



Gallagher

T30 Keypad Reader

Installation Note

T30 MULTITECH® Keypad Reader, Black: C300490
T30 MULTITECH® Keypad Reader, White: C300491
T30 MIFARE® Keypad Reader, Black: C300495
T30 MIFARE® Keypad Reader, White: C300496



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1 Introduction

The Gallagher T30 Keypad Reader is available in a variety of variants. The variant you have purchased determines the available functionality and supported technologies for the reader.

The Multi Tech variants C300490 and C300491 support Gallagher mobile credentials, using Bluetooth® low energy technology.

The reader can be mounted on a rectangular 50 mm x 75 mm (2 in x 3 in) flush box, a BS 4662 British Standard square flush box, or any solid flat surface

The terminal sends information to the Gallagher Controller and acts upon information sent from the Gallagher Controller. The terminal itself does not make any access decisions.

2 Before you begin

2.1 Shipment contents

Check the shipment contains the following items:

- 1 x Gallagher T30 Keypad Reader fascia assembly
- 1 x Gallagher T30 Keypad Reader bezel
- 2 x 6-32 UNC (32 mm) Phillips drive fixing screws
- 2 x M3.5 (40 mm) Phillips drive fixing screws
- 5 x 25 mm No.6 self tapping, pan head, Phillips drive fixing screws
- 1 x M3 Torx Post (T10) Security screw

2.2 Power supply

The Gallagher T30 Keypad Reader is designed to operate over a supply voltage range of 9 - 16 Vdc measured at the readers. The operating current draw is dependent on the supply voltage at the reader. The power source should be linear or a good quality switched-mode power supply. The performance of the reader may be affected by a low quality, noisy power supply.

2.3 Cabling

The Gallagher T30 Keypad Reader 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. Although the reader is specified to operate at 9 Vdc, for good engineering design it is recommended that the voltage at the reader should be approximately 12 Vdc.

