Installation Manual for TBS readers:

2D IRON and 3D AIR

Document TBS-056-057

NOTE: The latest version of this document is always available at:
https://cloud1.tbs-biometrics.com/index.php/s/IcgqtcdZXJVBrzA

Revision	Author	New content
Oct 22, 2021	AG/TO	First Release
April 13, 2022	AG/TO	Minor updates
Aug 18, 2022	AG	Name changes
Nov 20, 2023	AG	Port assignments for BME, device front closing, FM box dimensions

Content

1 Introduction

The TBS 2D IRON and 3D AIR terminals bring Access Control and Time & Attendance applications featuring biometrics to a new level. They combine highest security with user convenience and the most flexible configuration options on the market.

This installation manual provides information and instruction for the 2D IRON and 3D AIR, which are available as flush mount or wall mount options. For wall mount, installers can choose between the standard PVC box, or the 'Heavy Duty' box made from aluminum.

Live Finger Detection is a feature available as a licensed option.

Table 1: Product Models available for 2D IRON

Terminal Class	Mounting Option	RFID Card Reader Option	Model Number
2D IRON Multispectral sensor	Wall Mount PVC	none	TBS-056-STD-WM
		HID iClass	TBS-056-ICL-WM
		HID PROX	TBS-056-PRO-WM
		Legic, Mifare Classic or Desfire	TBS-056-LEM-WM
	Wall Mount Heavy Duty IP65	none	TBS-056-STD-HD
		HID iClass	TBS-056-ICL-HD
		HID PROX	TBS-056-PRO-HD
		Legic, Mifare Classic or Desfire	TBS-056-LEM-HD
	Flush Mount IP54	none	TBS-056-STD-FM
		HID iClass	TBS-056-ICL-FM
		HID PROX	TBS-056-PRO-FM
		Legic, Mifare Classic or Desfire	TBS-056-LEM-FM

Table 2: Product Models available for 3D AIR

Terminal Class	Mounting Option	RFID Card Reader Option	Model Number
3D AIR 3D Finger Scan Sensor	Wall Mount PVC	none	TBS-057-STD-WM
		HID iClass	TBS-057-ICL-WM
		HID PROX	TBS-057-PRO-WM
		Legic, Mifare Classic or Desfire	TBS-057-LEM-WM
	Wall Mount Heavy Duty IP65	none	TBS-057-STD-HD
		HID iClass	TBS-057-ICL-HD
		HID PROX	TBS-057-PRO-HD
		Legic, Mifare Classic or Desfire	TBS-057-LEM-HD
	Flush Mount IP54	none	TBS-057-STD-FM
		HID iClass	TBS-057-ICL-FM
		HID PROX	TBS-057-PRO-FM
		Legic, Mifare Classic or Desfire	TBS-057-LEM-FM

TBS Support

For any additional information please get in touch with TBS support:

email: support@tbs-biometrics.com

phone: +41 (55) 533 2000

2 Legal and Safety Instructions

Allowed Applications

TBS products are not designed, authorized, or warranted to be suitable for use in medical, military, aircraft, space or life support equipment, nor in applications where failure or malfunction of a TBS product can reasonably be expected to result in personal injury, death or severe property or environmental damage. TBS accepts no liability for inclusion and/or use of TBS products in such applications.

Inspection of goods received

If the packaging or product has been damaged in transport, or should you suspect that it may have a fault, the product must not be put into service. In this case, contact your TBS company representative.

Installation and Servicing

Installation, setup, and servicing of our appliances must only be carried out by suitably trained personnel.

- Installation and electrical connections must only be made by correspondingly qualified specialists. The relevant national Electrical Engineers construction regulations must be observed.
- Setup and servicing must only be made by persons who have the know how to do so e.g., by reading the respective TBS manuals or attending TBS trainings / webinars.

When not otherwise stated, the following safety instructions apply:

- Installation and servicing of our appliances must be carried out when disconnected from the power supply, in particular appliances that are normally supplied by low-voltage current.
- It is prohibited to alter the device or to remove protective shields and covers.
- Do not attempt to repair an appliance after a defect, failure, or damage, or to put it back into operation again. Please contact in such case your TBS company representative or the TBS hotline.

If there are still some points on which you are not entirely clear, please do not take a chance. All queries can be clarified by your TBS company representative, or by ringing the TBS hotline.

WASTE DISPOSAL: This symbol means do not dispose of your product with your other household waste. Instead, you should protect the environment and human health by handing over the marked equipment to a designated recycling facility or an electrical and electronic waste collection point.

Disclaimers

TBS accepts no responsibility for any injuries or damage caused as a result of improper use.

