Gallagher

T30 Keypad Reader

Installation Note

T30 Multi Tech Keypad Reader, Black: C300490
T30 Multi Tech Keypad Reader, White: C300491
T30 Multi Tech Keypad Reader, Black 3m Tail: C300492
T30 MIFARE® Keypad Reader, Black: C300495
T30 MIFARE® Keypad Reader, White: C300496
T30 High Sec T30 MIFARE® Keypad Reader, Black: C305495
T30 High Sec T30 MIFARE® Keypad Reader, White: C305496



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1 Introduction

The Gallagher T30 Keypad Reader supports HBUS and is available in multiple variants. The variant you have purchased determines the available functionality and supported technologies for the reader.

Variants C300490 and C300491 support Gallagher mobile credentials, using Bluetooth® low energy technology. All variants support mobile credentials using NFC.

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

To meet compliance with NPSA Readers and Keypads standard please see compliance requirements in the installation additional instructions in section 4.

2 Before you begin

2.1 Shipment contents

Check the shipment contains the following items:

- 1 x Gallagher T30 Keypad Reader facia assembly
- 1 x Gallagher T30 Keypad Reader bezel
- 2 x 6-32 UNC (32 mm) Phillips drive fixing screws (5D2905)
- 2 x M3.5 (40 mm) Phillips drive fixing screws (5D2908)
- 5 x 25 mm No.6 self tapping, pan head, Phillips drive fixing screws (5D2906)
- 5 x 38 mm No.6 self tapping, pan head, Phillips drive fixing screws (5D2907)
- 1 x M3 Torx Post (T10) Security screw (5D2097)

2.2 Power supply

The Gallagher T30 Keypad Reader is designed to operate at a supply voltage of 13.6 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.

Note: For UL compliance the units shall be powered via a UL 294/UL 1076 listed power supply or control panel output that is class 2 power limited.

2.3 Cabling

The Gallagher T30 Keypad Reader requires a minimum cable size of 4 core 24 AWG (0.2 mm^2) 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. For good engineering design it is recommended that the voltage at the reader should be approximately 12 Vdc.

