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Contents

1	Introduction	3
2	Before you Begin.....	3
2.1	Shipment Contents	3
2.2	Power Supply.....	3
2.3	Cabling	4
3	Installation	5
4	Removing the HBUS Module.....	6
5	Component Layouts.....	7
5.1	8H Module	7
5.2	4H Module	7
6	Wiring Diagram	8
7	Relay Jumpers	9
8	Comms LED Diagnostic Indications	9
9	Technical Specifications	10
10	Approvals and Compliance Standards	11
11	Mounting Dimensions.....	12



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

1 Introduction

The Gallagher HBUS Module is available in two variants, the 8H Module and the 4H Module. Both variants allow the connection of HBUS devices, inputs and outputs.

The HBUS Module connects to a Gallagher Controller 6000 only. When connected, both the Controller 6000 and HBUS Module will fit into a standard Gallagher Cabinet.

The differences between the two variants are shown in the following table:

HBUS Module Variant	Features
8H Module	• 8 HBUS connections • 24 input connections • 8 output connections • a jumper with polyfuse for each relay, and • a power supply common for each group of 4 outputs
4H Module	• 4 HBUS connections • 12 input connections • 4 output connections • a jumper with polyfuse for each relay, and • a power supply common for all 4 outputs

Notes:

- The HBUS Module variants can be used with either the Controller 6000 Standard variant or the Controller 6000 High Spec variant.
- The Controller 6000 can operate without an HBUS Module connected.
- The HBUS Module can only be used for sites running Gallagher Command Centre vEL7.05 software (or later).

2 Before you Begin

2.1 Shipment Contents

Check the shipment contains the following items:

- 1 x Gallagher HBUS Module
- 1 x Gallagher HBUS Module product label
- 1 x Gallagher HBUS Module identification decal
- 2 x 16 mm MS screws
- 48 x 4.7 kΩ resistors for the Gallagher HBUS 8H Module
- 24 x 4.7 kΩ resistors for the Gallagher HBUS 4H Module

2.2 Power Supply

The HBUS Module processor power is supplied via the Controller 6000 interconnect plug. The "V in" connection on the HBUS Module provides power to the "V out" connections and power to operate the relays and HBUS connections H1-H8.

Notes:

- The "V in" connection to the HBUS Module must be powered from the same physical supply as the Controller 6000.
- Each "V out" connection on an 8H Module is limited to 750 mA.

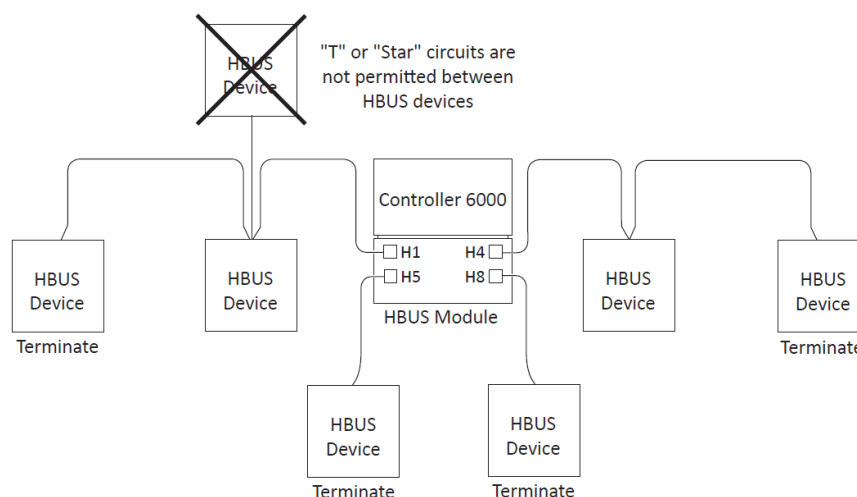
2.3 Cabling

HBUS Cabling

The recommended cabling between HBUS devices is a low capacitance cable such as RS485 data cable, or CAT 5e.

Any 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).

The end devices on the HBUS cable should be terminated using 120 Ω resistance. Termination is already included at the HBUS Module, (i.e. each HBUS port is permanently terminated at the module).