Information in this document is believed to be accurate and reliable. However, TBS does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information.

Should you discover any fault with the product or in its documentation, or have any suggestions for improvement, please confidently approach your TBS company representative or TBS hotline.

TBS reserves the right to make changes to information published in this document at any time and without notice.

3 Declarations of Conformity

3.1 European Union (CE) regulatory notices

Products bearing the CE marking comply with one or more of the following EU Directives as may be applicable:

- EMC directive 2014/30/EU
- REACH Directive 1907/2006
- RoHS Directive 2015/863/EU

Compliance with these directives is assessed using applicable European Harmonized Standards.

2D IRON and 3D AIR are intended to be used for professional application only (buildings, airport...).

They are an EMC Class A product according to EMC directive 2014/30/EU. The product may cause interference if used in residential areas. Such use must be avoided unless the user takes special measures to reduce electromagnetic emissions to prevent interference to the reception of radio and television broadcast. The full Declaration of Conformity is available on demand to your reseller. Please, provide him the product model name or its Regulatory Model Number (Model on the label).

3.2 USA (FCC) regulatory notices

The 2D IRON and 3D AIR comply with FCC 47 CFR Part 15B. Operation is subject to the following two conditions: (1) the device may not cause harmful interference, and (2) the device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Responsible Party:

Touchless Biometric Systems AG
Rietbrunnen 2
8808 Pfaeffikon
Switzerland

NOTE:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to FCC 47 CFR Part 15B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

3.3 Canada (IC) regulatory notices

WARNING TO USERS IN CANADA / ATTENTION POUR LES UTILISATEURS AU CANADA

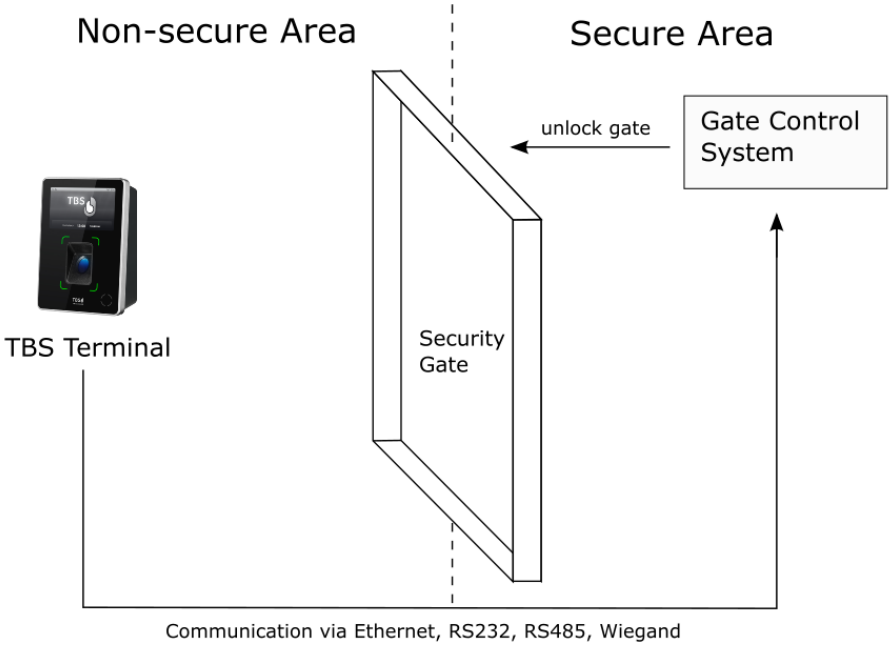
The 2D IRON and 3D AIR comply with ICES 003: 2017 and 2016. Operation is subject to the following two conditions: (1) the device may not cause interference, and (2) the device must accept any interference, including interference that may cause undesired operation of the device.

Le 2D IRON et le 3D AIR sont conformes à la norme ICES 003 : 2017 et 2016. 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.

4 Mounting and Installation

4.1 Recommended Configuration

The recommended configuration for installation is to connect the TBS terminal, mounted in the non-secure area, via Ethernet, RS232, RS485 or Wiegand interfaces to the gate control system, located in the secure area.



- The standard installation environment must meet these requirements:
  - Operating temperature -20 to +60 °C
  - Relative humidity 10 to 90%
  - Outdoor device use is not compliant with UL294
- In the case of 3D AIR, strong ambient light and / or direct light into the sensor of the terminal should be avoided. Sunlight, halogen lamps or other strong illumination may reduce the performance of the terminal and may result in failed authentication events.
- Terminals with standard PVC wall mount box are designed for indoor use only. This box is not weatherproof and must not be exposed to water, ice, extreme temperature, or other adverse weather conditions.

