OTI Saturn 6500 Trio

3 in 1 card reader

OTI Telebox

Comms + M2M Telemetry Controller

Specifications Guide

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1. What's in the Box?

1x OTI 6500 Trio 3 in 1 Card Reader

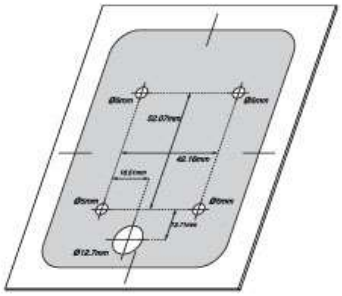
1x OTI Telebox Comms Module / Telemetrv Controller

1x Full Interface Cable

1x Magnetic Cellular Antenna

1x Steel Card Reader Mount Plate

1x Plastic Telemetry Controller Mount Plate



1x Card Reader Drilling Template

1x 8GB Micro SD Card

4x 8mm Card Reader Mount Screws

2. Introduction

The 6500 TRIO reader is a modular payment device that can support up to three cashless payment interfaces in one small stylish enclosure. The reader is designed specifically for installation in unattended environments to allow cashless payment with Contactless, Mag-Stripe and EMV Chip Cards

This device contains three reader interfaces:

- Magnetic card swipe reader, which contains a vertical card swipe slot supporting Track 1 and Track 2 data.
- Contactless reader, which supports ISO/IEC 14443 A&B proximity and ISO/IEC 15693 vicinity tags and cards. The reader supports the major financial contactless programs.
- Contact interface, which supports all EMV financial chip cards.

LCD, LEDs and a buzzer give the user quick transaction confirmation and clear interactive feedback. The 6500 TRIO uses OTI's patented matched antenna technology.

The reader modular design allows customers to order the reader using a wide collection of hardware configurations, for example:

- Contactless, Contact and Mag-Stripe
- Contactless and Mag-Stripe only
- Contactless and Contact only
- Contact and Mag-Stripe only
- Contactless only
- Contact only
- Mag-Stripe only

3. Payment Interfaces

3.1 Magnetic Stripe

When a valid magnetic payment card is swiped, the reader reads Track 1 and Track 2 data stored on the card's magnetic stripe. If the data is valid, the unit will display a row of 4 LEDs that light up in sequence followed by a beep. The reader then communicates the transaction data to the Host.

The interactive LCD, LEDs, and buzzer give the user an indication of the transaction status.

3.2 Contactless (Near Field Communication)

When a valid contactless (Tap and Go) payment card is presented to the reader, the reader performs a payment transaction with the contactless card. If the transaction is accepted, the unit will display a row of 4 LEDs that light up in sequence followed by a beep. The reader then communicates the transaction data to the Host.

A landing zone logo on the graphic overlay under the reader's LCD indicates where the contactless card or tag should be presented.

The interactive LCD, LEDs, and buzzer give the user an indication of the transaction status.

3.3 Chip Insert

When a valid EMV contact chip card is inserted into to the reader contact slot, the reader performs a payment transaction with the contact card. If the transaction is accepted, the unit will display a row of 4 LEDs that light up in sequence followed by a beep. The reader then communicates the transaction data to the Host.

The interactive LCD, LEDs, and buzzer give the user an indication of the transaction status.

4. Supported Applications

EMV

- Contact EMV L1, L2
- Contactless EMV L1

VISA

- VISA PayWave MSD
- VISA PayWave qVSDC
- NDOT over VISA for Mass Transit
- VISA Global Transit Payment Pilot Specification
- VISA Pilot Visa PayWave Ticketing Extension Specification
- VISA Asia Pacific WAVE 2

MasterCard

- MasterCard PayPass M/Chip (including Data Exchange)
- MasterCard PayPass Mag-Stripe
- NDOT over MasterCard for Mass Transit

Mifare

- Mifare Ultralight
- Mifare Classic
- Mifare DESFire (optional)

Transparent (Pass-Through) Communication

- ISO/IEC 14443 Type A – Transparent Proximity
- ISO/IEC 14443 Type B – Transparent Proximity
- ISO/IEC 15693 Vicinity (optional) – Transparent Vicinity

Other

- Magnetic Stripe Card – ISO/IEC 7813, Track 1 + Track 2
- Additional proprietary applications

5. Device Overview

1	Payment Transaction LEDs
2	Chip Card Insert Slot
3	16x2 Character Backlit LCD Display
4	Contactless (NFC) Reader Area
5	Operation Button with LED
6	Magnetic Card Swipe
7	Molex Microfit Female Connector (6 Pin) Pin 1: Cable Screen Wire Pin 2: RS232 Transmit Line Pin 3: Reader 8v – 45v DC Power Input Pin 4 RS232 Receive Line Pin5: (GND) Pin 6: Not Used

