errors or faults specifically on the module. Instead the devices connected to the isolated LAN will report as missing should the cabling be damaged or tampered with.

The module includes a number of indicator LEDs to display CPU status, isolated LAN traffic and isolated power supply condition. See the table below for more details.

LED Indicators		
Led	**Condition**	**Meaning**
Power	**On**	Isolated Power OK.
	Flashing	Isolated Power Overloaded.
Receive	**On**	Isolator receiving data.
Transmit	**On**	Isolator transmitting data.
CPU	**Flashing**	Module is powered and running normally.
	Off	Indicates that the module is not running or is not powered.

Table 2: CM797B LED Functions

Isolated Power Output

The built in Isolated power supply allows the isolator to power loads up to 250mA without needing to add an additional power supply. This especially useful when isolating external keypads and prox readers as it prevents tampering with the wiring effecting the rest of the system.

It is important however to understand that the power supply it taking current from the input power source and you will need to take this into account when determining the total system load and power supply requirements. With the isolated power supply at full rated load of 250mA the input current requirements for the isolator module are 340mA.

Terminating the LAN

For reliable operation, the system LAN must be terminated correctly. The control panel and all LAN modules include a LAN TERM pin header and shunt which is used to connect the termination resistor on the module.

When the shunt is installed between the Y pin and the centre pin, the terminator is fitted and when the shunt is between the N pin and the centre pin the terminator is not fitted.

Where all modules are connected to the panel on a single cable run, (Daisy Chained) the terminators should be installed on the first and last modules on the LAN.

If the modules are connected to the panel via multiple cables all running back to the control panel (Star Configuration) then the terminators should be installed on the modules at the end of the two longest cable runs.

There are no LAN terminators on keypads. If a keypad is one of the two furthest devices from the control panel then a 470 ohm 1/2watt resistor can be fitted at the keypad between the LAN A and LAN B terminals.

The LAN Isolator module includes two lan terminators, one for the LAN input and one for the isolated LAN output. The termination rules apply to each isolated LAN segment which means if the isolator module is one the two furthest points on the LAN segment then you will need to fit the applicable terminator. See termination diagrams later in this document for examples.

Note

The LAN must be terminated correctly for correct operation.

Wiring Considerations

1) Never connect the LAN+, LAN-, LAN A or LAN B terminals on the LAN side directly to the L, -, A or B terminals on the isolated side.

2) When more than 250mA is required on the isolated side you should install an additional power supply on the same side of the isolation barrier.

3) Do not exceed the maximum current output from the control panel when driving multiple isolator modules. In this case you should install an additional power supply on the panel side of the isolation barrier.

4) For best performance you should avoid wiring more than 6 isolator modules in any branch leaving from the control panel.

Connection Diagram - Multiple Buildings

The following diagram illustrates how the CM797B LAN Isolator might be used in a multiple building installation. You will notice that the keypad and LAN prox readers located in building 1 and 2 are fully isolated from the main LAN and they are being powered from the on board isolated power supply.