NOTE:

Installation in extreme environments without proper protection may cause permanent device damage and voids warranty.

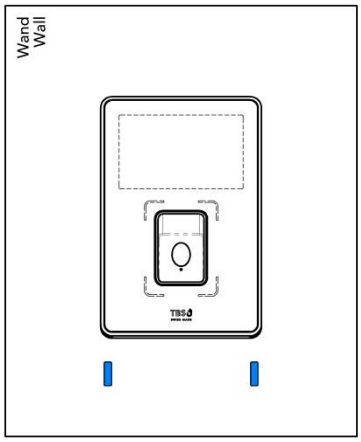
4.2 Accessing The Device

The terminals can be accessed by opening two screws on the bottom and removing the front panel. The process is the same for all three mounting variants (wall mount, heavy duty wall mount, flush mount)

4.2.1 Opening the Device

IMPORTANT:
Always disconnect power supply before opening terminals.

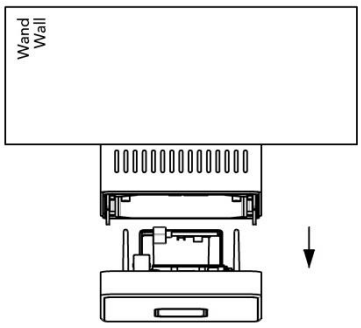
1



Unlock (1)
Use Allen wrench (size 3) to loosen 2 screws at bottom side of front plate

NOTE:
Just loosen the screws, do not remove them.

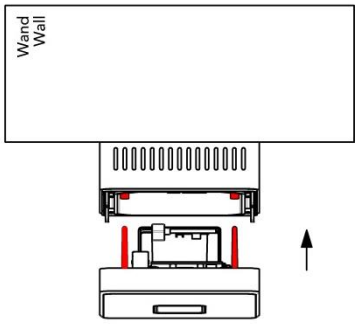
2



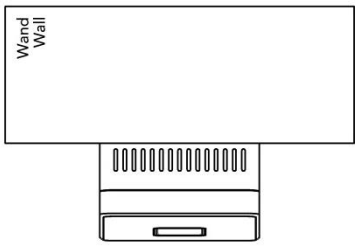
Pull out (2)
Pull the front part out of the back cover.
It will unlink TCON connector board (which remains in back cover) from processing electronics situated in device front.

4.2.2 Closing the Device

1

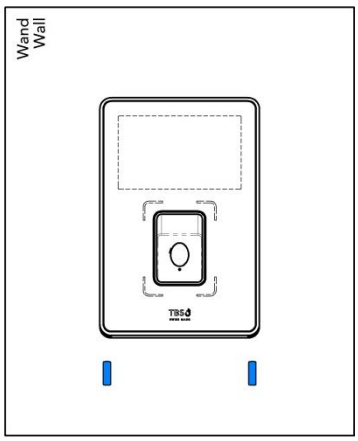


Plug In (1)
Plug in the 2 bolts on front part into corresponding holes on back cover.



Push front part towards back cover until it snaps in (you hear a click)

2



Lock (2)
Fix 2 screws with Allen wrench (size 3) to lock front part to back cover. Screw in fully and turn back half a turn.

IMPORTANT:

To avoid destruction and electrical shorts please ensure no cable or metal parts press against the electronic boards inside the device!

Ensure to close the fixation screws almost fully. Only then the device front is pulled back to the backbox, making sure the rubber sealing and the contacts to the connector board are in proper position. Otherwise, there could be side effects like dust intrusion on HD versions or network not working.

4.3 Mounting Instructions

4.3.1 Preparation

IMPORTANT:

Make sure that all power sources for the device are turned off before installation.