6. Product Features

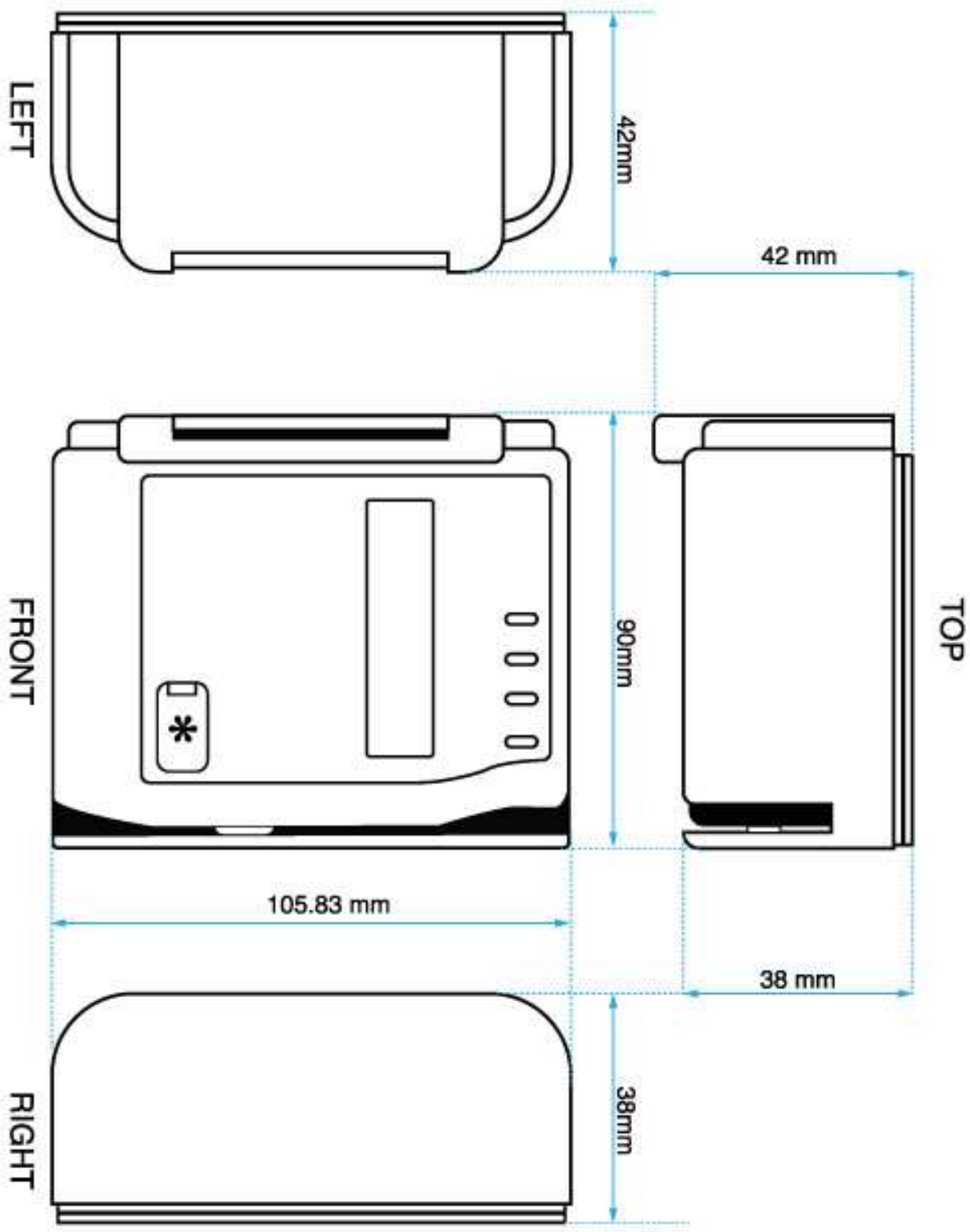
- EMV Approved device through CBA and Card Access Services
- Flexible, software configurable, certified intelligent reader solution
- Bi-directional RF interface between Reader and Contactless Smart Cards
- ISO/IEC 14443 Type A/B and Mifare full support
- 2 x 16 character display
- 4 LED indicators
- 8VDC – 45VDC (On-board Switch Mode Power Supply)
- SAM Interface
  - One optional Slot, ISO/IEC 7816 compliant
- Magnetic Interface
  - Magnetic Card Reader
  - 1,000,000 passes minimum
- Contact Interface
  - EMV contact chip support
- Contactless (Tap and Go) Interface
  - Contactless (NFC) chip support
- Security
  - High security encryption system (3DES/AES/RSA) protects the reader's operating system
  - Vandalism-proof PKI protected software update mechanism
  - DUKPT (Derived Unique Key Per Transaction) support
  - Secure boot loader (firmware update) protocol
- Current Supported card types

7. Technical Specifications

Feature	Specification
■ **RF Interface:**	
RF Carrier Frequency	13.56 MHz
RF Output	450mW
ISO/IEC 14443 A&B and Mifare	Full compliance
ISO/IEC 15693	Optional
■ **Magnetic card head:**	
Head Life	1,000,000 Min Passes
■ **EMV Contact interface**	
■ **SAM Interface (Optional)**	
■ **Communication Links:**	
RS232, RS485, USB or TTL	
■ **Default Pigtail cable connector**	Molex MicroFit 43025_0600
■ **Indicators:**	
2x16 LCD with backlight	Display size: 2.58/0.98” (65.5/25mm) Character size: 0.2/0.1” (5/2.55mm) Operating temperature: -22°F to 176°F (-30°C to 80°C)
Four programmable on-board LEDs	4 Green super bright transaction feedback LEDs 1 “Button-Led”
Buzzer	Multi-tone buzzer (up to 5VDC)
■ **Buttons:**	
Buttons support	Up to 3 buttons
Buttons durability	1,000,000 operations min.
■ **Magnetic head decoder**	
■ **Electronic Board Power Requirements:**	
8VDC - 45VDC	On-board switching power supply
Maximum power consumption	3W (RF signal ON)
■ **Mechanical (without contact interface):**	
Dimensions	H – 4.1665” (105.83mm) W – 3.23” (82mm) D - 1.46” (37mm)
Weight	212 gr.
Vibrations	10 □ 200 Hz @ 2.0G
■ **Mechanical (with contact interface):**	
Dimensions	H – 4.1665” (105.83mm) W – 3.54” (90mm) D - 1.46” (37mm)
Weight	240 gr.
Vibrations	10 □ 200 Hz @ 2.0G
■ **Temperature:**	
Operating	-30°C to 70°C (-22°F to 158°F)