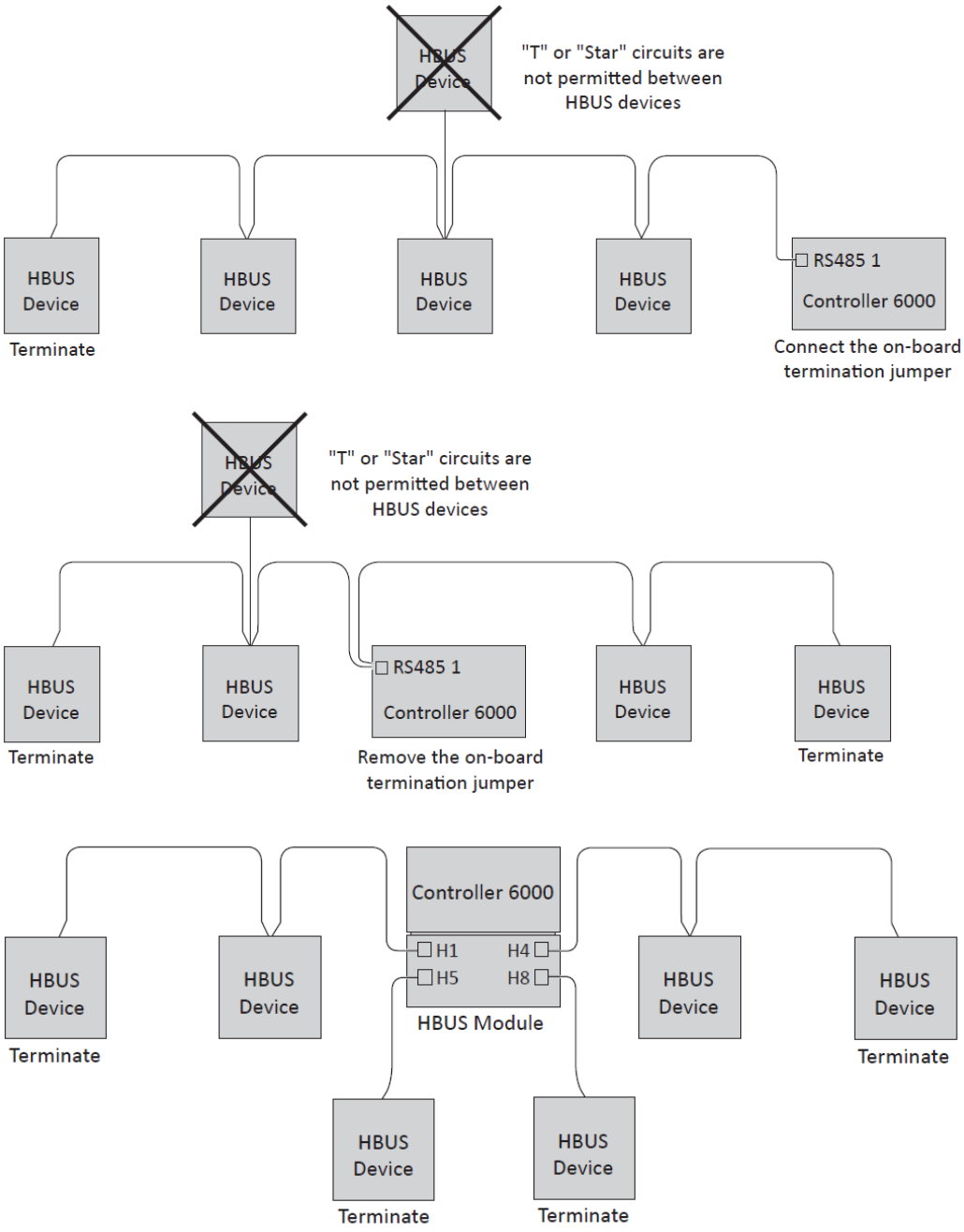
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HBUS cabling topology

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).



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Cable distance

Cable type	Cable format*	Single reader connected using HBUS 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)	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)

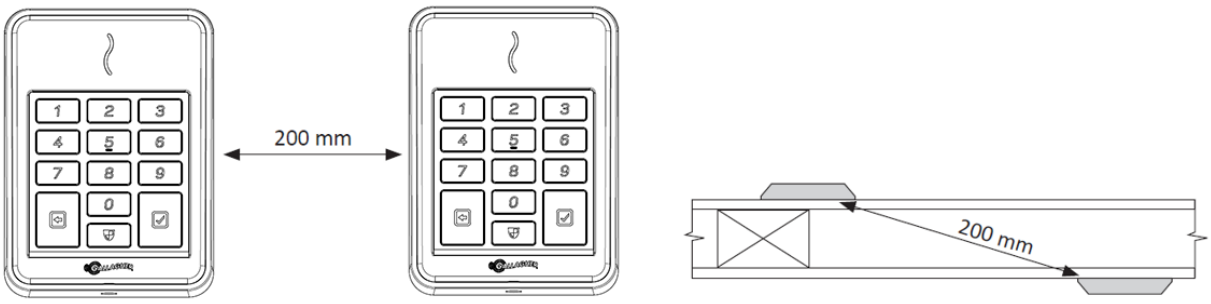
* The matching of wire sizes to equivalent wire gauges are only approximate.
** Recommended cable types for optimal HBUS RS485 performance.
*** Tested with 13.6V at start of cable.

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.

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.



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

NPSA Readers and Keypads deployment requirements:

1. Tamper evident tape must be applied on the bezel over the Torx post screw in step 7 below.
2. The reader must be installed at a height and location where a person is able to obscure the reader from view of other people.
3. The controller connected to this reader is expected to be installed compliant with the CAPSS and AACS standards. I.e. In a steel enclosure protected with electronic tamper detectors and inside the security boundary.
4. The wiring from the rear of the High Sec T30 must not be easily accessible.
5. DESFire must be used for a compliant deployment.