Examples of approved cables for connecting Gallagher equipment using the HBUS communications protocol, showing maximum cable lengths for each type of cable are:

Cable type	Cable format*	Data only in a single cable	Single reader connected using power and data in a single cable
CAT 5e or better**	4 twisted pair Each 2 x 0.2 mm ² (24 AWG)	500 m (1640 ft)	100 m (330 ft)
BELDEN 9842** (shielded)	2 twisted pair Each 2 x 0.2 mm ² (24 AWG)	500 m (1640 ft)	100 m (330 ft)
SEC472	4 x 0.2 mm ² Not twisted pairs (24 AWG)	400 m (1310 ft)	100 m (330 ft)
SEC4142	4 x 0.4 mm ² Not twisted pairs (21 AWG)	400 m (1310 ft)	150 m (500 ft)

* The matching of wire sizes to equivalent wire gauges are only approximate.

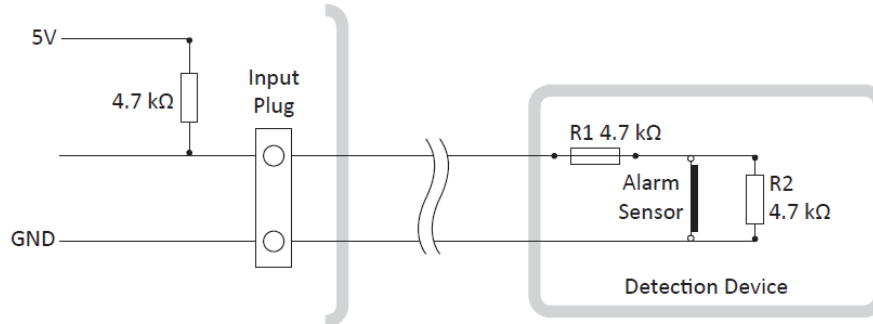
** Recommended cable types for optimal HBUS RS485 performance.

Note: For UL compliant installation, the minimum permissible cable size is 22 AWG.

Balanced Input Cabling

Cabling should be a minimum size of 0.2 mm² for all inputs.

To ensure correct tamper detection (short or open circuit), the balanced inputs require 4.7 kΩ resistors to be connected as close as possible to the device being monitored.

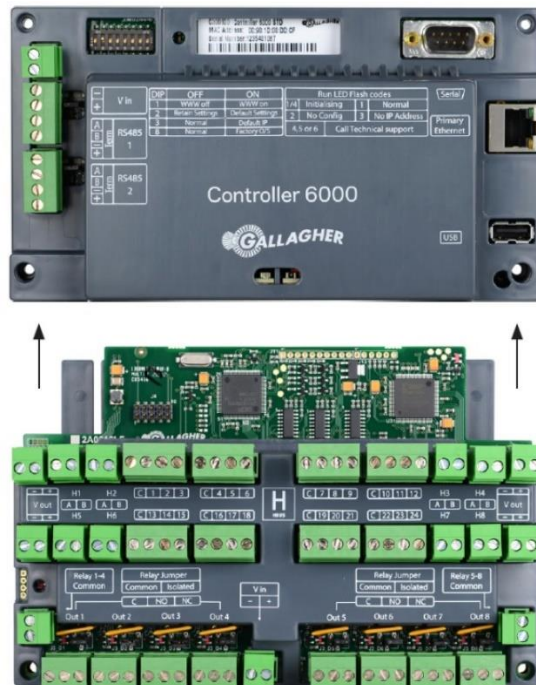


Output Relay Cabling

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

3 Installation

1. Lay both the Controller 6000 and HBUS Module on a flat surface. Align the bottom edge of the Controller 6000 with the top edge of the HBUS Module, as shown below.



IMPORTANT: Damage to the pins may occur, if the two PCBs are not correctly aligned. Therefore, it is important to lay the two PCBs on a flat surface when connecting them.

2. Gently push the two PCBs together until they click into place.
3. Once connected, the Controller 6000 and HBUS Module can be mounted in a standard Cabinet using the 16 mm M3 screws provided, (i.e. four for the Controller 6000 and two for the HBUS Module).

4. Install all the system and power cables. The cables should stow neatly and be held in place by the cable clamps fitted into the base of the Cabinet.
5. Install 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, fuses, LEDs, etc.
6. Initialise the Controller 6000. Refer to the "Initialisation" topic in the "Gallagher Controller 6000 Installation Note" (part number 3E2028).