8. Dimensions

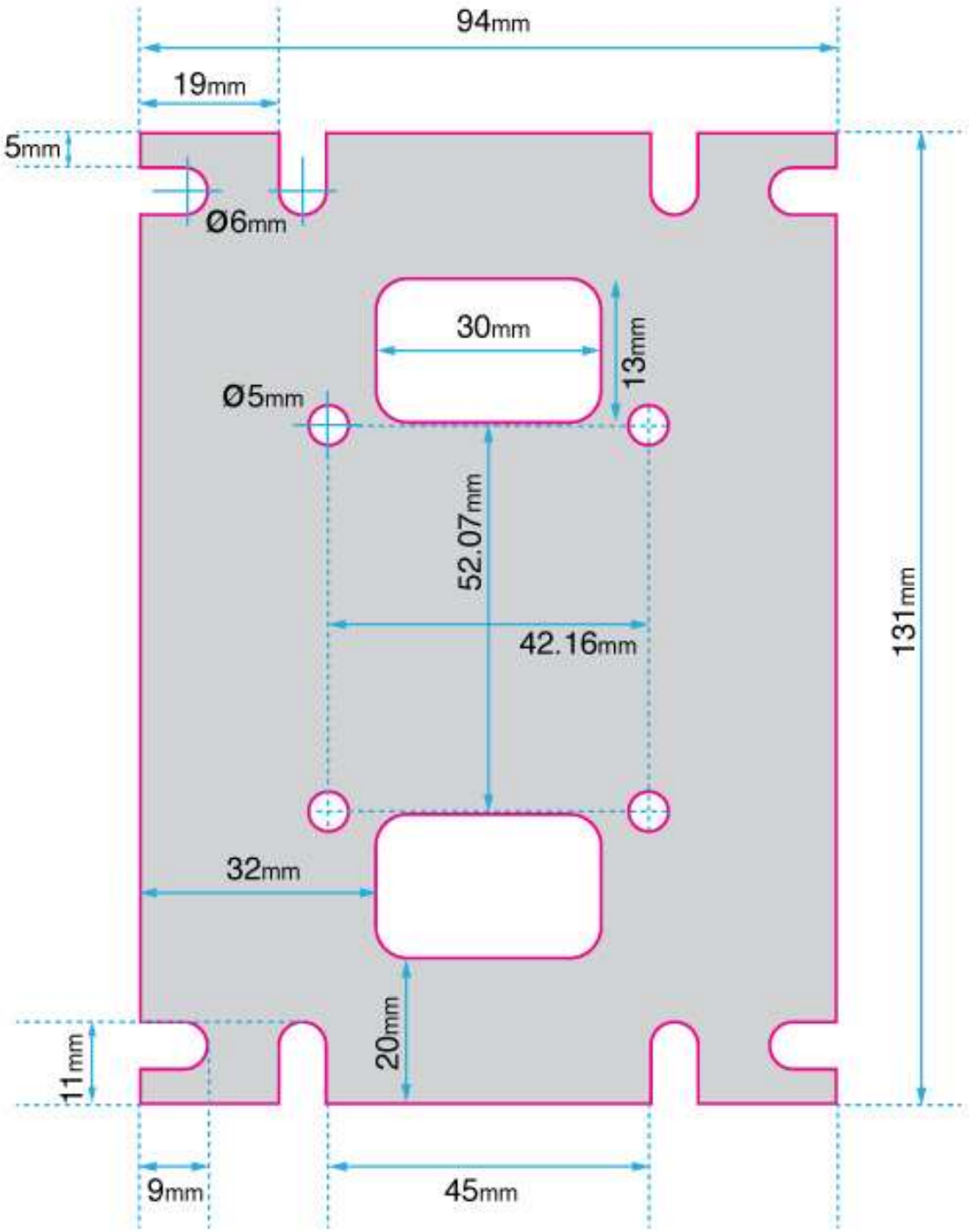
8.1 Trio Card Reader



8. Dimensions

8.2 Mounting Plate

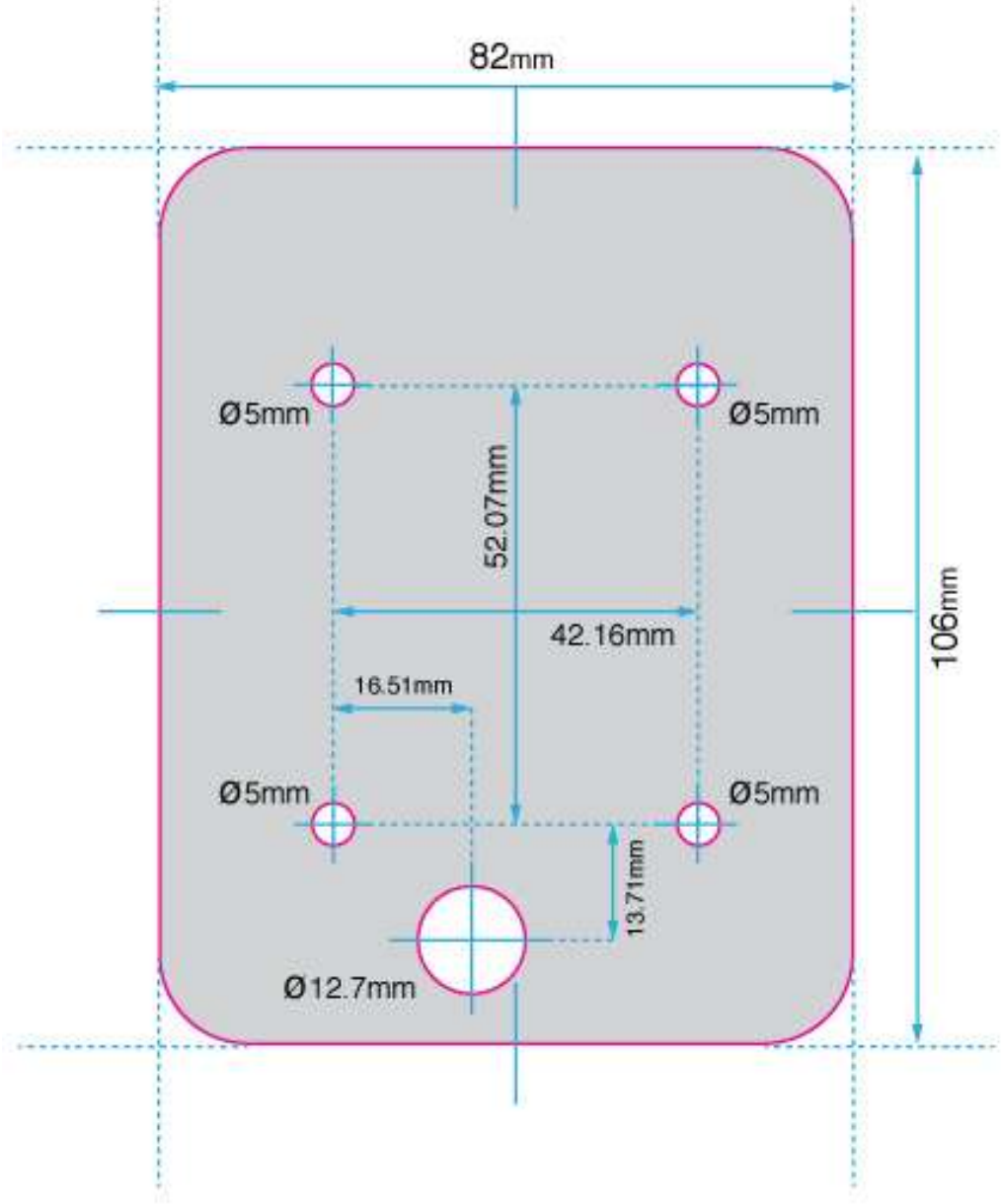
The included mounting plate is used for installation of the 6500 TRIO in bill acceptor cutout. The dimensions are shown in the figure below



8. Dimensions

8.3 Drilling Template

The drilling template (illustrated in the figure below) is used to mark the position of the mounting holes and cable entry hole that need to be drilled into installations where there is no bill acceptor cutout.



A scale printed copy of this template is included with the reader

9. Installation

9.1 Installing in Bill Acceptor Cutout

The 6500 TRIO is designed to fit into the bill acceptor cutout.

