

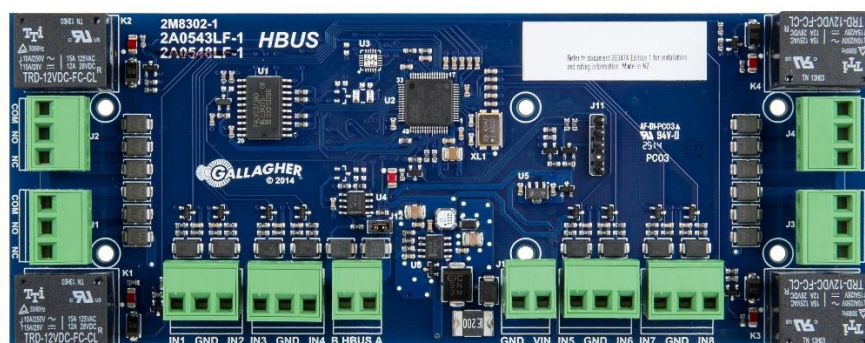


Gallagher

HBUS 8 In 4 Out Board

Installation Note

Gallagher HBUS 8 In 4 Out Board: C300684



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ATTENTION: This equipment contains components that can be damaged by electrostatic discharge. Ensure both you and the equipment are earthed before beginning any servicing.



IMPORTANT: The Gallagher HBUS 8 In 4 Out Board can only be used with Gallagher Command Centre vEL7.20 software (or later). Earlier versions of Command Centre do not support this device.

1 Introduction

The Gallagher HBUS 8 In 4 Out Board extends the existing connectivity of the Gallagher Controller 6000 via the HBUS communications protocol. The board provides connection for:

- 8 inputs
- 4 outputs

The HBUS 8 In 4 Out Board is supplied as a single circuit board for installation into a Gallagher Cabinet (C300120, C300121, C200100, C200104 or C200105). The blue coloured PCB signifies HBUS for ease of identification. If tamper monitoring is required, a Gallagher Tamper Board (C200610) can be connected directly to the HBUS 8 In 4 Out Board.

2 Before you Begin

2.1 Shipment Contents

Check the shipment contains the following items:

- 1 x Gallagher HBUS 8 In 4 Out Board
- 1 x Gallagher HBUS 8 In 4 Out Board component identification decal
- 6 x 4X1/4" pan pozi screws
- 16 x 4k7 ohm resistors

2.2 Software

The HBUS I/O device software is factory-loaded prior to shipment. New device software for the HBUS 8 In 4 Out Board is automatically downloaded from the Controller 6000 vGR7.20//b672 (or later).

To view the version of device software, as last reported by the board itself, click the **Connections** tab of the HBUS I/O item in Command Centre.

Note: The HBUS I/O item will display as offline until the item is fully configured.

2.3 Power Supply

The Gallagher HBUS 8 In 4 Out Board requires a 13.6 Vdc $\pm$ 15% power supply. This is connected through the terminals labelled Vin and GND. An onboard 1 A resettable polyfuse provides over current protection.

Note: It is recommended that lock power be supplied via a separate cable from the control electronics, to minimise the possibility of high current spikes resulting from lock switching causing other electronic equipment to malfunction.

2.4 Building Cabling

The Gallagher HBUS 8 In 4 Out Board requires a minimum cable size of 4 core 24 AWG (0.2 mm²) stranded security cable. This cable allows the transmission of data (2 wires) and power (2 wires). When using a single cable to carry both power supply and data, both the power supply voltage drop and data requirements must be considered.

HBUS Cabling Topology

The HBUS communications protocol is based on the RS485 standard and allows the module to communicate over a distance of up to 500 m (1640 ft).