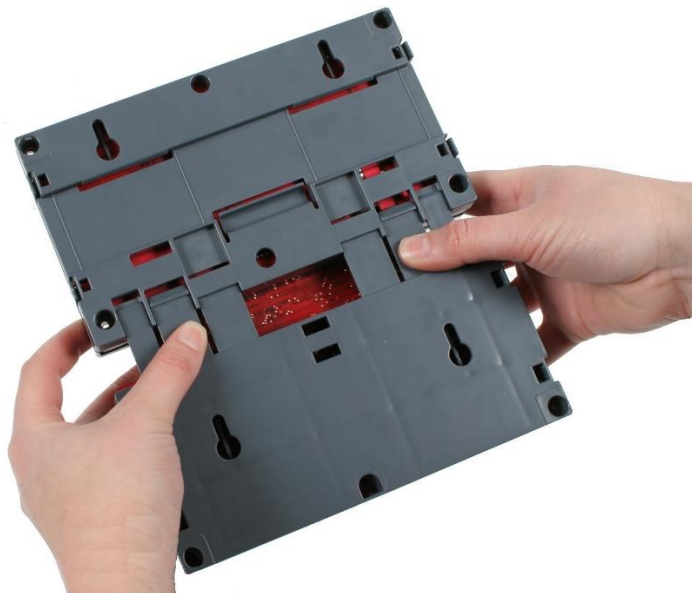
The Comms LED flashes indicating the operating status of the HBUS Module.

7. Fix the Controller 6000 product label to the outside of the Cabinet door and enter the relevant details.

4 Removing the HBUS Module

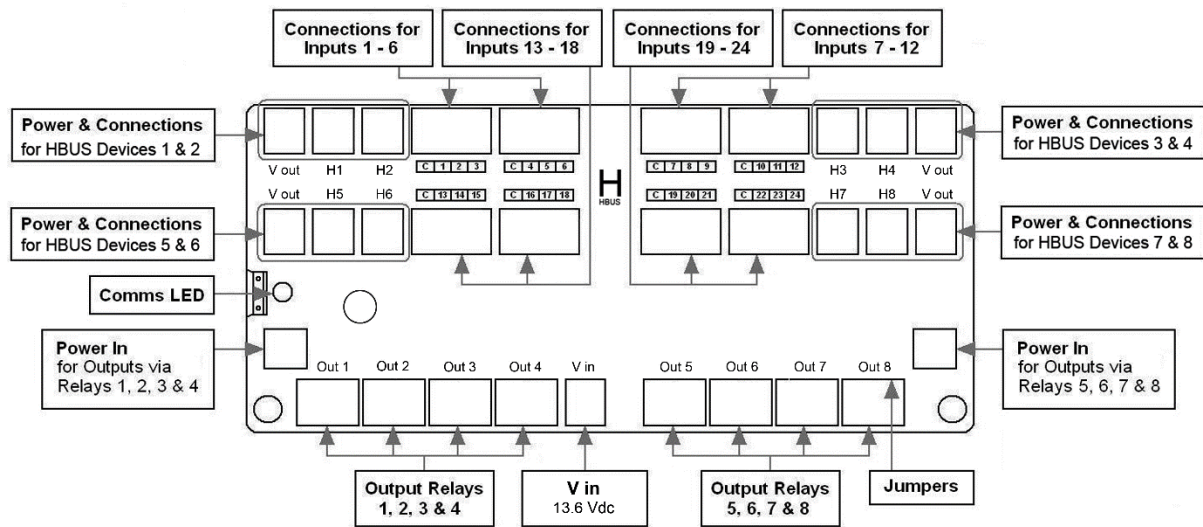
Note: Although you may only want to remove the HBUS Module from the Cabinet, because it is fitted to the Controller 6000 module, you will need to remove both modules before separating them.

1. Disconnect the power from the Controller 6000 and HBUS Module.
2. Following full antistatic precautions, disconnect all cables from the Controller 6000 and the HBUS Module. Hint: Label each cable as you remove it.
3. Remove the 16mm M3 securing screws that hold the Controller and HBUS Module onto the Cabinet fixing standoffs.
4. Carefully lift the Controller and HBUS Module clear of the Cabinet.
5. To disconnect the HBUS Module from the Controller 6000, turn the PCBs over and press the two clips joining the two PCBs with your thumbs. Gently disconnect the two PCBs.