Please see the *'NPSA Security Characteristics for Keypads'* and *'NPSA Security Characteristics for Readers'* documents for additional detail.

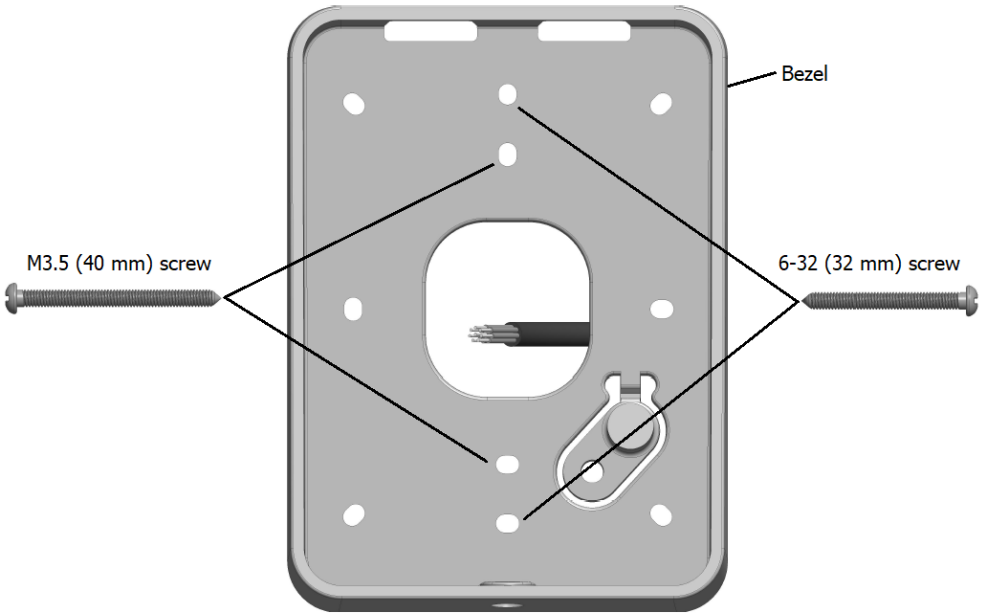
Notes:

- 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 readers 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.

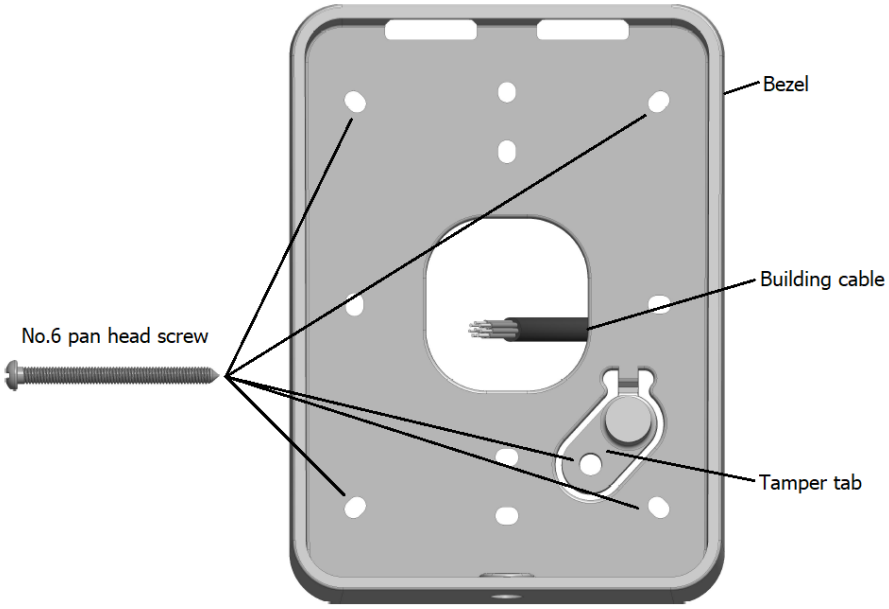
   If you are not mounting to a flush box, use the reader bezel as a guide, to drill all five holes. Drill the 13 mm (1/2 inch) diameter centre hole (this is the centre hole for which the building cable will exit the mounting surface) and the four corner fixing holes. Ensure the centre hole allows the cable to run freely out through the mounting surface, so that the reader facia can clip into the bezel.
   Note: There is no room for the building cable to be squeezed into the reader bezel. The building cable must remain within the flush box or wall cavity.
2. Run the building cable through the reader 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.