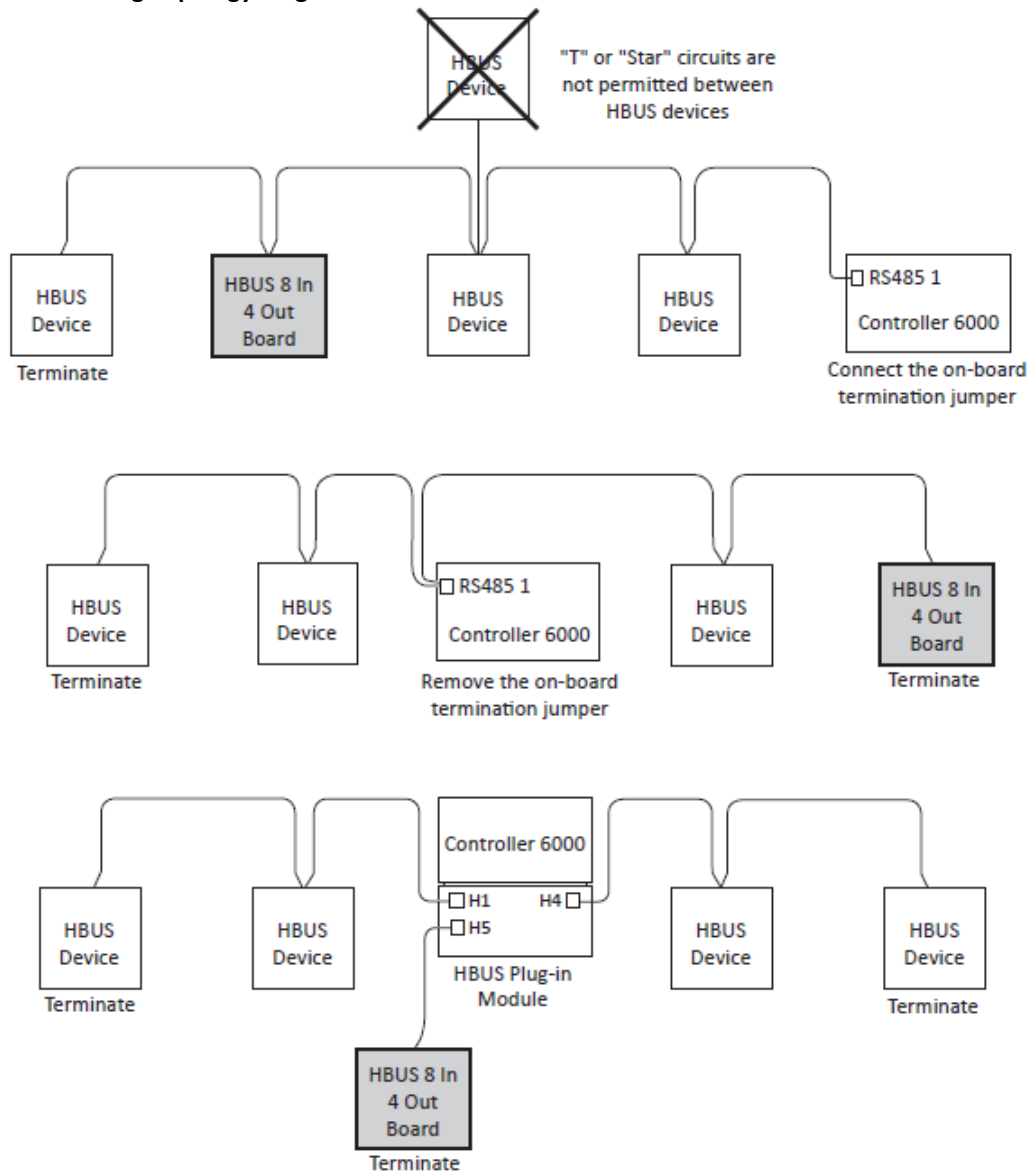
The cabling between HBUS devices should be done in a "daisy chain" topology, (i.e. A "T" or "Star" topology should not be used between devices).

Termination

The start and end devices on an HBUS circuit should be terminated using 120 ohm resistance.

If the HBUS 8 In 4 Out Board is the start or end device on an HBUS circuit, terminate the board by connecting the supplied on-board termination jumper (J12) to the board. The location of the termination jumper (J12) is shown in the topic "*Component Layout*" later in this note.