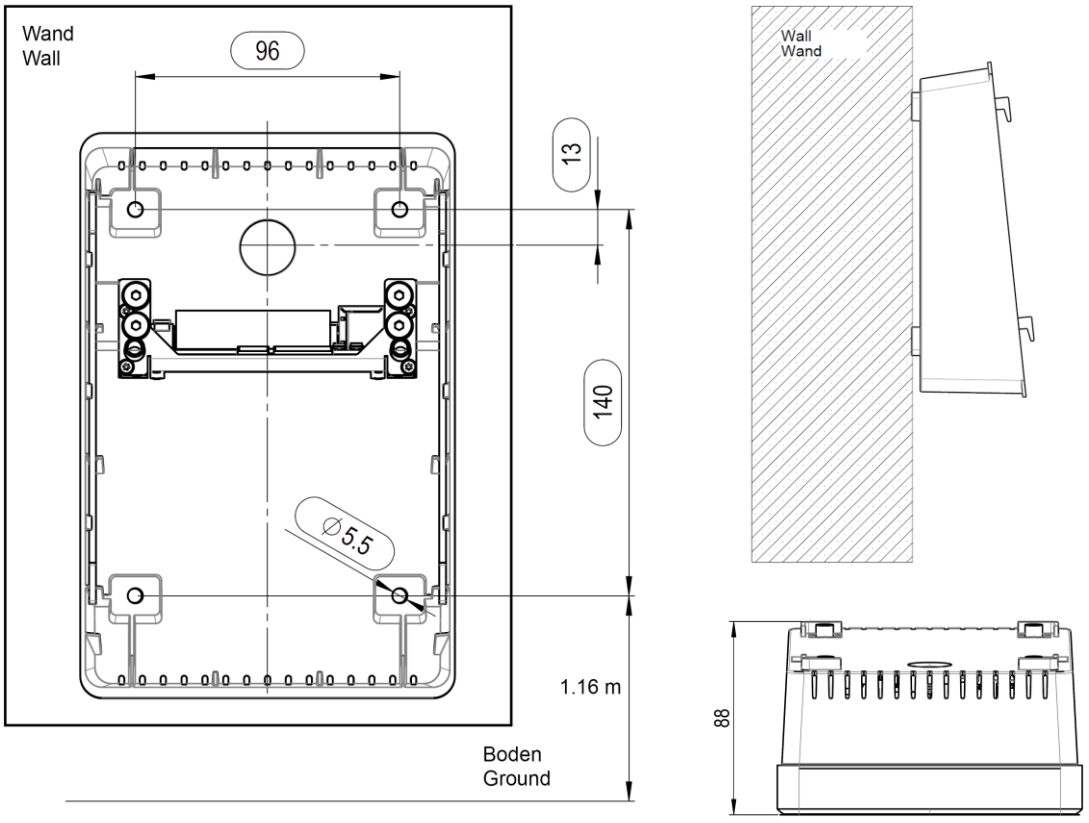
Before mounting the device, make sure of the following points to achieve an optimal installation:

- The mounting strength of the terminal depends on the solidity and material of the wall. Make sure to use an appropriate method to anker the mounting screws such as raw plugs.
- Make sure to leave sufficient space in the wall behind the installation for the passage of cables.
- Make sure that the installation wall is completely flat, to allow a nice and proper mounting. TBS provides very accurately manufactured enclosures that only fit to the mounting box if no obstacles are present between the wall and the terminal front.

4.3.2 Wall Mount Box

The following equipment and tools are required for mounting the wall mount variant.

- Four ø4-5mm screws and fitting raw plugs suitable for the wall material (not included)
- One screwdriver appropriate to drive the above screws
- One drill with a drill bit of an appropriate diameter for the above raw plugs
- One Allen wrench (size 3) screwdriver to open the terminal