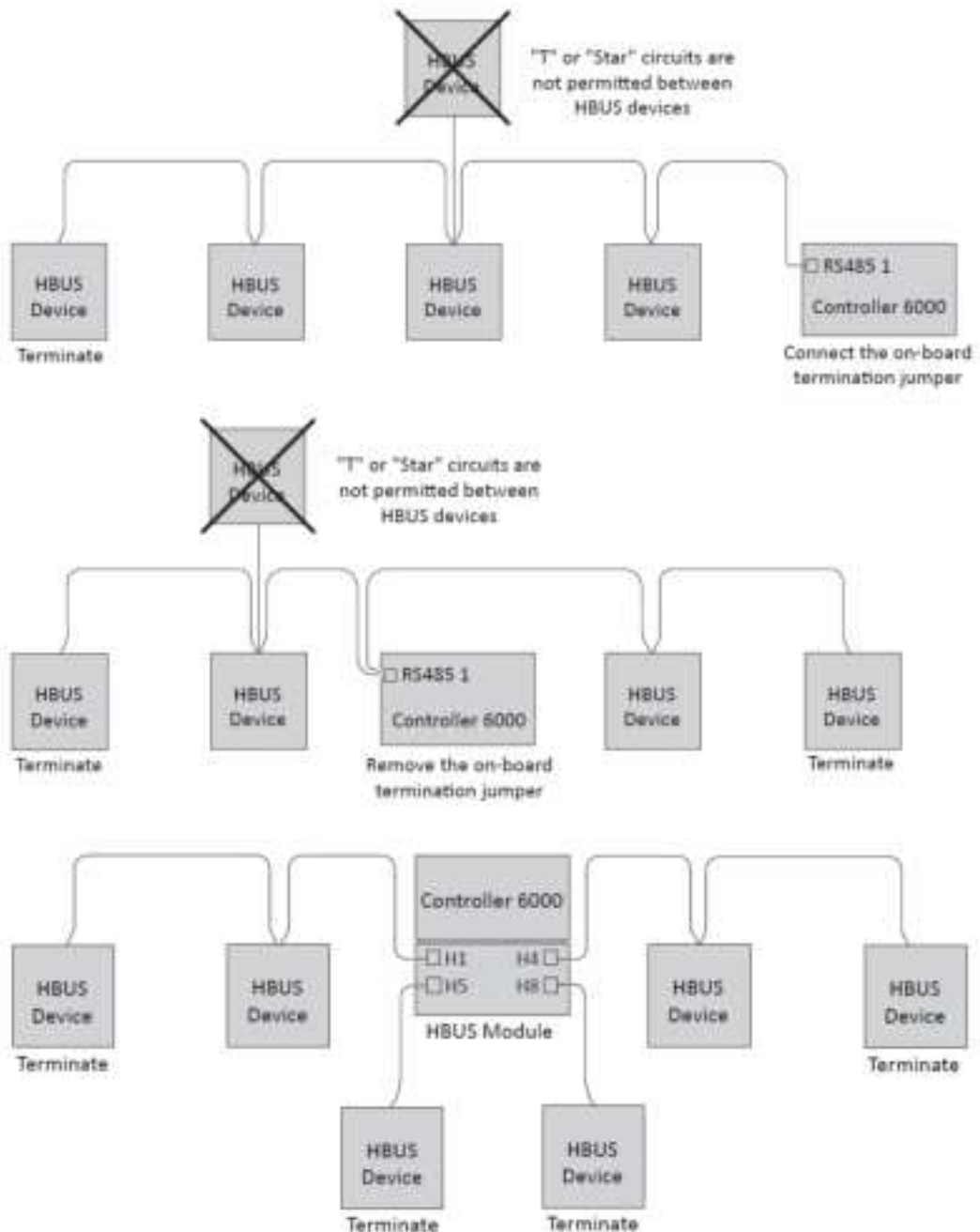
HBUS cabling topology

The HBUS communications protocol is based on the RS485 standard and allows the reader 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). Should "Star" or "Home-Run"

wiring be required, the HBUS 4H/8H Modules and the HBUS Door Module allow multiple HBUS devices to be individually wired to the one physical location.

The end devices on the HBUS cable should be terminated using 120 ohms resistance. To terminate the Gallagher Controller 6000, connect the supplied on-board termination jumpers to the Controller. To terminate the Gallagher T30 Keypad Reader, connect the orange (termination) wire to the green (HBUS A) wire. Termination is already included at the HBUS Module, (i.e. each HBUS port is permanently terminated at the module).



Cable distance

Cable type	Cable format*	Single terminal connected using HBUS data only in a single cable		Single terminal 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)		50 m (165 ft)
BELDEN 9842** (shielded)	2 twisted pair each 2 x 0.2 mm ² (24 AWG)	500 m (1640 ft)		50 m (165 ft)
SEC472	4 x 0.2 mm ² Not twisted pairs (24 AWG)	400 m (1310 ft)		50 m (165 ft)
SEC4142	4 x 0.4 mm ² Not twisted pairs (21 AWG)	400 m (1310 ft)		100 m (330 ft)
C303900/ C303901 Gallagher HBUS Cable	2 Twisted pair each 2 x 0.4 mm ² (21 AWG, Data) and 2 x 0.75 mm ² Not Twisted Pair (~18 AWG, Power)	500 m (1640 ft)		200 m (650 ft)

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

** Recommended cable types for optimal HBUS RS485 performance.

*** Not applicable for PIV or Bluetooth® enabled reader installations.

**** Tested with 13.6V at start of cable.

Notes:

- Shielded cable may reduce the obtainable cable length. Shielded cable should be grounded at the Controller end only.
- If other cable types are used, operating distances and performance may be reduced depending on the cable quality.
- The recommendation for optimal performance is up to 20 T30 Keypad Readers can be connected to one Controller 6000. Of these 20 terminals, up to 4 could be configured for alarm zone (or fence controller) management.
A terminal is configured for alarm zone management when it has either Alarm Zones configured on the **Alarm Zones** properties page or items configured upon its mimic panel.

3 Distance between readers

The distance separating any two proximity readers must not be less than 200 mm (8 in) in all directions. When mounting a proximity reader on an internal wall, check that any reader fixed to the other side of the wall is not less than 200 mm (8 in) away.



4 Installation

The Gallagher T30 Keypad Reader can be mounted on:

- a vertical, rectangular 50 mm x 75 mm (2 in x 3 in) flush box
- a BS 4662 British Standard square flush box
- any solid flat surface

The recommended mounting height for the terminal is 1.1 m (3.6 ft) from the floor level to the centre of the terminal. However this may vary in some countries and you should check local regulations for variations to this height.

Notes:

- Consideration should be given to the installation environment when using Bluetooth® enabled readers, as the read range may be reduced.
- Installation on metal surfaces, particularly those with a large surface area will reduce read range. The extent to which the range is reduced will depend upon the type of metal surface. A spacer (C300318 or C300319) can be used to help mitigate this issue.
- A black dress plate (C300326) can be used to cover previously installed terminals ensuring a clean finish for sites handling an upgrade.
- When mounting on a flush box, the corner screws must be used as well as the flush box screws. Without corner screws the top of the product is vulnerable to separation from the wall.