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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 reader 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.

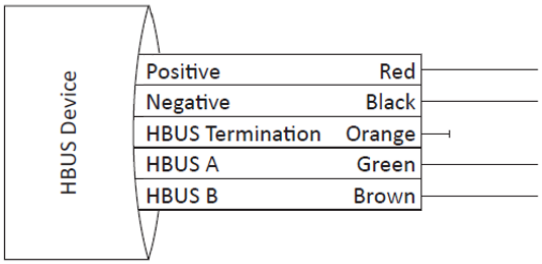


5. Connect the reader tail extending from the facia assembly to the building cable. Connect the wires for the HBUS device to interface.

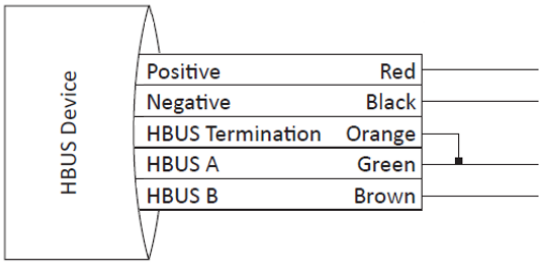
   An HBUS device connects to a Gallagher Controller 6000, Gallagher 4H/8H Module, a Gallagher HBUS Door Module, or a Gallagher HBUS 8 Port Hub.

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HBUS connections:



HBUS connections terminated:



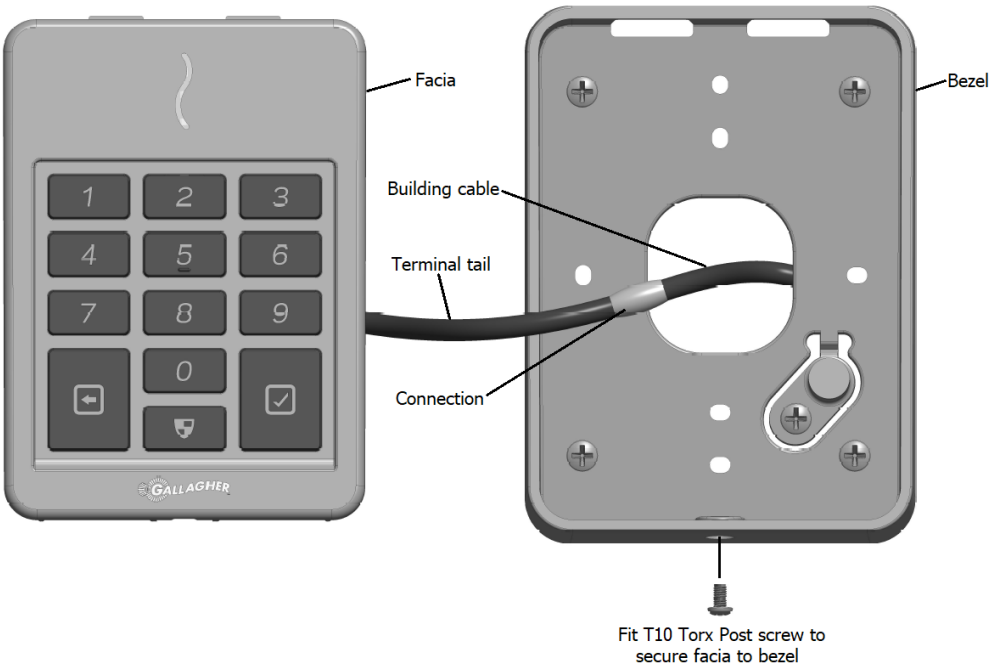
To terminate an HBUS device, connect the **Orange** (HBUS Termination) wire to the **Green** (HBUS A) wire.