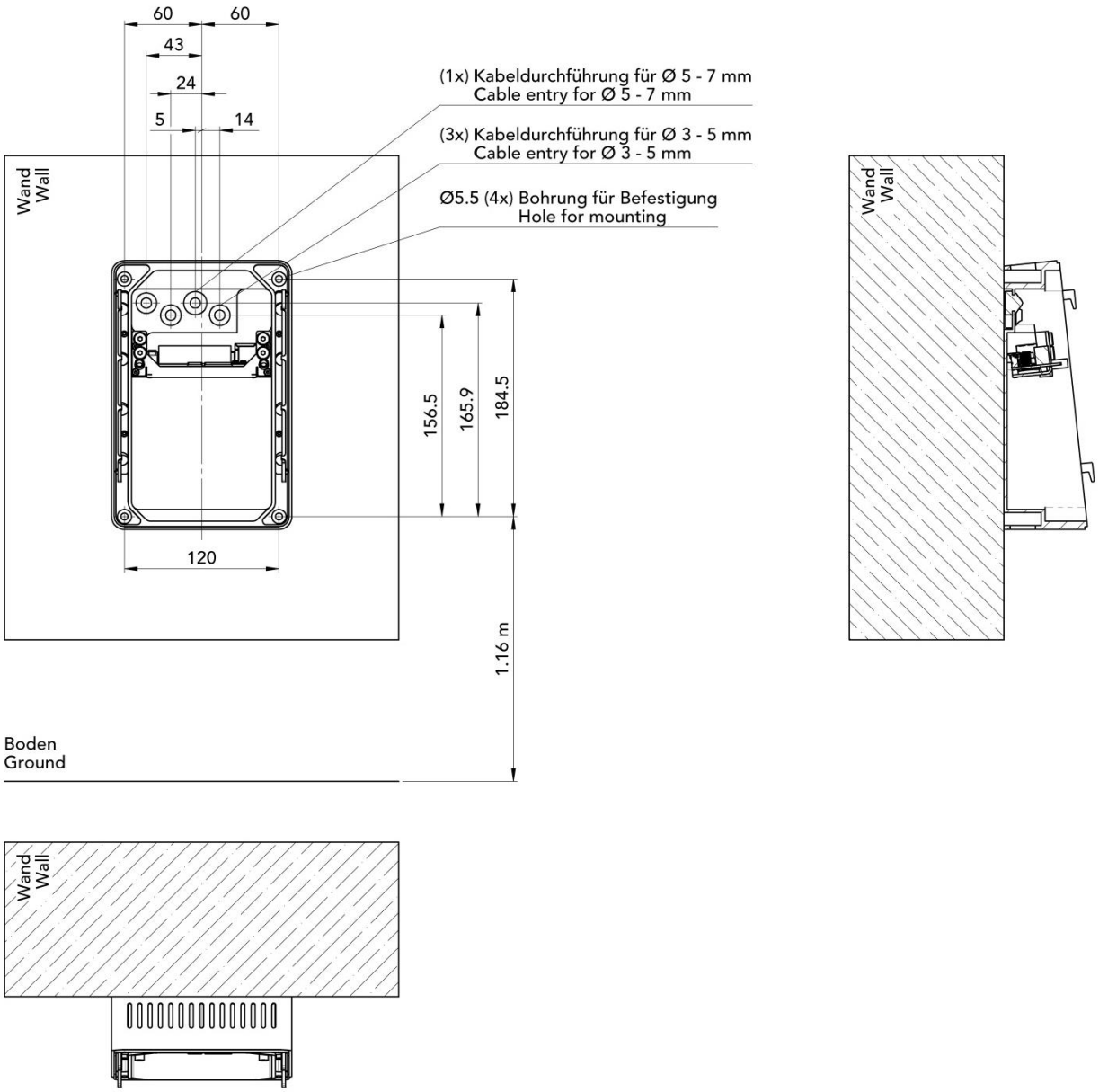


The recommended mounting height of the terminal is 1.16 m, measured from the floor to the lower screw holes of the back cover.

4.3.3 Heavy Duty Box (IP65)

The following equipment and tools are required for mounting the heavy duty variant.

- Four ø4-5mm screws and fitting raw plugs suitable for the wall material (not included)
- One screwdriver appropriate to drive the above screws
- One drill with a drill bit of an appropriate diameter for the above raw plugs
- One Allen wrench (size 3) screwdriver to open the terminal



The recommended mounting height of the terminal is 1.16 m, measured from the floor to the lower screw holes of the back cover.

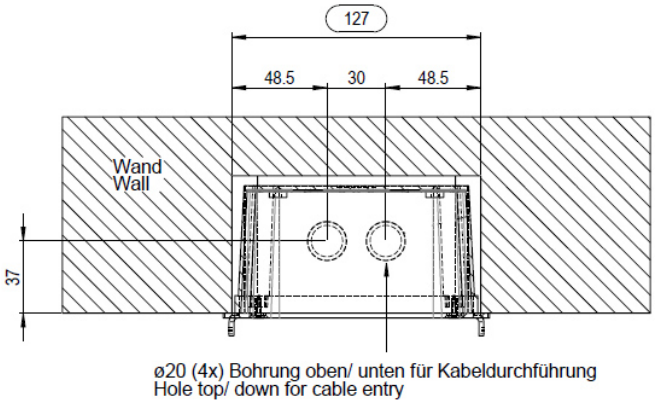
4.3.4 Flush Mount Box (IP54)

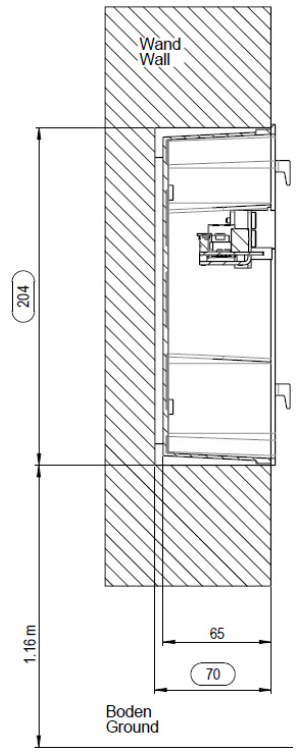
The following equipment and tools are required to install the flush mount variant:

- Four ø3.5mm screws and fitting raw plugs suitable for the wall material (not included)
- One screwdriver appropriate to drive the above screws
- One drill with a drill bit of an appropriate diameter for the above raw plugs
- One Allen wrench (size 3) screwdriver to open the terminal

Please note that the entire PVC box is hidden inside the wall, and only the metal frame lies on the wall.