If the vending machine **has a bill acceptor cutout**, please perform the following steps:

1. Take the mounting plate supplied with the kit and attach it to the reader with the included **4x 8mm** long mounting screws
2. Open the vending machine door and remove the cutout cover. Retain the cover mounting nuts; They will be used later (see Step 4) to secure the reader to the vending machine door.
3. Insert the reader through the cutout from the inside, allowing the bolts surrounding the cutout to pass through the cutouts in the mounting plate.
4. Use the cover mounting nuts (See Step 2) to secure the reader to the vending machine door.
5. Connect the MicroFit connector on the reader to the MicroFit connector on the Telebox communication cable.
6. Installation complete.

9.2 Surface Mounting on Vending Machine (without Bill Acceptor Cutout)

If the vending machine **doesn't have a bill acceptor cutout:**

1. Take drilling template supplied with kit and place it over the mounting location.
2. Drill four 5mm holes and one 12mm hole according to tempolate
3. Insert pigtail from outside through the 12mm hole. Insert 4x 8mm long mounting screws supplied with kit from inside and use them to secure the reader to the vending machine door.
4. Connect the MicroFit connector on the reader to the MicroFit connector on the Telebox communication cable.
5. Installation complete.

10. Introduction

OTI Telebox is a Machine-to-Machine (M2M) controller designed to enable communication between machines, particularly vending machines, kiosks and meters via various optional communication methods allowing operators to easily remotely manage and be nOTIfied about a specific machine or the entire fleet.

Designed to allow communication of machines, especially vending machines, kiosks and meters, to the outside world via the Internet network or alternatively through internal networks.

OTI Telebox can collect and transmit inputs from different components of the machine such as: sensors, all types of serial payment acceptance devices like readers, security devices such as PIN pads, inventory events, security and anti-vandalism events, operation transaction events, and data collection devices like barcode scanners and more.

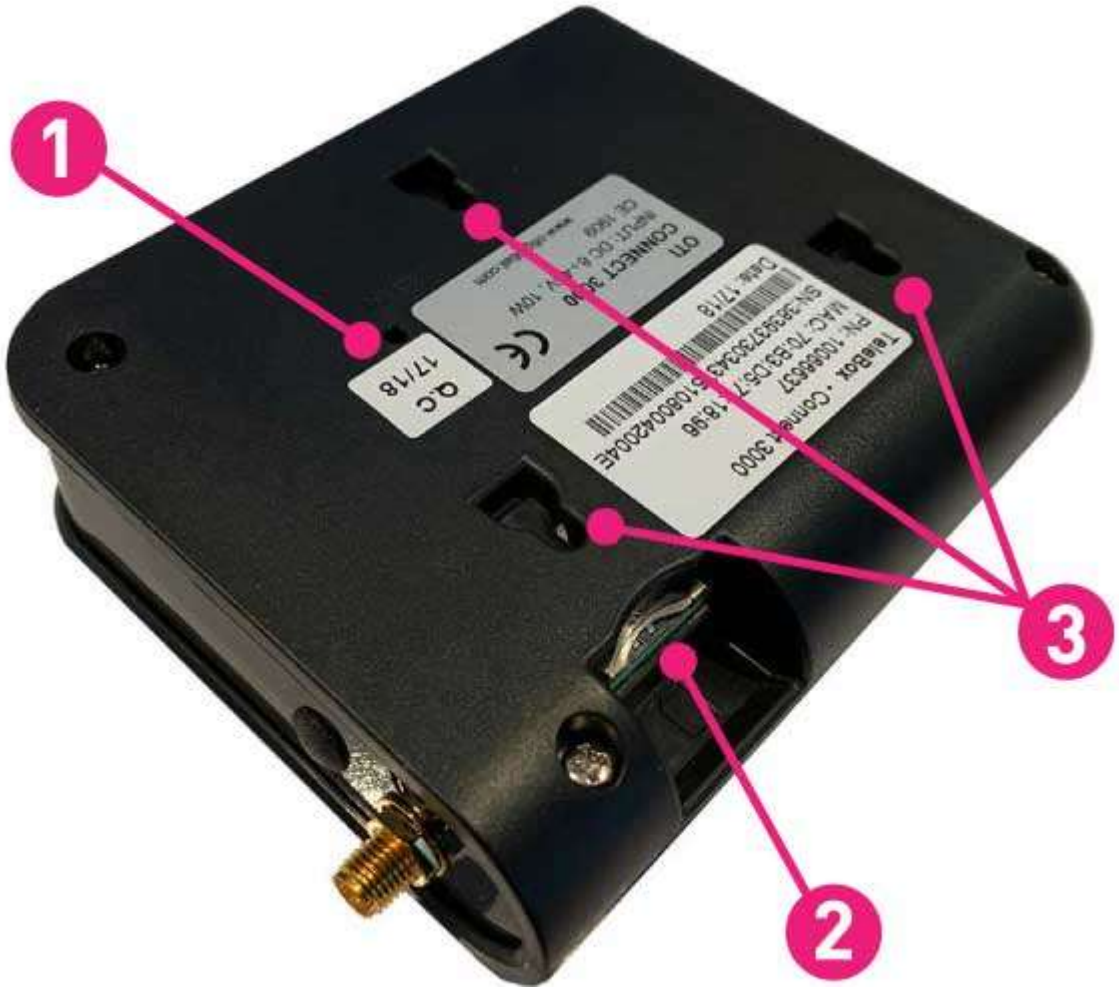
11. Device Overview

11.1 Front & Top

1	Micro SIM port (at back of unit)
2	Cellular Antenna SMA Connector
3	Operation LEDs
4	Technician Buttons
5	Micro SD Card port
6	Ethernet RJ45 Connector
7	Mini USB port (serve as host or device socket)
8	26 Pin Connection socket that serves following interfaces; • MDB • RS232/485/TTL • DEX (RS232) • Power • Input 1,2,3 • Output 1,2,3

11. Device Overview

11.2 Back & Bottom



1	Reset Button
2	Micro Sim Port
3	Mounting Holes (Screws or Included Mount Plate)

12. Product Features

- Software
  - Configurable and upgradable platform
  - Remote software update supported
  - OTI reader drivers included
  - MDB, DEX, Ethernet, SD, USB (Device and Host) libraries included

- Cellular modem:
  - Europe
  - North America
  - Australia

- Backup Batteries
  - 2 x 3.2 VDC (350 mAh) battery pack

- Security
  - SSL API
  - Cryptographic algorithms: AES, TDES, RSA
  - DUKPT (Derived Unique Key Per Transaction) support

- Memory
  - CPU: 512 KB Flash
  - On-board: 2MB Serial flash
  - External: micro SD card (included)