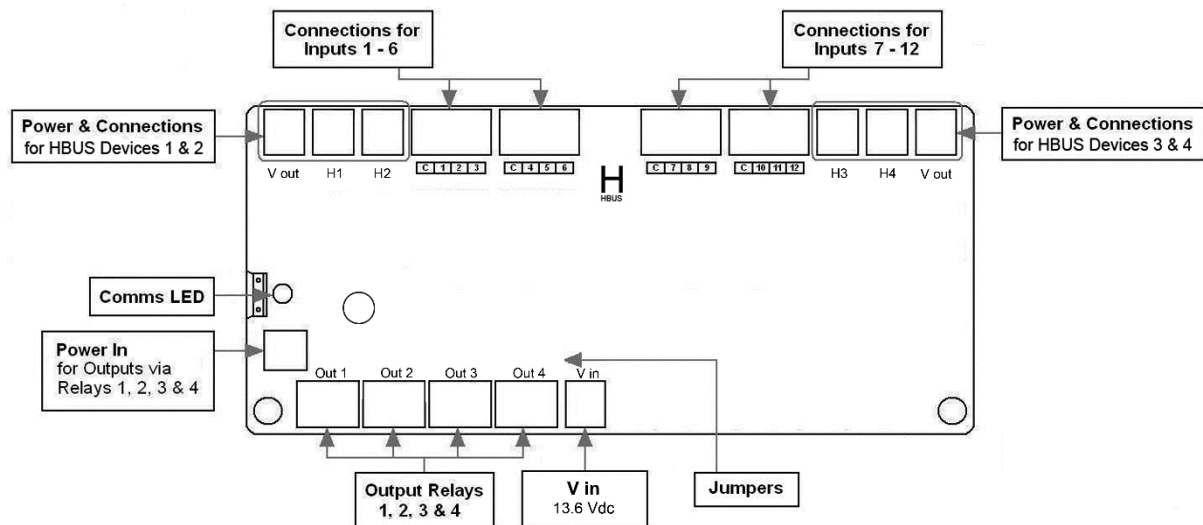


5 Component Layouts

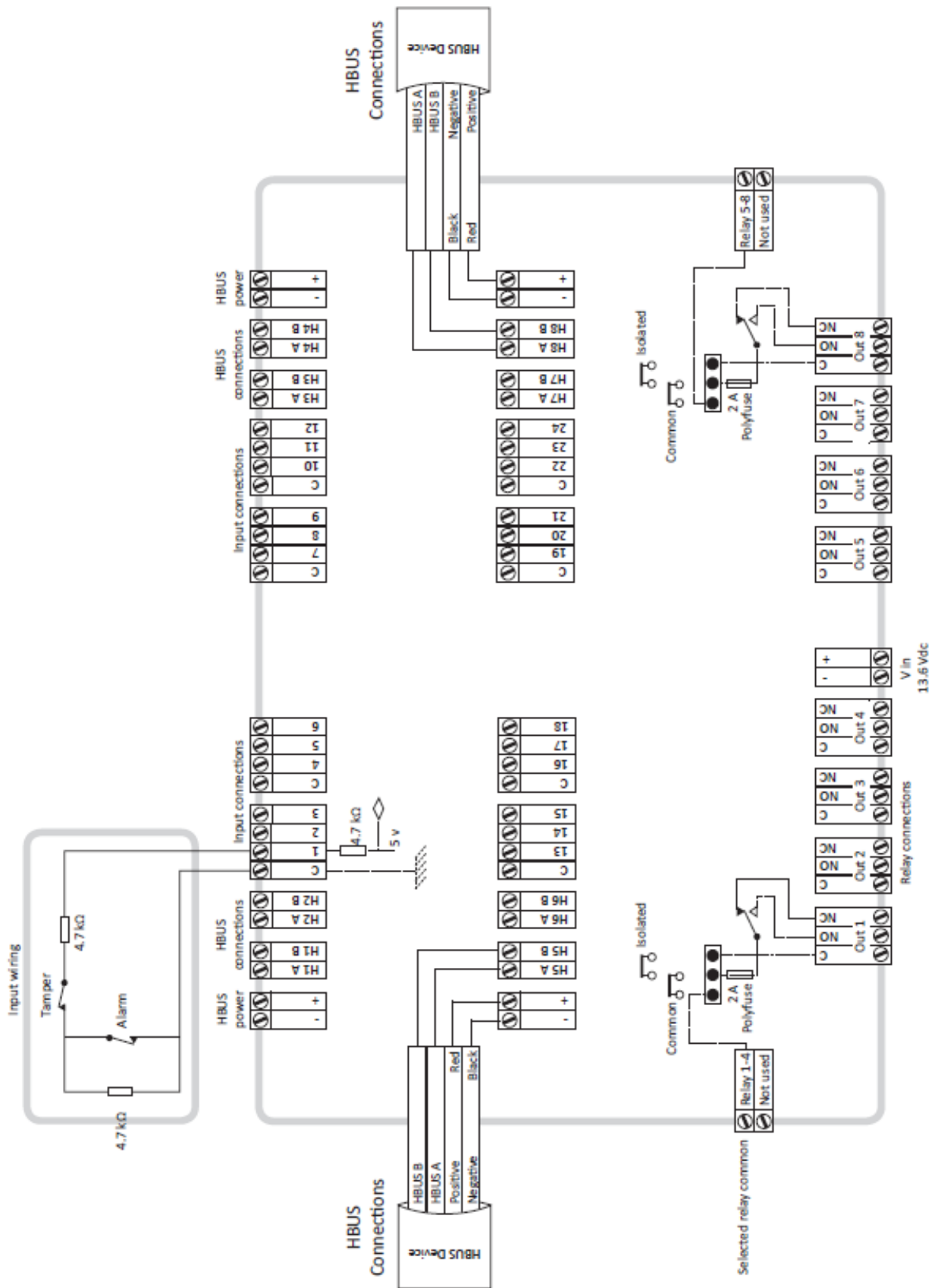
5.1 8H Module



5.2 4H Module

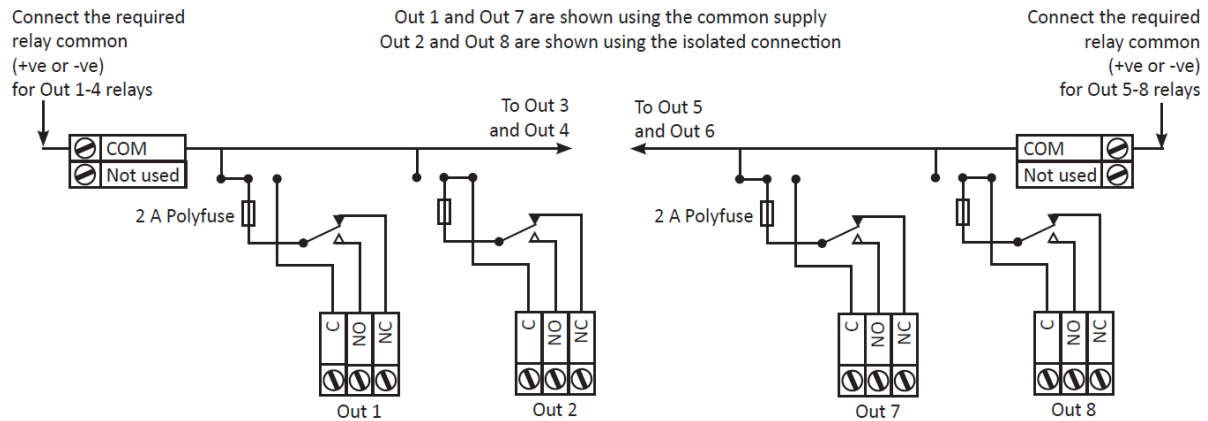


6 Wiring Diagram



7 Relay Jumpers

Each output relay has an associated jumper plug to allow the relay common to be either connected to a common supply connection, or to be individually connected to supply connections.



Position 1

Jumper is in the left hand position, connecting the relay common directly to the Relay 1-4 common and the Relay 5-8 common respectively, each via a 2 A polyfused.

Position 2

Jumper is in the right hand position, connecting the relay common to the "C" screw terminal associated with the relay each via a polyfuse.

8 Comms LED Diagnostic Indications

LED	Diagnostic Indication
3 Flash (Red)	No communications with the Controller.
1 Flash (Red)	Functioning normally.

9 Technical Specifications

Power supply	
Voltage:	13.6 Vdc $\pm$ 15%
Operating current:	
via Gallagher Controller 6000 connector:	40 mA
via Power In (no HBUS devices connected):	180 mA
No relays operated	30 mA
4 relays operated	180 mA
8 relays operated	320 mA
(If HBUS devices are connected, a maximum of 0.75 A per "V out" port is available. This additional current should be added to the Power In currents specified above.)	
Environmental	
Temperature range:	-10 °C to +55 °C
Humidity:	95% non-condensing *
Inputs	
4H Module:	12
8H Module:	24
Outputs	
4H Module:	4 SPDT relays
8H Module:	8 SPDT relays
Relay circuit rating:	24 Vdc/ac 2 A resistive, 1 A inductive (polyfuse)

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

10 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.