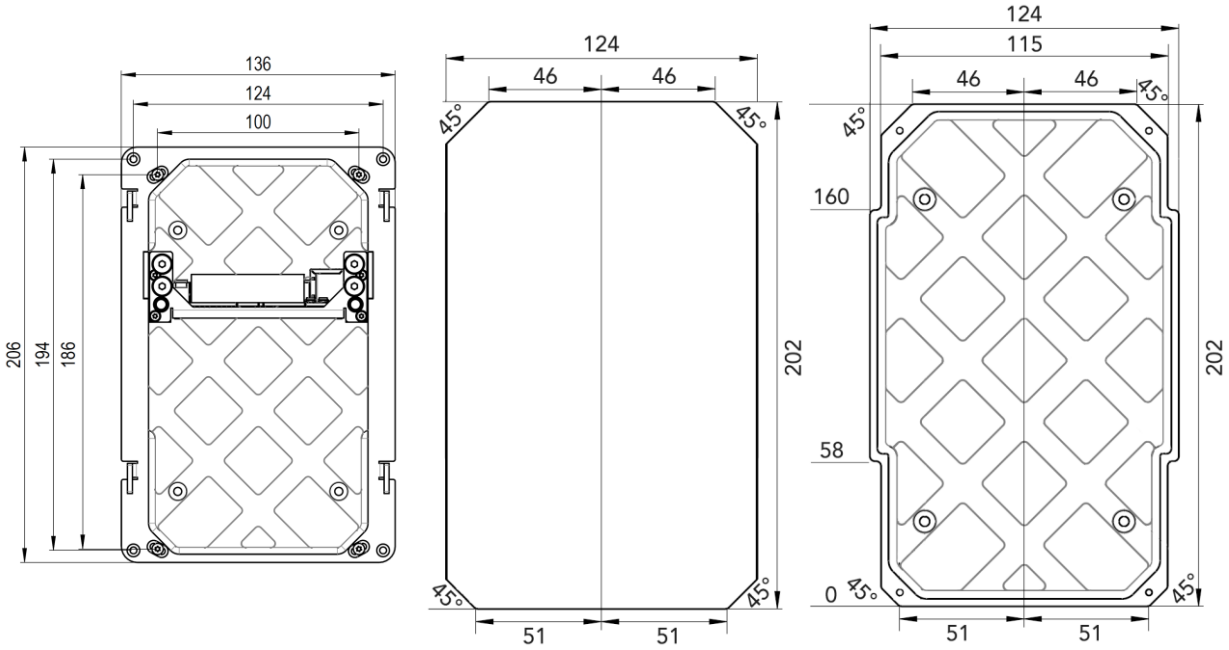
For installation in a solid wall (e.g. concrete or similar), cut a rectangular shape with dimensions of 204 x 127 mm (height x width), as in the two pictures. These dimensions include 1.5 mm air spacing all around the box. It is not required to cut the precise box dimensions, as the box is held/fixed by the wall, or can be fixed to the wall with additional screws drilled through the backside of the box.





The recommended mounting height of the terminal is 1.16 m, measured from the floor to the lowest part of the flush mount cover box.

For installation in a hollow wall (e.g. on a metal surface), cut the shape of the box in an octagon as shown in the picture on the middle below (202 x 124 mm). This is necessary to fix the box to the wall with the 4 screws in the corners of the metal frame, see left picture. It is not required to cut the exact fitting outer dimensions of the flush mount box, nevertheless they are indicated in the picture to the right.