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 reader. 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 reader in Command Centre. Refer to the topic *"Configuring an HBUS Keypad Reader"* in the Command Centre Configuration Client Online Help.

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5 LED indications

LED (squiggle)	HBUS indication
4 Rapid Flashes (Red)	The controller that the reader is connected to is currently upgrading.
3 Flash (Amber)	No communications with the Controller.
2 Flash (Amber)	Communications with the Controller, but reader is not configured.
1 Flash (Amber)	Configured to a Controller, but reader is not assigned to a door or elevator car.
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 a Gallagher mobile credential.
Quick Flash White	A long press on the **Arm** button causes the LED to flash white briefly, ready for the user to present their card to start the arming process. When the Alarm Zone is armed the **Arm** button will turn red, and when it is disarmed it will turn green.
On (Blue or White)	A long press on the **0** button changes the LED to blue or white depending on the technology supported, (i.e. blue for the Multi Tech variant and white for the MIFARE variant).

Note: The keyboard backlight will turn on when access is in PINS mode.

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

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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:	13.6Vdc	
Current[3]:	Inactive[1]	Active[2]
T30 MIFARE Keypad Reader (at 13.6 Vdc):	130 mA	210 mA
T30 Multi Tech Keypad Reader (at 13.6 Vdc):	130 mA	210 mA
Temperature range:	-35°C to +70°C	
Humidity:	93% RH at +40°C and 97% RH at +25°C [4]	
Environmental protection:	IP68[5]	
Impact rating:	IK09[5]	
Compatibility:	Compatible with Command Centre vEL8.30.1236 (Maintenance Release 1) or later.	
Communications:	Configured using HBUS device auto discovery.	
Unit dimensions:	Height 118.0 mm (4.65 in) Width 86.0 mm (3.39 in) Depth 26.7 mm (1.05 in)	
Maximum number of readers on one HBUS cable:	20	
Maximum number of readers on one Controller 6000:	20	

1 The reader is idle.

2 A card is being read.

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

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

5 Environmental protection and impact ratings are independently verified.

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.

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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

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

HVIN	FCC ID	IC ID
C300490 T30 Multi Tech Keypad Reader, Black C300491 T30 Multi Tech Keypad Reader, White C300492 T30 Multi Tech Keypad Reader, Black 3m Tail C300495 T30 MIFARE Keypad Reader, Black C300496 T30 MIFARE Keypad Reader, White C305495 High Sec T30 MIFARE Keypad Reader, Black C305496 High Sec T30 MIFARE Keypad Reader, White	M5VC30049X	7369A-C30049X (Excludes C305495 & C305496)
C300490- T30 Multi Tech Keypad Reader, Black C300491- T30 Multi Tech Keypad Reader, White C300492- T30 Multi Tech Keypad Reader, Black 3m Tail C300495- T30 MIFARE Keypad Reader, Black C300496- T30 MIFARE Keypad Reader, White C305495- High Sec T30 MIFARE Keypad Reader, Black C305496- High Sec T30 MIFARE Keypad Reader, White	M5VC30049XB	7369A-C30049XB

CAN ICES-003(B) / NMB-003(B)