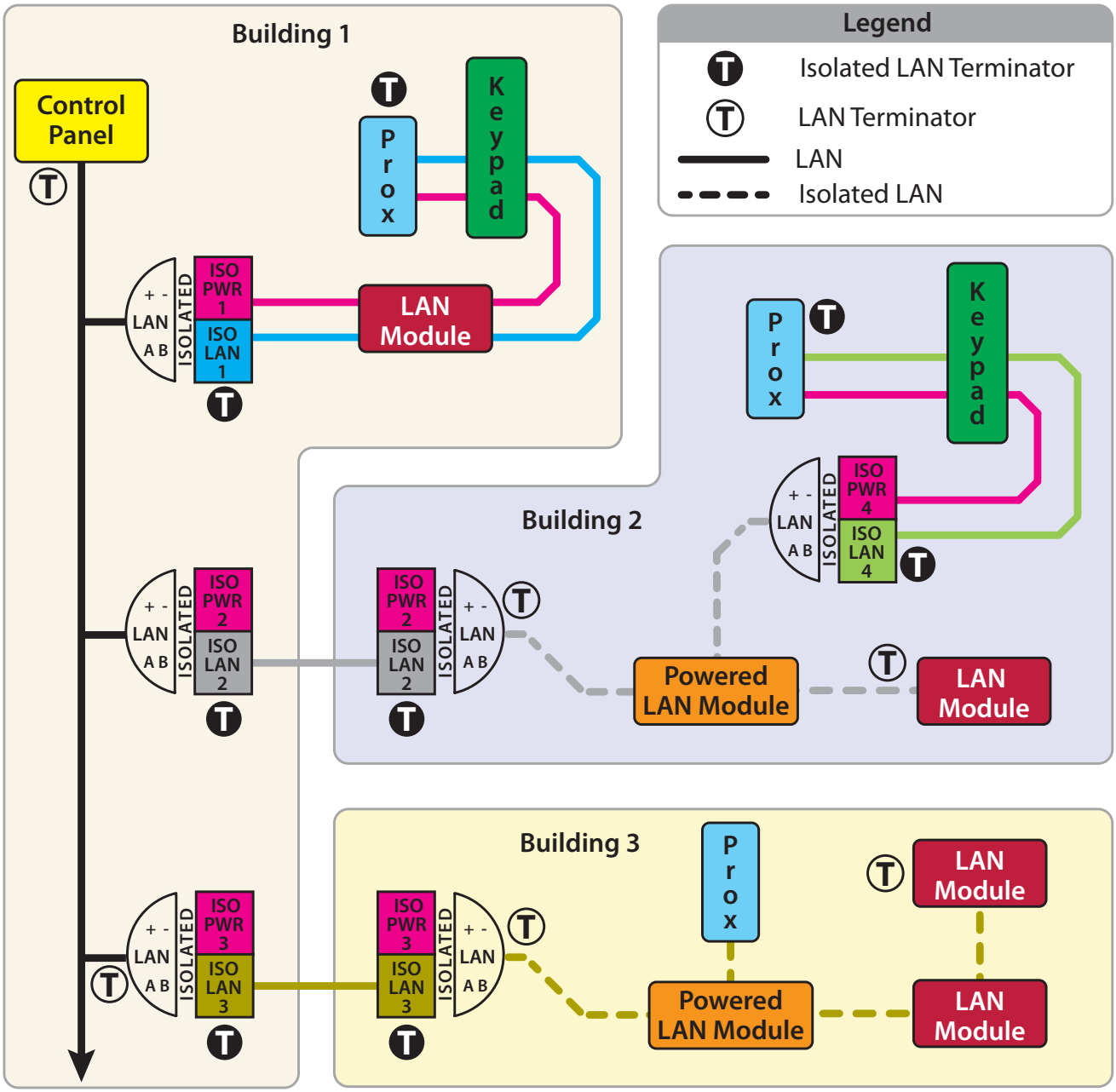

Figure 1: Connection Example Showing Multiple Buildings And Isolator Modules

Connection Diagram - Device Isolation

The following diagram shows the correct wiring method when using the CM797B to power and isolate a PR111B LAN Prox Reader from the main LAN. This wiring method is recommended whenever LAN based prox readers or keypads are mounted on external walls as it will prevent device tampering from effecting other LAN sections in the building.

In this example the isolator is being powered from the control panel and the reader is being powered by the isolated power supply. It is important to consider the overall current requirement on the panel when using this wiring method as when the isolated power supply is fully loaded (250mA) the total current required to power the CM797B is approximately 340mA. The isolated power supply on the CM797B has been designed to provide enough current to power up to two keypads or LAN readers.

If more current is required in your application, consider installing either a CM720B 1 Amp LAN Power Supply or CM723B 5 Amp LAN Power Supply.