13. Technical Specifications (1/2)

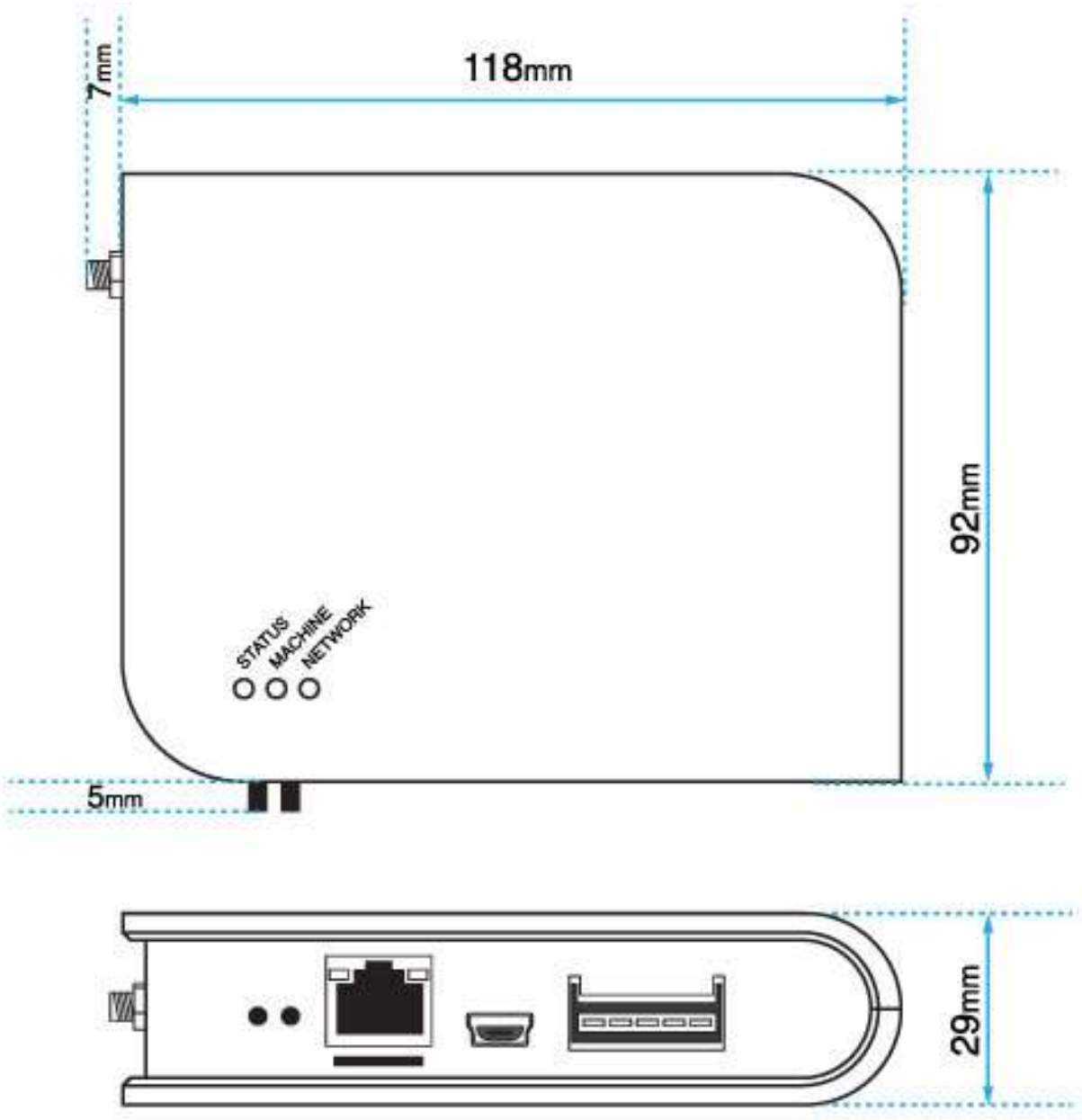
Feature	Specification
■ **CPU**	
Core	ARM 32 bit Cortex-M3 120 MHz
Model	STM32F207VE
Internal Memory	512 KB Flash
RAM	128 KB
■ **I/O (Option No. 1)**	
Digital out	Three (3) OC output
Digital in	Two (2) input 0 – 5 VDC
Analog in	One (1)input 0 – 5 VDC
■ **I/O (Option No. 2)**	
Digital out	Two (2) OC outputs
Digital in	One (1)input 0 – 5 VDC
Analog in	One (1)input 0 – 5 VDC
I^2C	3.3V TTL
■ **Communication Links:**	
RS232/RS485/TTL (3.3V/5V)	
■ **Indicators:**	
LEDs	Three (3) general purpose programmable mono/multi-color, high brightness LEDs
Button	Two general purpose
■ **Electronic Board Power Requirements:**	
Input Voltage	8VDC - 45VDC, On-board switching power supply
Output (USB Host)	5V, 0.5A
Output (via 22 pins connector)	5V, 0.5A
Output (via 22 pins connector)	Filtered input voltage
■ **Machine interface connector**	
Connector	Manufacturer code: JST SM22B-ZPDSS-TF
■ **MDB**	Supported, including MDB spy
■ **DEX**	Supported, Auxiliary access connection (Automatic override) Note: Optionally can be used as secondary general purpose RS232
■ **Mechanical:**	
Dimensions	H – 3.62” (92 mm) W – 4.64” (118 mm) D – 1.14” (29 mm)
■ **Temperature:**	
Operating	-20°C to 70°C (-4°F to 158°F)

13. Technical Specifications (2/2)

Feature	Specification
■ **On-board memory**	
On-board 2MB Serial flash memory	
■ **External memory**	
micro SD socket	8GB micro SD HC card included
■ **Cellular modem**	
Modem	Manufacturer code: Telit UL865-EUD or UL865-NAD
Cellular Generation	GSM and UMTS
Support bands	Dual band (EU/North America)
SIM house	micro SIM
Antenna connector	SMA
Cellular Antenna	Magnetic Cellular Antenna included
■ **USB:**	
USB 2.0 Full speed	mini USB Type AB
Device	CDC device driver included
Host	Supported
■ **Battery** Note: The unit includes 2 batteries, information below is per battery	
Type	Rechargeable battery
Model	LiFePO4
Typical Rated Capacity	350mAh
Rated Voltage	3.2V (Operation Voltage)
■ **Ethernet**	
Connector	RJ45
Supported Bit rate	10/100 Mbps
■ **MEMS**	
Functionality	High performance 3D accelerometer and 3D magnetometer module