HBUS Cabling Topology Diagrams

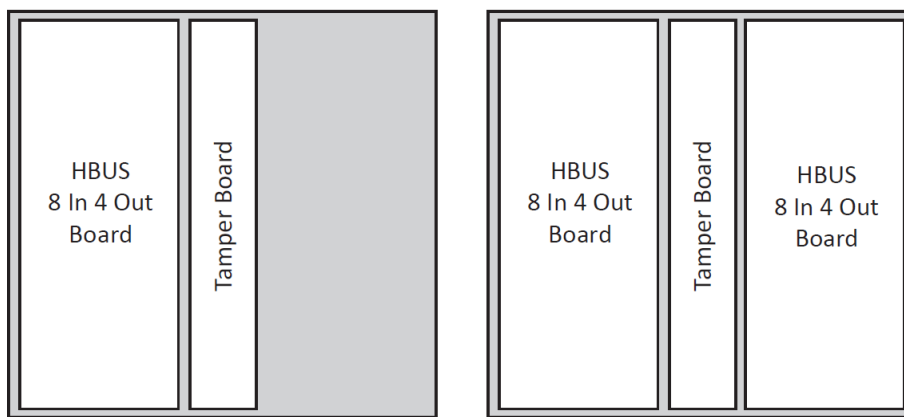


3 Installation

The Gallagher HBUS 8 In 4 Out Board can be mounted in a Gallagher Cabinet (C200100) or Gallagher Dual Cabinet (C200104 or C200105).

1. To mount the Gallagher Cabinet, refer to the appropriate note:
 - Gallagher Starter Kit Cabinet Installation Note (3E3723)
 - Gallagher Two Door Controller Cabinet Installation Note (3E3721)
 - Gallagher Cabinet Installation Note (3C4513)
 - Gallagher Dual Cabinet Installation Note (3E0694)
2. Install a Gallagher Mounting Plate (C200001, C200002 or C200003) directly into the Cabinet.

Installation layout options within a Gallagher Cabinet (C200100) are:



3. Using the 4 screws supplied, fit the board to the associated mounting plate.
4. Connect the inputs and outputs as detailed in the topic "*Connections*" later in this note.

Note: The cables should stow neatly and be held in place by the cable clamps fitted into the base of the Cabinet.
5. Fix the component identification decal inside the Cabinet door.

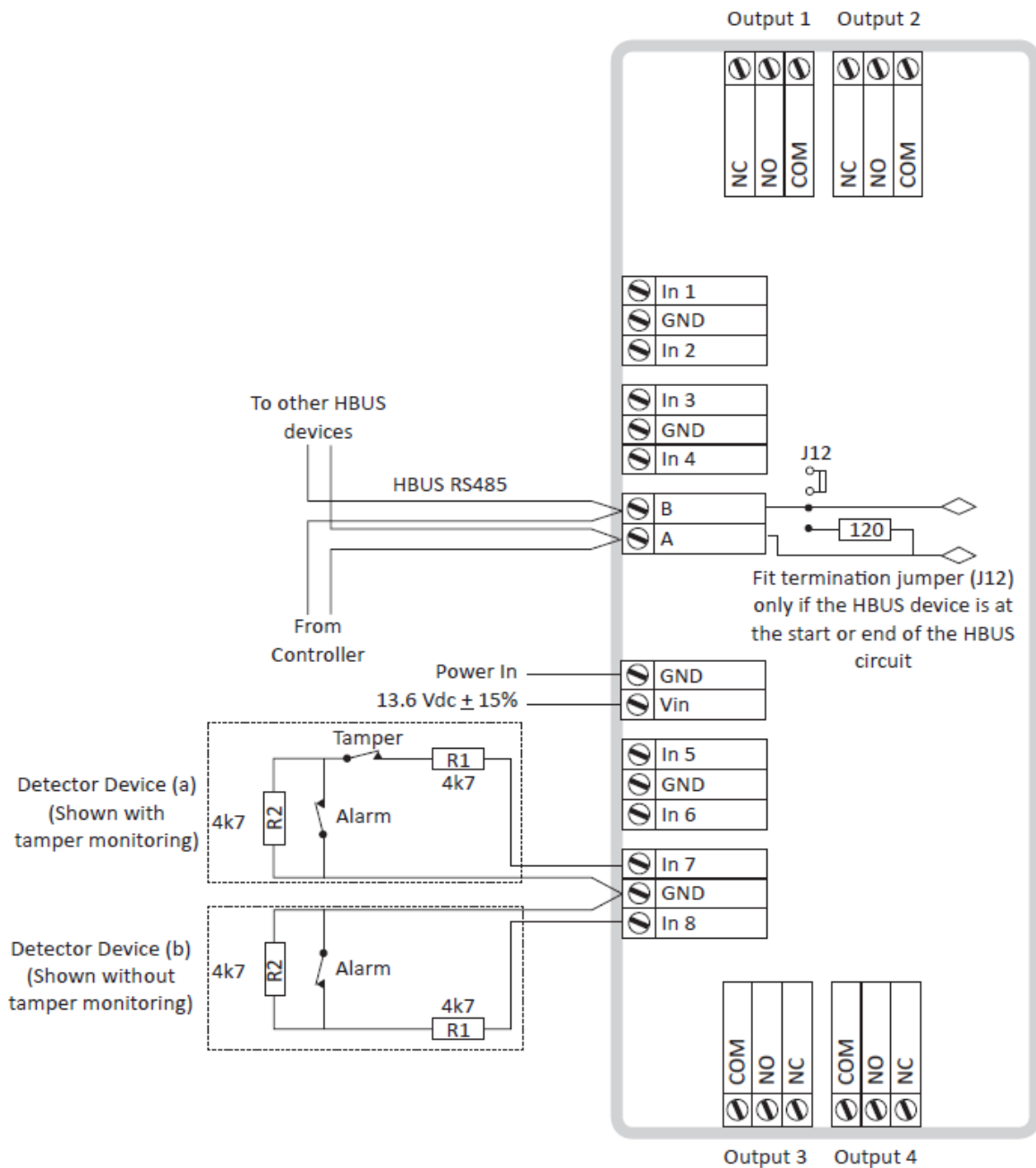
This decal enables you to enter wiring and connection details and identifies the location and designation of cable connections, etc.