1. Ensure the building cable has been run out through the flush box.

If you are not mounting to a flush box, use the terminal bezel as a guide, to drill all five holes. Drill the 13 mm (1/2 inch) diameter centre hole (this is the centre hole for which the building cable will exit the mounting surface) and the four corner fixing holes. Ensure the centre hole allows the cable to run freely out through the mounting surface, so that the terminal fascia can clip into the bezel.

Note: There is no room for the building cable to be squeezed into the terminal bezel. The building cable must remain within the flush box or wall cavity.

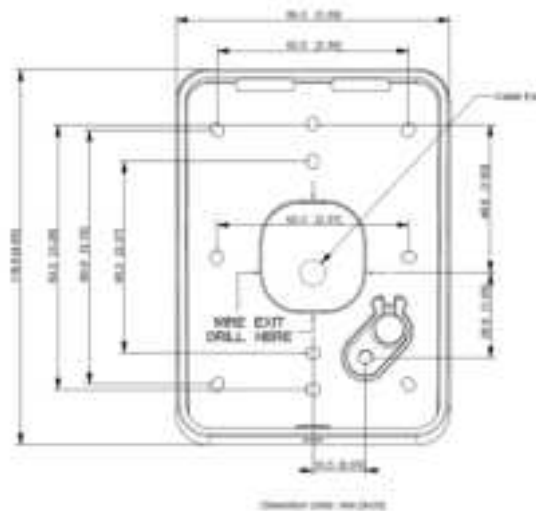
2. Run the building cable through the terminal bezel.

Note: If the terminal has already been connected to the building cable, you can pass the fascia through the bezel. Care must be taken to avoid scratching the screen and keypad when passing the fascia through the bezel.

3. Secure the bezel to the flush box using the two screws provided.

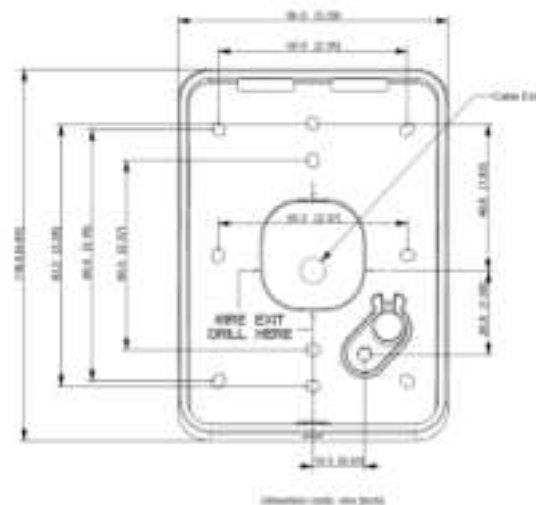
When securing the bezel to a vertical, rectangular flush box, use the 6-32 UNC screws provided.

When securing the bezel to a BS 4662 British Standard square flush box, use the M3.5 screws provided.



4. Drill pilot holes for the four corner fixing holes and the tamper tab. Secure the bezel to the mounting surface using the four corner fixing screws provided. Secure the tamper tab (located in the bezel) to the mounting surface using the remaining fixing screw provided. It is important the four corner fixing screws are used to ensure the terminal is flush with and tight against the mounting surface.

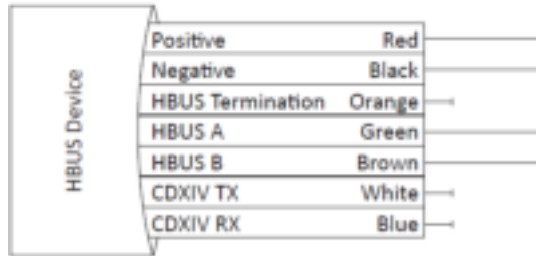
Note: It is strongly recommended that you use the screws provided. If an alternative screw is used, the head must be no larger nor deeper than that of the screw provided.



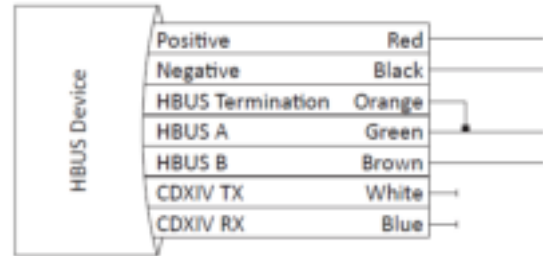
5. Connect the terminal tail extending from the facia assembly to the building cable.