14. Dimensions

14.1 Main Unit



14. Dimensions

14.2 Main Unit (Reverse Side) Mounting Holes

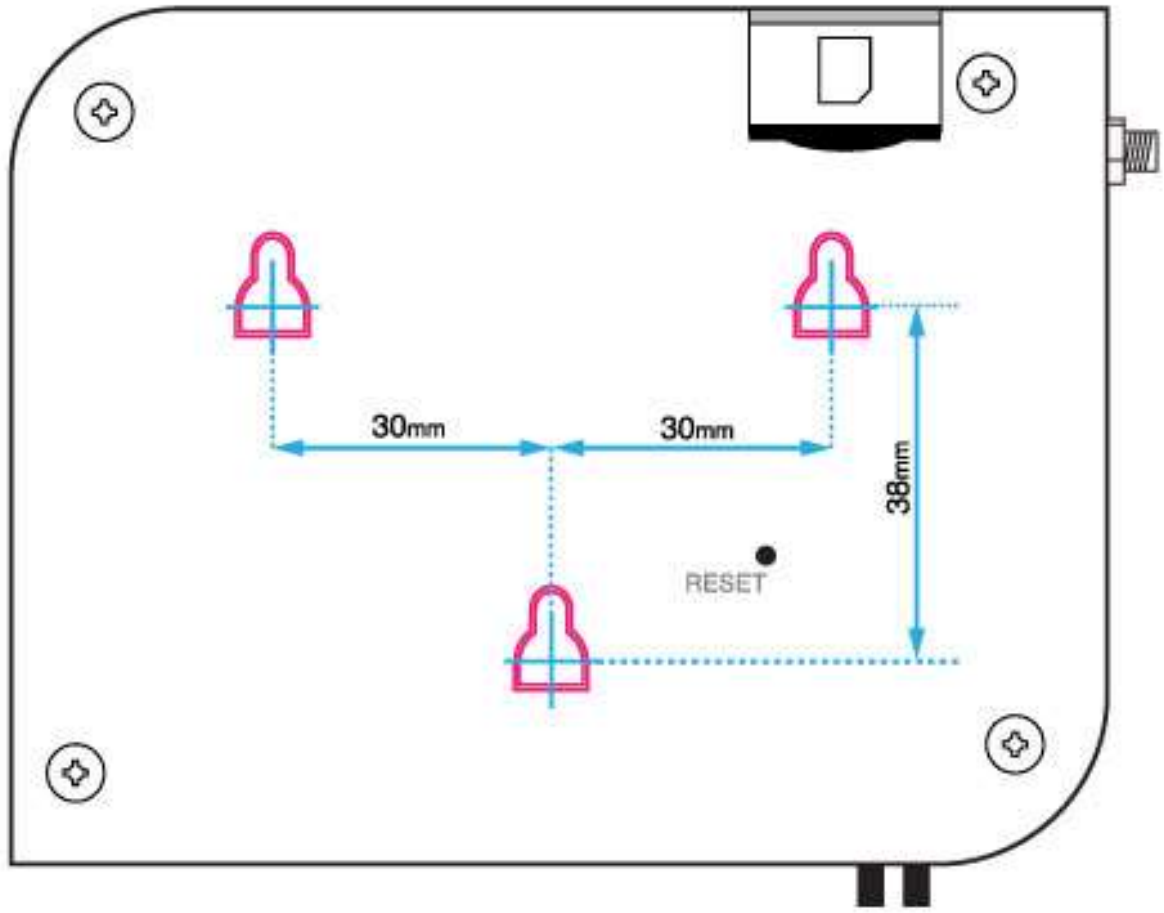
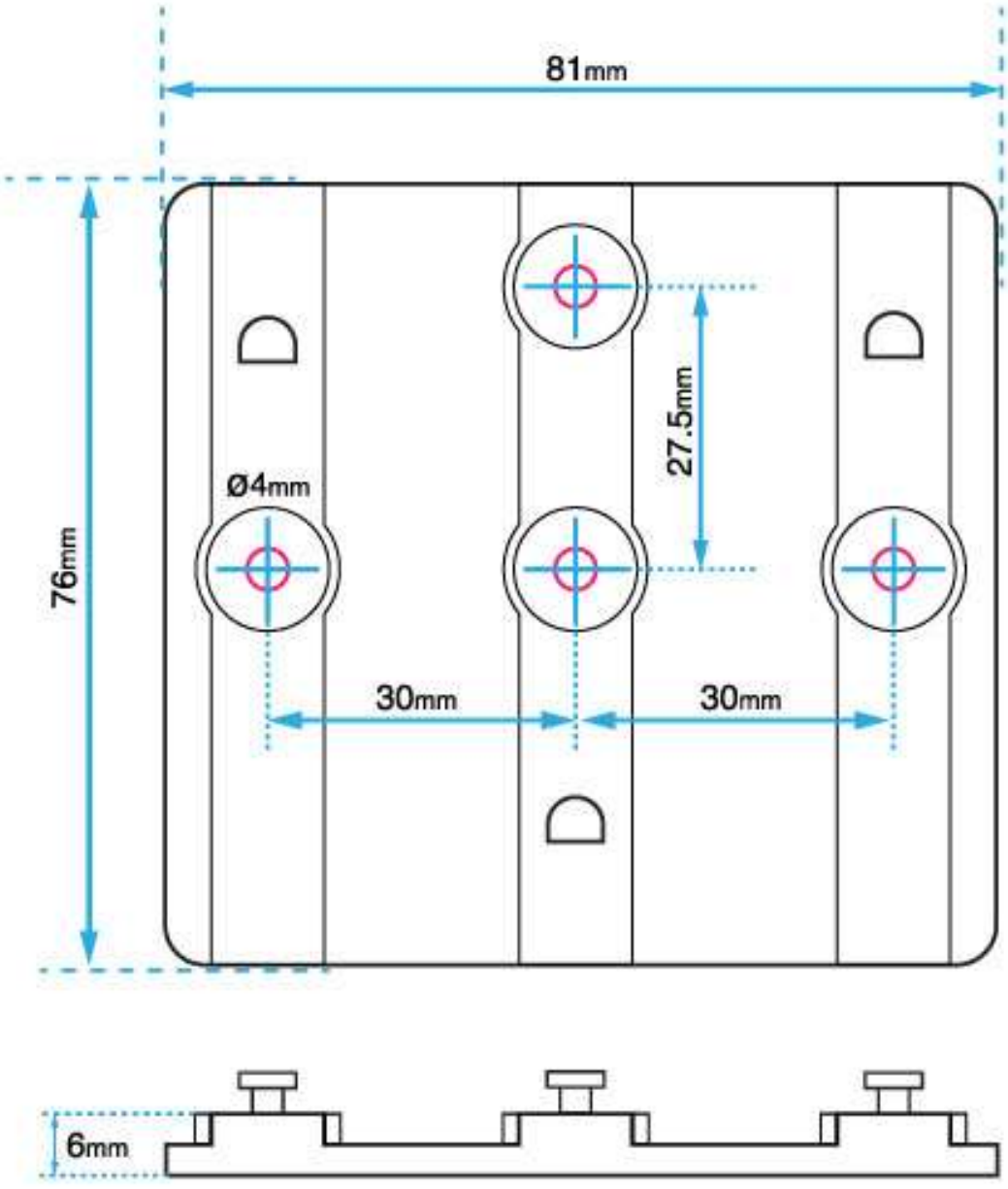