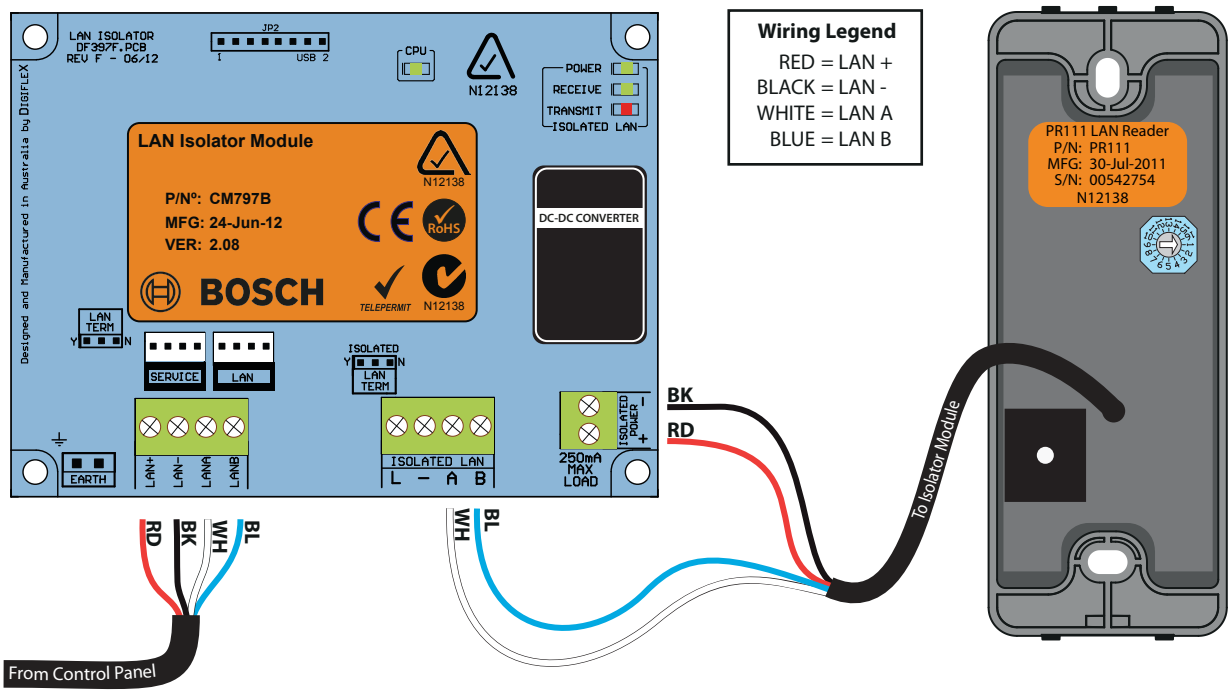

Figure 2: Device Isolation Connection Example

Connection Diagram - Building to Building Isolation

The following diagram shows the correct wiring method when using the CM797B in a building to building application. In this example building 1 is getting power from the control panel and building 2 will require a powered module like the CM705B Universal Expander or CM720B LAN Power Supply to provide power to the isolator.