Note: Do not fix the decal over the reflective label. This label is required for front optical tamper detection (if an optical tamper detector is present in the Cabinet).
6. Configure the board in Command Centre. Refer to the topic "*Configuring an HBUS IO Interface*" in the Command Centre Configuration Client Online Help.

4 Connections

Notes:

- For UL installation the minimum cable size is 22 AWG.
- Run a common ground (-ve) from the Controller for all RS485 devices.

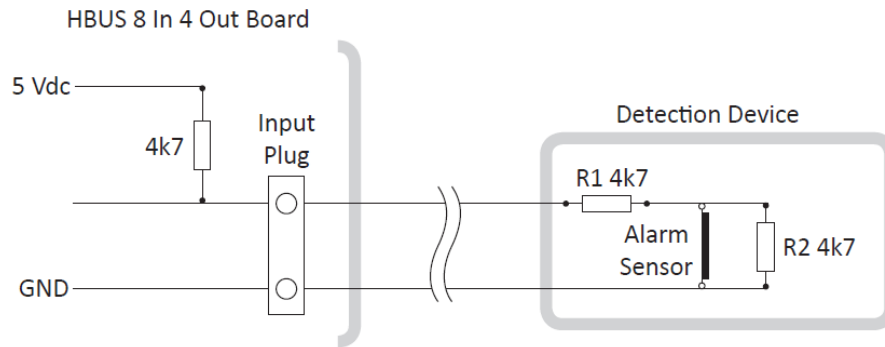


4.1 Balanced Inputs

Cabling should be a minimum size of 24 AWG (0.2 mm²) for all balanced inputs.

To ensure correct tamper detection (closed or open circuit), the balanced inputs require 4k7 ohm resistors to be connected as close as possible to the device being monitored.

When the monitored device incorporates a normally-closed tamper switch, it can be wired in series with resistor R1.



Resistor values can be configured for a HBUS 8 In 4 Out Board in Command Centre (via the EOL Resistors property page). Refer to the topic "*Configuring EOL Resistors for devices*" in the Command Centre Configuration Client Online Help.

4.2 Output Relays

The cabling to and from the relay connectors must be capable of carrying sufficient current for the device the relay is controlling. Each relay circuit is rated:

- 3 A at 24 Vdc/ac for a resistive load
- 1 A at 24 Vdc/ac for an inductive load

Ensure back EMF snubbing components (a diode or Metal Oxide Varistor) are fitted to inductive loads to prevent voltage spikes from causing equipment to malfunction.

4.3 Tamper Board Connection

If you wish to monitor for tamper alarms, the HBUS 8 In 4 Out Board can be used in conjunction with a Gallagher Tamper Board (C200610). The tamper board monitors the front and rear optical tamper levels within the Gallagher Cabinet, and notifies if a front or rear tamper occurs by setting the appropriate tamper output.

Connect the cable supplied with the tamper board to the **J1** socket on the tamper board and the **J11** socket on the HBUS 8 In 4 Out Board. The location of the tamper socket (J11) is shown in the topic "*Component Layout*" later in this note.

When connected to a PCB board within the Cabinet, the tamper board becomes the tamper monitoring board for the whole Cabinet.