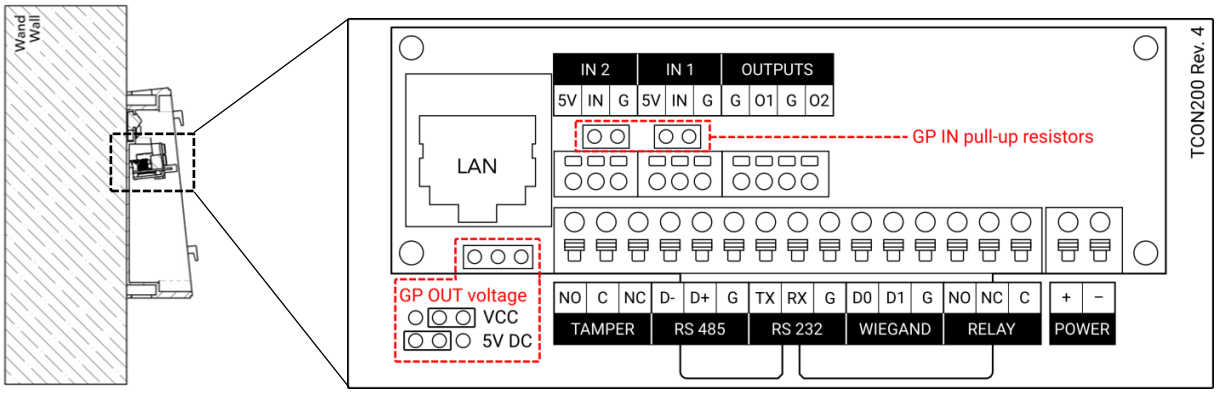
5 Power and Signal Wiring

IMPORTANT:

For all signal wiring, including ethernet cables, it is recommended to connect cables of less than 30m length to avoid surge current spikes that may damage the equipment.

5.1 Electrical Connection and Cabling

The on-board wire terminals are located in the back cover of the terminal and are accessible after removing the front cover:



For convenient access, the terminals for IN1, IN2, OUTPUTS and POWER are removable. Also, the terminals for TAMPER, RS485, RS232, WIEGAND, and RELAY are removable as one connected piece.

To insert cables into wire terminals please strip cable insulation off for ~5mm.

To remove cables a standard screwdriver size 1.5mm is required. Please insert the tip into the corresponding squared hole of the wire terminal before removing the cable, to unlock the latch.

NOTE:

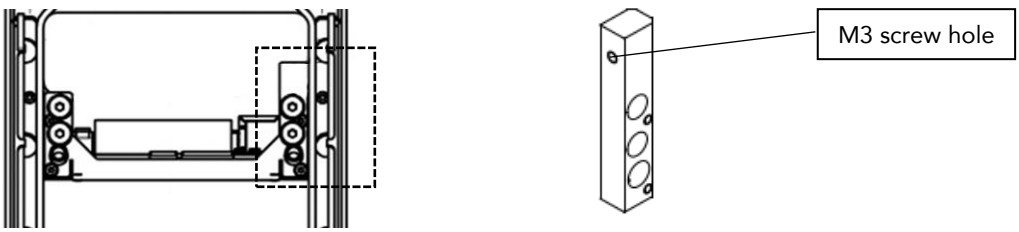
Removing cables with force from the wire terminal may damage the wire terminal or the board. Unlock the latches before removing, otherwise wires can no longer be fixed, and board needs to be replaced. **This is not covered by TBS standard warranty!**

IMPORTANT:

Ensure to close the fixation screws fully and turn back half a turn. Only then the device front is pulled back to the backbox, ensuring the connector board contacts are in proper position. Otherwise, there could be side effects like network not working.

Do not power the device before all cable connections are properly made and the front is fully closed. Otherwise, there is risk of damaging the device.

To relieve any installed cables from undesired stress on the wire terminals, a strain relieve mechanism on the metal brackets holding the wire terminal board is provided.



All installed cables should be fixed to the metal framing by fastening all cables with a zip tie (or similar cable bundling solution) and an M3 screw to the metal framing.

5.2 Power Supply

5.2.1 Wiring Recommendations

We recommend using a AWG16 gauge and 12-24 VDC power supply when PoE supply is not used. The voltage specified is the one measured on the product block connector: 12V-24 VDC (-15% / +10%).

The voltage drop due to the cable shall be considered. Table 3 shows the maximum distance between power supply and one unique device, depending on cable gauge and power supply rating.

Table 3: Maximum cable length in meters between power supply and one TBS terminal

Wire Size		Maximum distance [m]	
mm^2	AWG	for 12 V ±10%	for 24 V ±10%
0.32	22	2	70
0.52	20	3	115
0.82	18	6	185
1.31	16	9	280

5.2.2 Power on Ethernet

Power supply to the terminal can also be provided by Ethernet using RJ45 connection (Power over Ethernet - IEEE802.3af compliant). TBS recommends using an ethernet cable of Cat5e standard or higher.

The terminal may be powered via a UL294 compliant PoE power injector or switch. According to the PoE standard two modes are available: power on data pins and power on dedicated pins.

Use one or both types of power supply depending on PoE implementation in your local Ethernet network. Both direct power supply and PoE can be connected at the same time.