An HBUS device connects to a Gallagher Controller 6000, Gallagher 4H/8H Module, a Gallagher HBUS Door Module, or a Gallagher HBUS 8 Port Hub.

HBUS connections:



HBUS connections terminated:



To terminate an HBUS device, connect the **Orange** (HBUS Termination) wire to the **Green** (HBUS A) wire.

PIV readers connect to the Gallagher Controller 6000 High Spec PIV (C305101) only.

6. Fit the facia assembly into the bezel by clipping the small lip, into the top of the bezel and holding the top, press the bottom of the facia assembly down into the bezel.

Note: Ensure that there is no pressure upon the wire set as it exits the terminal. Ensure the wire set does not exit the reader at a sharp angle, as this may compromise the integrity of the wire set's water seal.

7. Insert the M3 Torx Post Security screw (using a T10 Torx Post Security screwdriver) through the hole at the bottom of the bezel to secure the facia assembly.

Note: The Torx Post Security screw needs only to be lightly tightened.

8. Removal of the facia assembly is a simple reversal of these steps.
9. Configure the terminal in Command Centre. If the terminal is connected as an HBUS device, refer to the topic "*Configuring an HBUS Terminal*" or the topic "*Configuring the PIV Card Reader*" in the Command Centre Configuration Client Online Help. If the terminal is connected as a Cardax IV device, refer to the topic "*Creating Readers*" in the Command Centre Configuration Client Online Help.

5 LED indications

LED (squiggle)	HBUS indication
3 Flash (Amber)	No communications with the Controller. The terminal screen displays the text 'Connecting...'.
2 Flash (Amber)	Communications with the Controller, but terminal is not configured. The terminal screen displays the text 'Not configured'.
1 Flash (Amber)	Configured to a Controller, but terminal is not assigned to a door or elevator car. Configured to a Controller but the terminal has no Alarm Zone(s) assigned to the Alarms Zones property page. The terminal screen displays the text 'Not configured'.
On (Green or Red)	Fully configured and functioning normally. If assigned to a door or elevator car: Green = Access mode is Free Red = Access mode is Secure
Flashes Green	Access has been granted.
Flashes Red	Access has been denied.
Flashes Blue	Reading and validating a PIV card. Reading a Gallagher mobile credential.

6 Accessories

Accessory	Product Code
T30 Dress Plate, Black, Pk 5	C300326
T30 Bezel, Black, Pk 5	C300395
T30 Bezel, White, Pk 5	C300396
T30 Bezel, Silver, Pk 5	C300397
T30 Bezel, Gold, Pk 5	C300398
T30 Spacer, Black, Pk 5	C300318
T30 Spacer, White, Pk 5	C300319

7 Technical specifications

Routine maintenance:	Not applicable for this reader.	
Cleaning:	This reader should be cleaned with mild soapy water only. Do not use solvents or abrasives.	
Voltage:	9 Vdc – 16 Vdc	
Current ³ :	Inactive ¹	Active ²
T30 MIFARE Keypad Reader (at 9 Vdc):	145mA	340mA
T30 MIFARE Keypad Reader (at 13.6 Vdc):	92mA	221mA
T30 MULTI Keypad Reader (at 9 Vdc):	145mA	340mA
T30 MULTI Keypad Reader (at 13.6 Vdc):	92mA	221mA
Temperature range:	-30 °C to +70 °C (-22 °F to +158 °F) ⁴ Note: Direct sunlight may increase the internal terminal temperature above the ambient temperature level.	
Humidity:	95% non condensing ⁵	
Environmental protection:	IP68	
Impact rating:	IK09	
Unit dimensions:	Height 118 mm (4.6 in) Width 86 mm (3.4 in) Depth 25 mm (1.0 in)	
Maximum number of readers on one HBUS cable:	20	
Maximum number of terminals on one Controller 6000:	20	

¹ The terminal is idle.

² A card is being read or the keys are at maximum brightness.

³ The current values stated above have been reported using the default configuration of an HBUS terminal in Command Centre. Changing the configuration may vary the current value. Reader currents verified by UL are provided in the document "3E2793 Gallagher Command Centre UL Configuration Requirements".

⁴ Gallagher T Series readers are UL temperature tested and certified for operation in 0°C - 49°C (indoor).