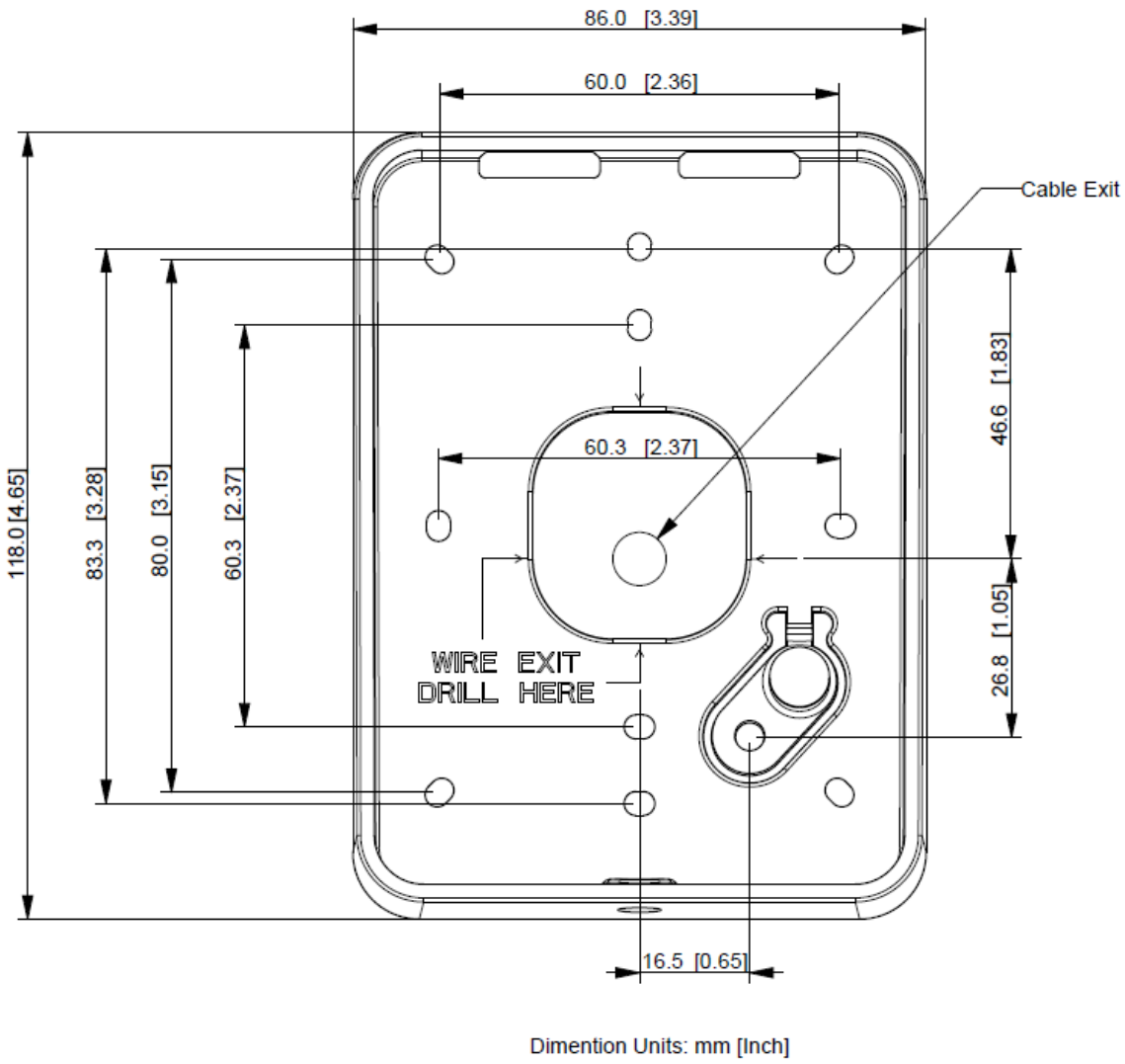
Bluetooth

IS 13252 (Part 1)
IEC 60950-1
R-41120243
www.bis.gov.in

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9

9 Mounting Dimensions



IMPORTANT

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

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