When the HBUS 8 In 4 Out Board is operating correctly, initialise the optical tamper system. Either by:

1. Close and lock the Cabinet door.
2. Switch off the 13.6 Vdc $\pm$ 15% supply to the HBUS 8 In 4 Out Board.
3. Switch on the 13.6 Vdc $\pm$ 15% supply to the HBUS 8 In 4 Out Board.

Or alternatively:

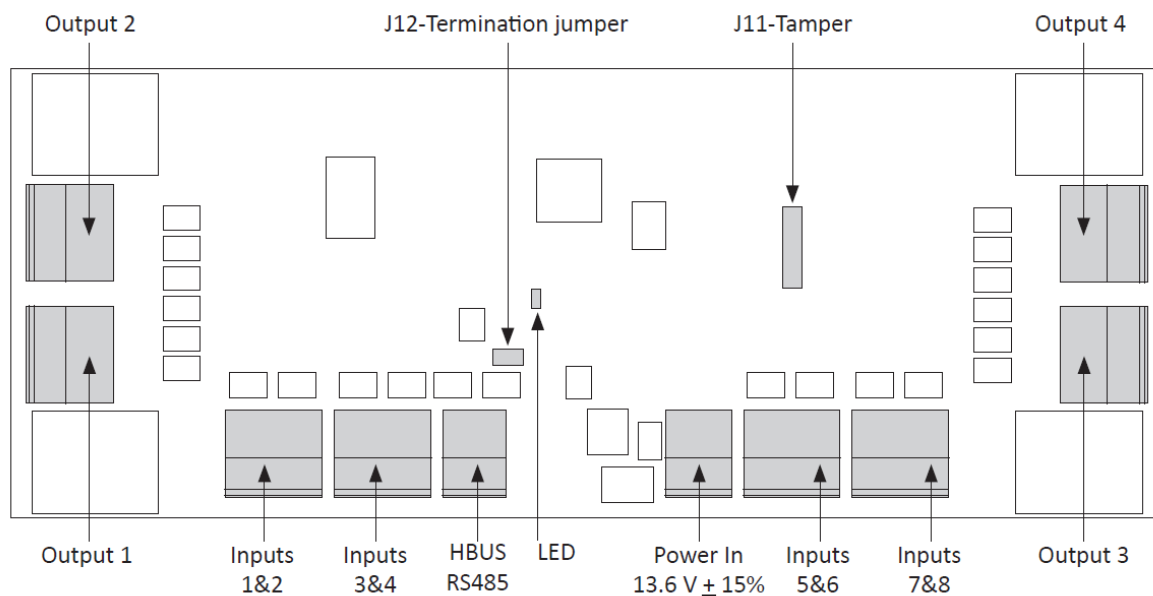
1. Switch on the HBUS 8 In 4 Out Board, then close and lock the Cabinet door.

2. In Command Centre send a "Reset" override to the HBUS 8 In 4 Out Board.

Note: The Cabinet door must remain closed for at least 10 seconds for the initialisation of the optical tamper detectors to be completed.

Note: To prevent incorrect (or continuous) tamper alarms being generated by HBUS 8 In 4 Out Boards that are not being used for tamper monitoring, a Command Centre operator will need to open the properties for the HBUS I/O item in Command Centre, click the **Status and Overrides** tab and check the **Disable Tamper** checkbox.

5 Component Layout



6 HBUS LED Diagnostic Indications

Diagnostic LED	Diagnostic Indication
3 Flash (Red)	No communications with the Controller.
2 Flash (Red)	Communications with the Controller, but board is not configured.
1 Flash (Red)	Fully configured and functioning normally.

7 Technical Specifications

Power supply Operating voltage (Vin): Fuse: Operating current: Power rating:	13.6 Vdc $\pm$ 15% Onboard 1 A resettable polyfuse 45 mA DC (relays off) 200 mA DC (relays on) 0.61 W (relays off) 2.72 W (relays on)
Environmental Temperature range: Humidity:	-10 °C to +50 °C (+14 °F to +122 °F) 95% noncondensing *
Connections Inputs: Format: Output relays: Format: HBUS ports: Format:	8 4 state monitoring (configured in Command Centre) 4 24 Vdc/ac, 3 A resistive, 1 A inductive 1 RS485 balanced
Shipping dimensions	Height 30 mm (1.2 in) Width 70 mm (2.8 in) Depth 180 mm (7.1 in)

* Gallagher modules are UL humidity tested and certified to 85% and have been independently verified to 95%.

8 Approvals and Compliance Standards



This symbol on the product or its packaging indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.