Illustration above shows the Telebox with the Mounting Plate Removed

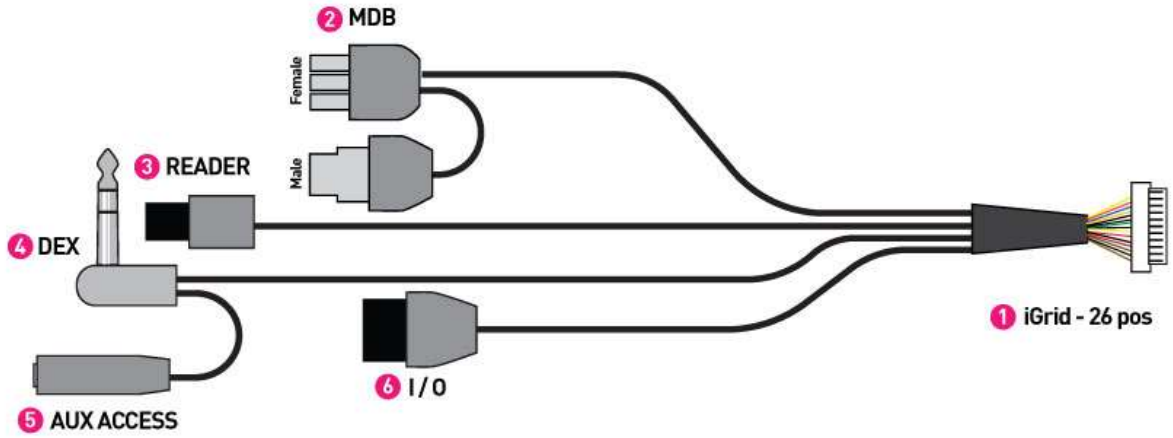
14. Dimensions

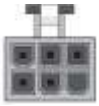
14.3 Mounting Plate



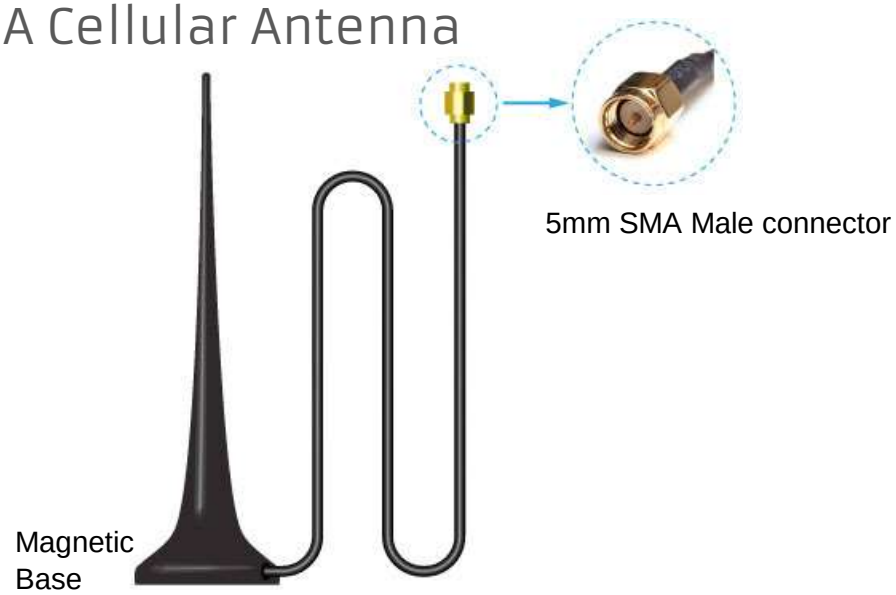
15. Interfaces & Cables

15.1 Full Interface Cable



1	iGrid 26 Pin		iGrid 26 pos (to Telebox “Machine” port)
2	MDB (Female)		Mini-Fit-Jr 6 pos Female
2	MDB (Male)		Mini-Fit-Jr 6 pos Male
3	Reader		Microfit (3.0) 6 pos Male Connector (to 6500 Trio)
4	DEX		Switchcraft 6.5mm Stereo Jack
5	AUX ACCESS		Switchcraft 6.5mm Stereo Receptacle
6	I/O		Microfit (3.0) 10 pos

15.2 SMA Cellular Antenna



16. Unit Mounting

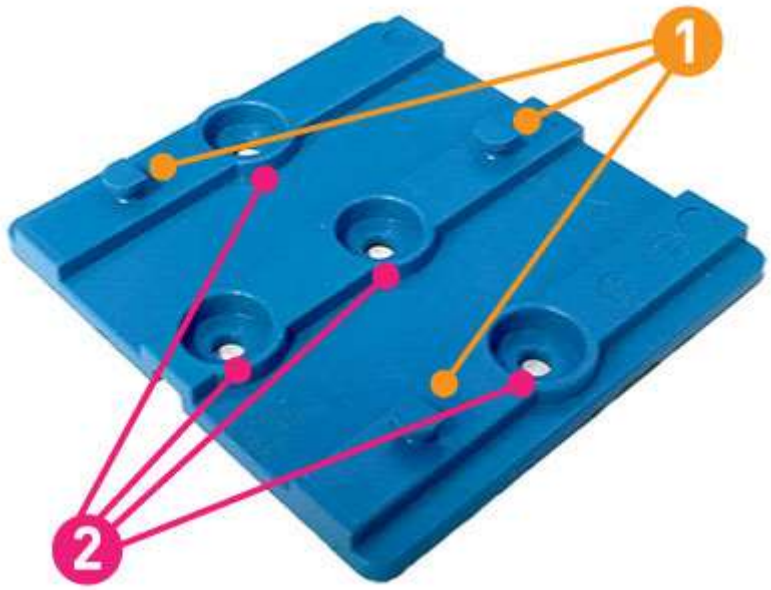
16.1 Introduction

The TELEBOX is designed to be installed within machines such as vending machines and to be connected to the machine's different devices, sensors, other I/O accessories and interfaces.