⁵ Gallagher T Series readers are UL humidity tested and certified to 85% and have been independently verified to 95%.

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

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.

Industry Canada

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Industrie Canada

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

UL Installations

Please refer to the document "*3E2793 Gallagher Command Centre UL Configuration Requirements*" for a guide to configuring the Gallagher system to the appropriate UL Standard. Installers must ensure these instructions are followed to ensure the installed system is UL compliant.

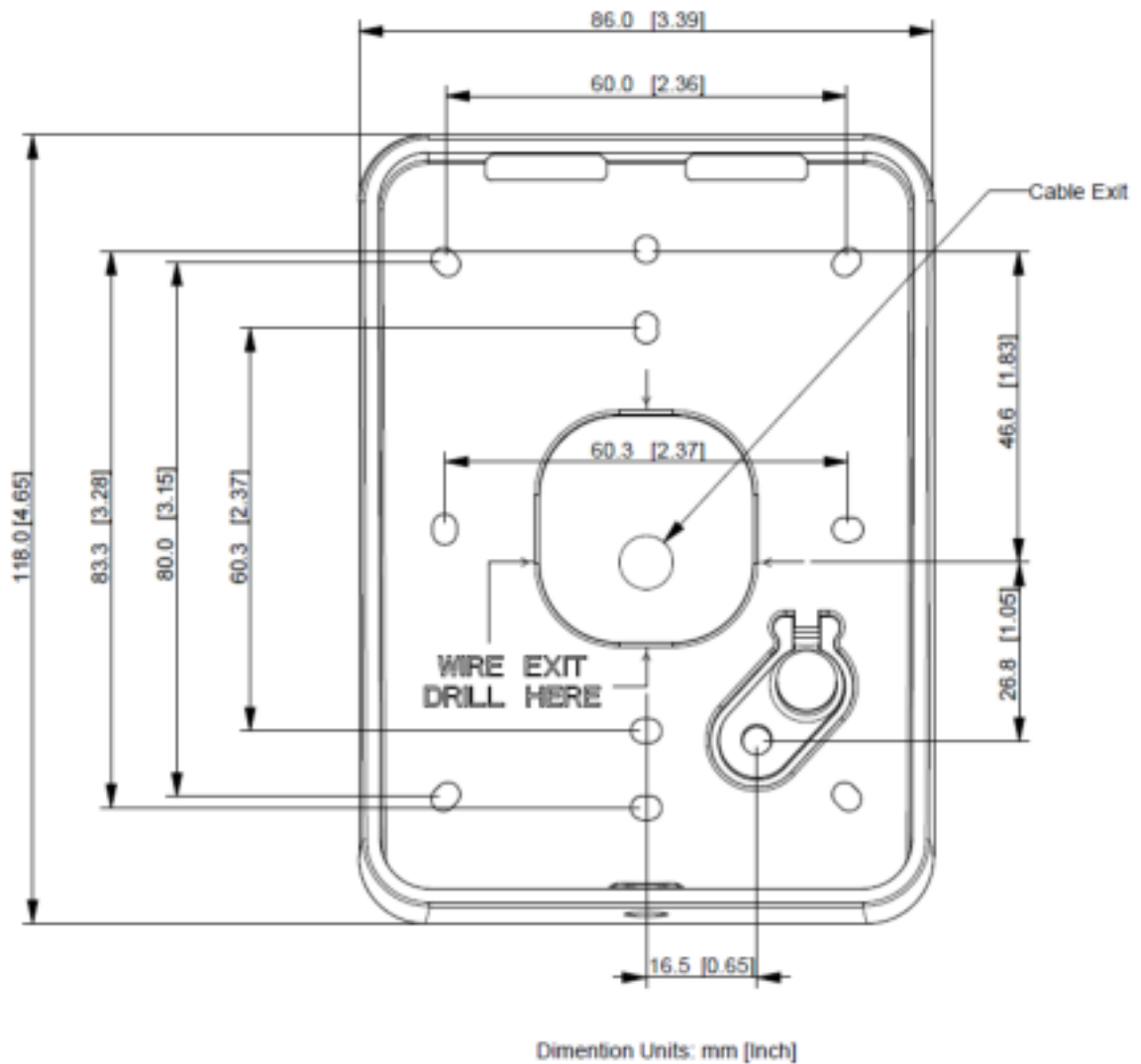


US - Equipment: com, burg and acc reader
CA - Equipment: com, burg reader



Bluetooth®

9 Mounting Dimensions



IMPORTANT

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