This product complies with the environmental regulations for the Restriction of Hazardous Substances in electrical and electronic equipment (RoHS). The RoHS directive prohibits the use of electronic equipment containing certain hazardous substances in the European Union.

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: Changes or modifications not expressly approved by Gallagher Group Limited could void the user's authority to operate the equipment.

UL Installations

For a guide to configuring the Gallagher system to the UL Standard, please refer to the document appropriate to your location:
- "3E2793 Gallagher Command Centre UL Configuration Requirements" (for USA), or
- "3E5960 Gallagher Command Centre ULC Configuration Requirements" (for Canada).
Installers must ensure these instructions are followed to ensure the installed system is UL compliant.



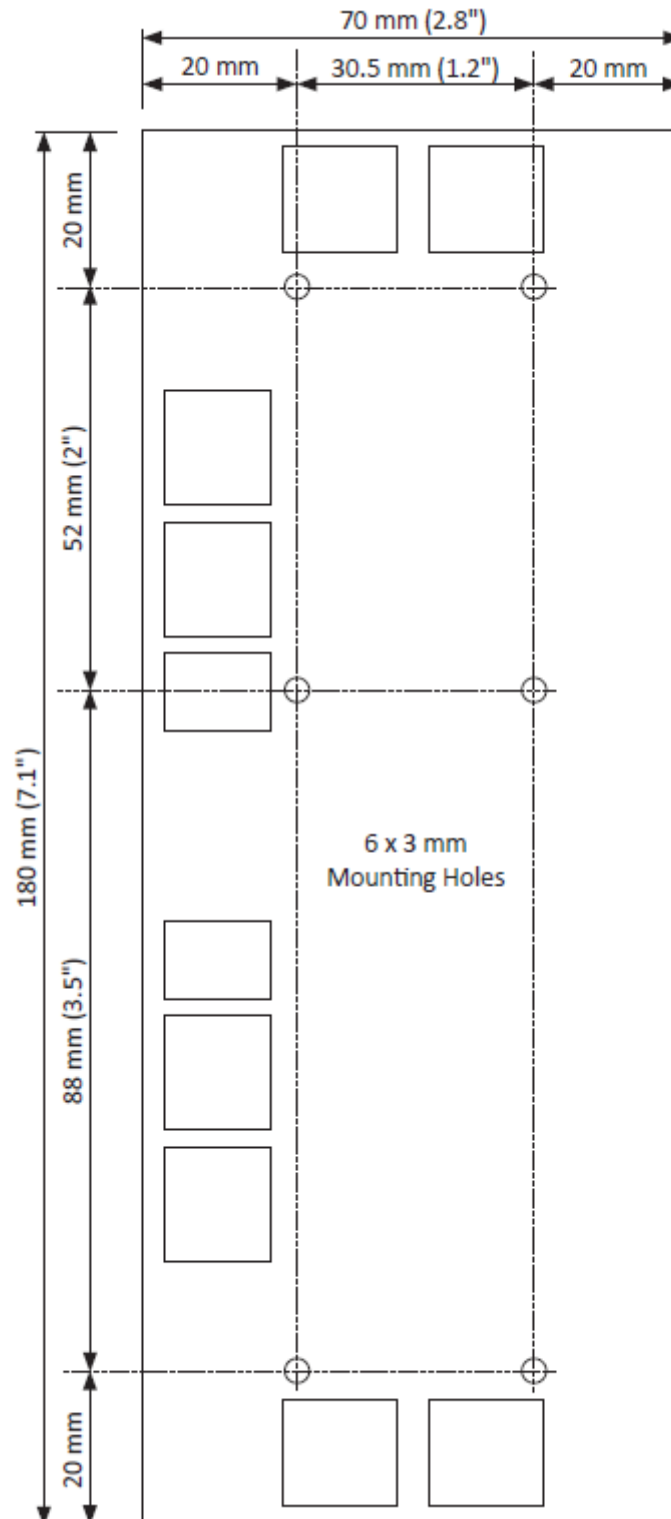
UL294 - Access Control
UL2610 - Commercial Burglary
CAN/ULC-S304- Commercial Burglary
CAN/ULC 60839-11-1- Access Control



AS/NZS IEC 60839.11.1:2019 Grade 4, Class II

EN50130-4
EN50131-3 Grade 4, Class II
EN55032

9 Mounting Dimensions



IMPORTANT

This picture is not to scale, therefore use the measurements provided.