Although the unit was built to handle a relatively wide range of temperatures of -20°C to 70°C (-4°F to 158°F) the unit is not water/dust proof and needs to be installed inside the machine.

The unit is delivered with an optional plastic mounting plate.

The mounting plate has three **(3) mushroom studs** and **four (4) 4mm screw holes** as shown in the image below.



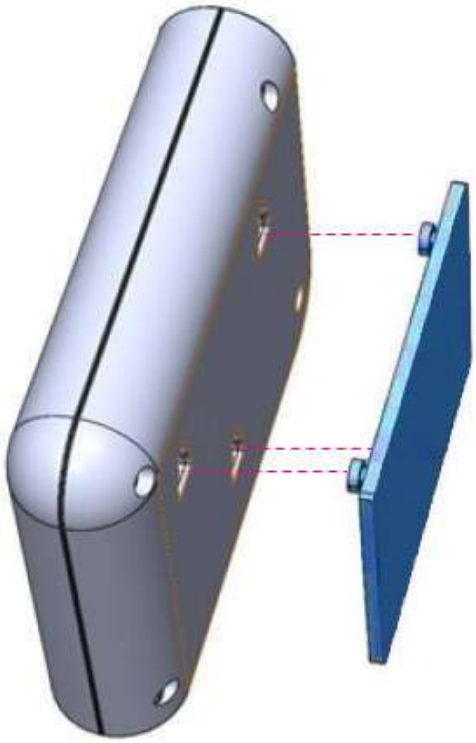
16. Unit Mounting

16.2 Installation Procedure

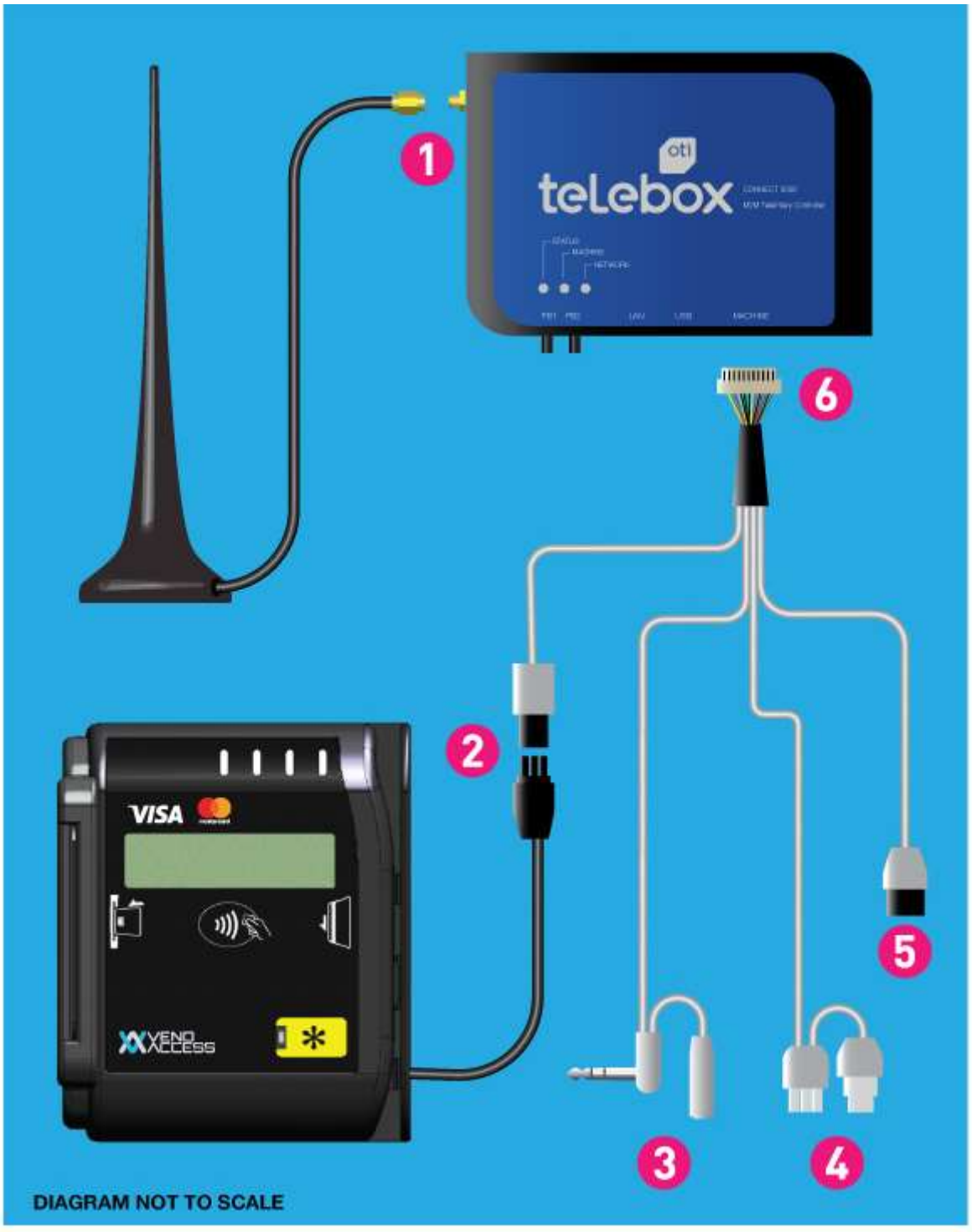
As a first step, the installation plate should be attached to the internal wall of the machine or to any of the machine's internal beams. The attachment of the plate can be achieved by:

1. Drilling four (4) holes in the machine wall or machine internal beam according to the holes in the mounting plate and attaching the plate to the machines with screws.
2. Attaching the mounting plate to any surface in the machine with double-sided adhesive tape that can carry the unit weight.
3. Attaching the installation plate to any surface in the machine using adhesive Velcro tape that can carry the unit weight.
4. Any other way that will allow attachment of the plate to the machine in a way that will support the unit weight.

After the plate is attached to the machine, the unit should be installed by placing the unit on the plate in a way that the three (3) mushroom studs are inserted into the three (3) holes at the back of the unit, then gently pull the unit down to stabilize it.



17. Connection Map



1	Cellular Antenna (SMA)
2	Reader Connector (Microfit)
3	DEX Connector (to the VMC)
4	MDB Connector (to the VMC)
5	I / O Connector
6	iGrid 26pos Connector (to the Telebox)