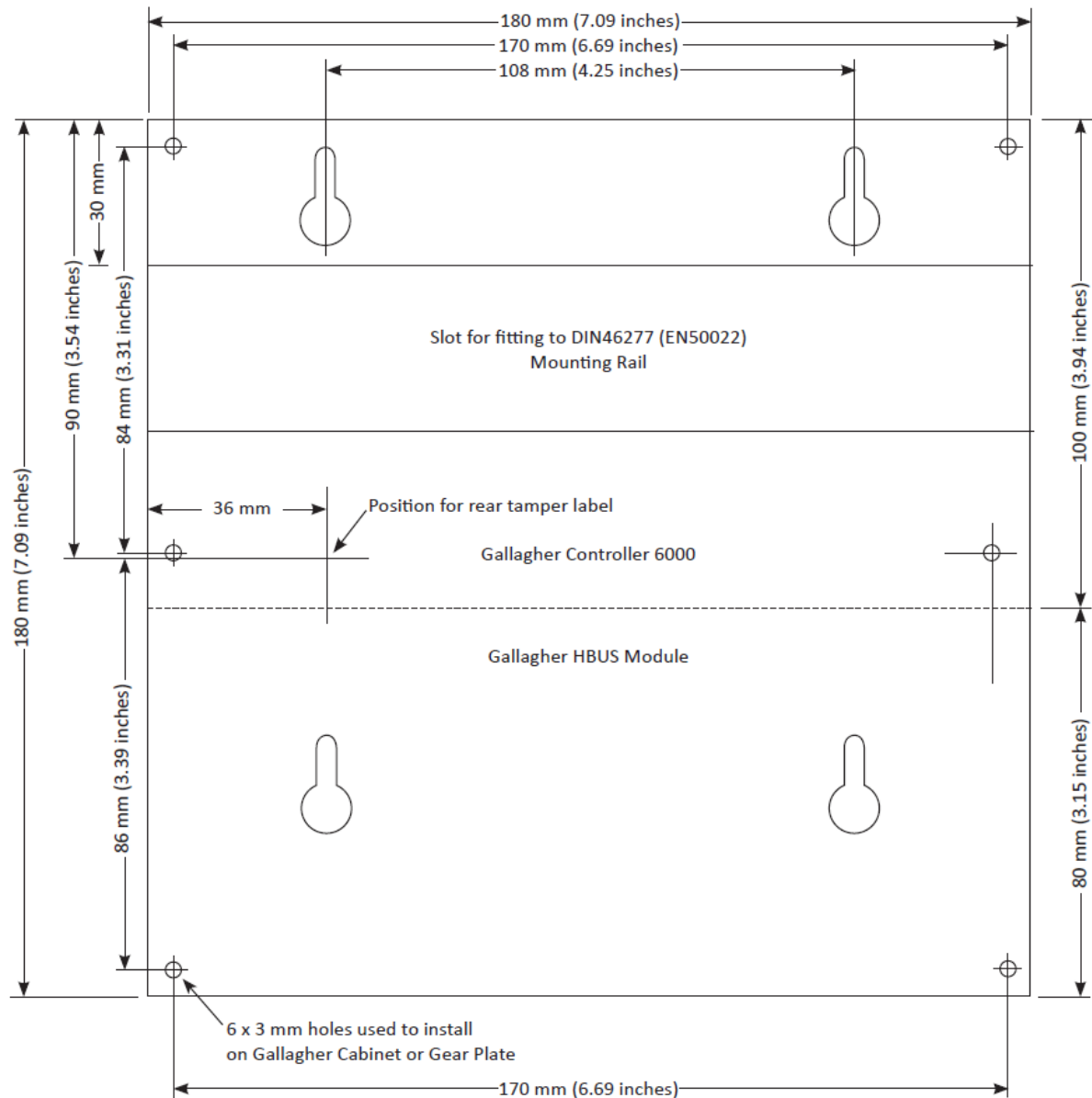
UL294 - Access Control
UL2610 - Commercial Burglary
CAN/ULC-S304- Commercial Burglary
CAN/ULC 60839-11-1- Access Control



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

EN50131-3 Grade 4, Class II

11 Mounting Dimensions



IMPORTANT

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