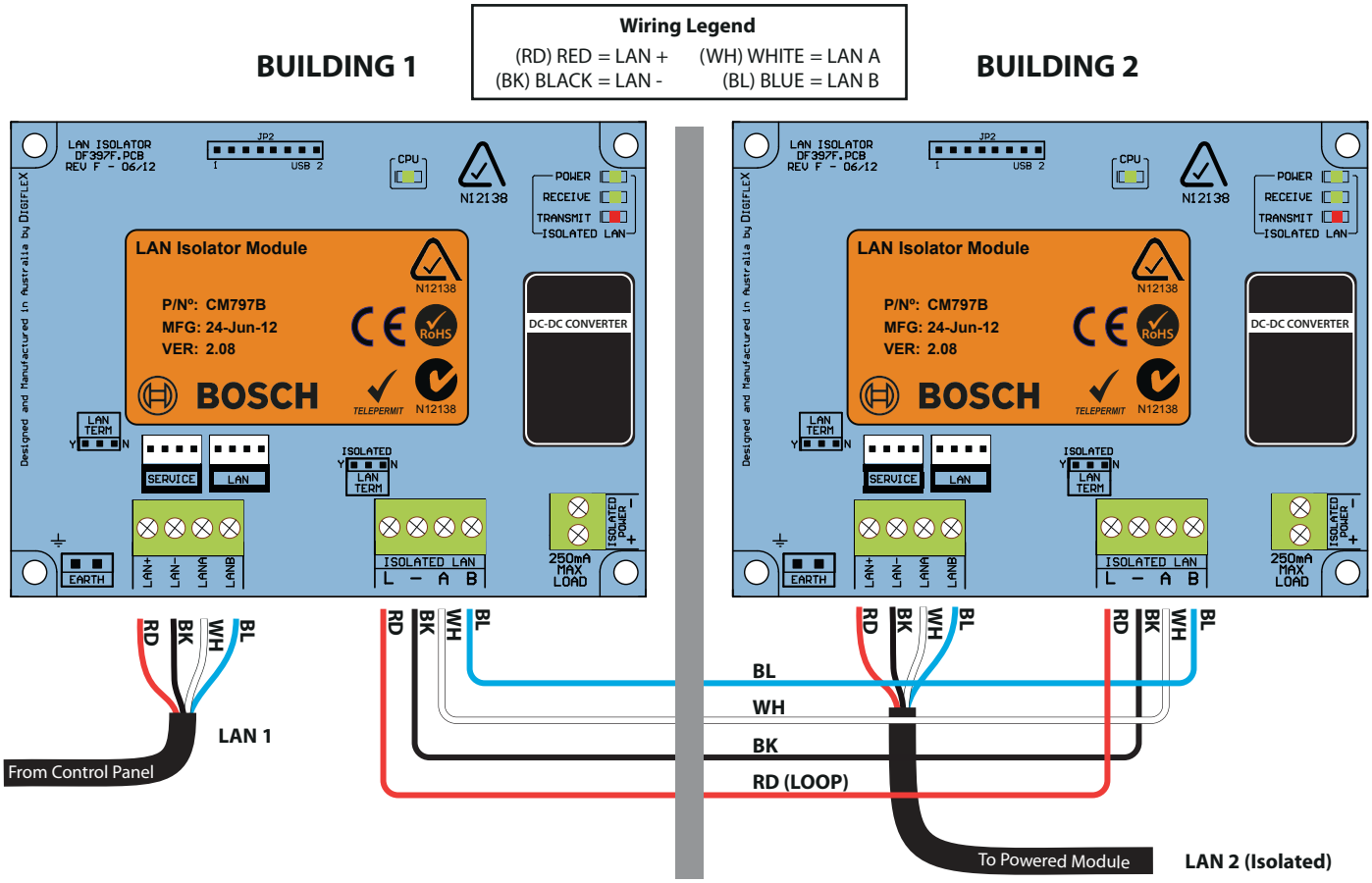

Figure 3: Building To Building Connection Diagram Example

CM797B Connection Diagram

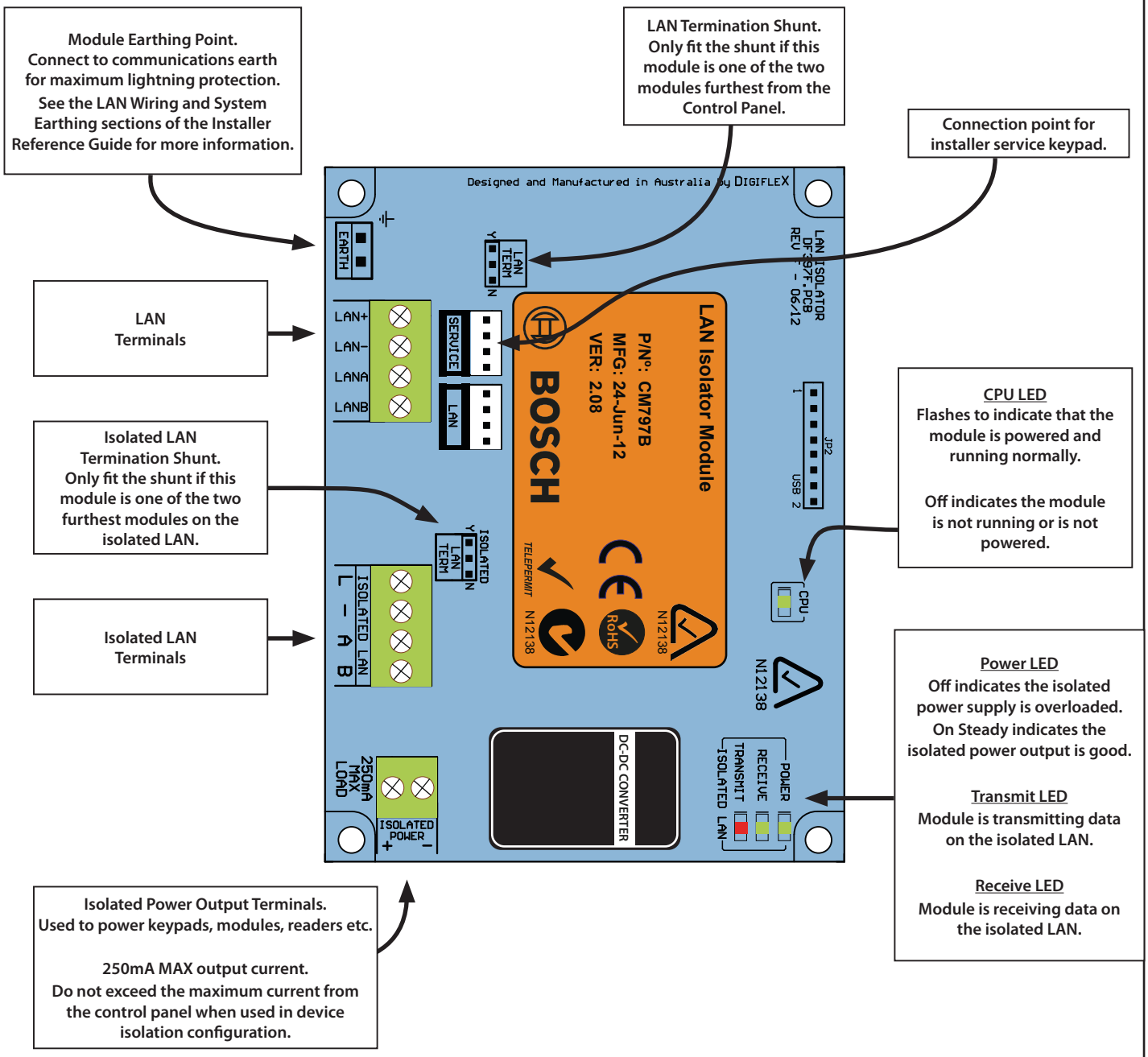

Figure 4: CM797B Connection Diagram

CM797B Specifications

Part Number:	CM797B - LAN Isolator Module (RS485).
Operating Voltage:	10.0V D.C - 14.5V D.C. @ 100mA / 340mA when ISO Power is fully loaded @ 250mA
Isolated Power Out:	13.8V D.C @ 250mA Max.
Electrical Isolation:	2.5KV between LAN and Isolated LAN.
Module Connection: (RS485 LAN)	Max total LAN length using multi strand security cable = 300m , Max total LAN length using 2 pair twisted shielded data cable (Belden 8723) = 1200m. See full control panel manual for complete wiring instructions.
Dimensions:	74mm(W), 23mm(D), 116mm(H).
Environment:	-30˚ to 55˚C RH 5 to 85% at 30˚C non-condensing.
Fixing Method:	The CM797B can be mounted in the MW700B, MW710B, MW720B or MW730B enclosures using clip in PCB mounts supplied.
Warranty:	3 years from date of manufacture (return to base).

N12138 N12138 TELEPERMIT CE RoHS

In the interest of ongoing product development this document is subject to change without notice.

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Issue FTR1.1

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