NOTE:

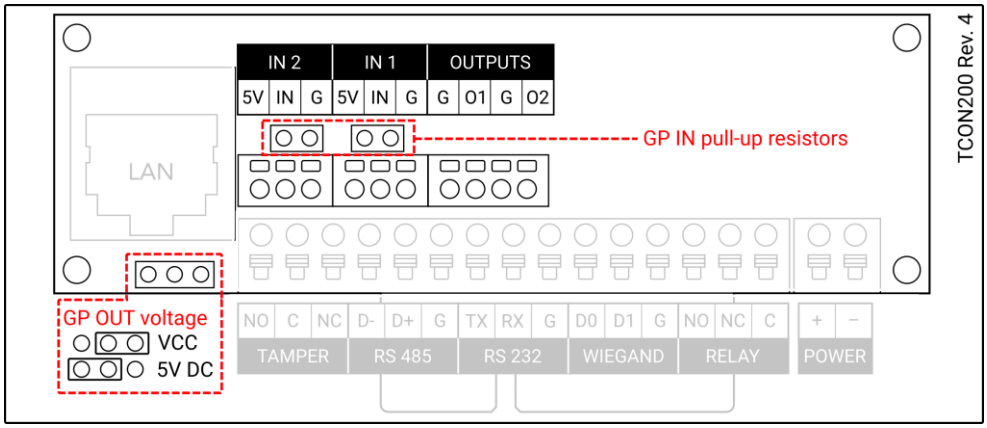
If several terminals are powered through the same PoE switch, make sure the switch can provide enough power to each device (minimum 11 W per 3D AIR and minimum 7 Watt per 2D IRON).

5.3 Ethernet Connection

For Ethernet connections, the wire terminal board provides a RJ45 LAN connector compliant with IEEE802.3at.

For connecting peripheral devices, the used cable should be of Cat5 or higher, and does not need to be crossed.

5.4 General Purpose Input / Output



5.4.1 General Purpose Inputs

Two general purpose inputs are available on a detachable wire terminal block. These inputs can be used for interconnection with a door monitoring switch, request to exit button or other equipment.

GP IN pull-up resistor	Input Configuration	Input activated by
without	Standard	0 VDC logical low 5-30 VDC logical high
installed	Input with selectable pull-up resistor value*	ground line

* I = maximum current [A] for the device connected to the input
GP IN pull-up resistor value R = I * 105

The inputs are optionally activated either by grounding the input line or by applying a voltage to the input line. For each input independently, the desired operating mode is selected by inserting or removing a resistor to a respective GP IN pull-up resistor socket on the mainboard.

- Resistor is not used - the input is activated by applying a voltage (5-30V DC).
- Resistor is installed - the input is activated by grounding the line. The correct resistor value needs to be properly calculated to not damage the board.

If none of the GP IN pull-up resistors are connected, GPIN works in standard configuration, with 0V logical low, and 5-30V logical high.

NOTE:
It is recommended to connect ground for reference.

5.4.2 General Purpose Outputs

The range of the output voltage can be selected between VCC and 5V level using the jumper configuration on the left side of the board.

Label on TBS Terminal	Name	Voltage Level
G	Ground	
O1	Output 1	0V Low - (VCC or 5V) High
G	Ground	
O1	Output 2	0V Low - (VCC or 5V) High

The output should always be used with the power ground for reference.

5.5 Integrated Relay

Label on TBS Terminal	Name	Power Rating
NO	Normally Open	
NC	Normally Closed	
C	Common	30 VDC, 1A
		220 VDC, 0.14 A
		120 VDC, 0.25 A
		250 VAC, 0.12 A

TBS recommends to not operate the relay at the upper level of the voltage range for long periods of time, and not to power devices constantly through the relay, as such may shorten its life span.

DISCLAIMER:

On-board relays must not be used to activate security access equipment such as gates or doors to grant access to secure areas, as they can be accessed and bridged by an intruder. Only non-security critical functionality such as lights may be directly activated using the internal switch.

Instead, use the data communication capabilities of the device (ethernet, serial interfaces) to communicate to relays inside the secure area to activate security access equipment. For such, TBS offers two dedicated controllers.

5.6 Connecting TBS Controllers

For various applications TBS Terminals need to be connected with external controllers, e.g. to open a door. TBS offers two own solutions:

- TBS CONTROLLER SMART (4 relays, 4x GPIN, 4x GPOut, connected via RS-485 or LAN)
- TBS CONTROLLER LITE (RelayBoard with 2 relays, connected via RS-485)

5.7 Connecting Third Party Controllers

Connection to 3rd party controllers is very often done via Wiegand interface. TBS devices offer Wiegand output lines supporting various standard formats (26 and 37bit).

Wiegand Connection

The TBS terminal provides Wiegand OUT connections that can be directly connected to the corresponding 3rd party controllers Wiegand IN.

Label on TBS Terminal	Name	Type	Voltage Level
D0	Connection Zero	Out 1	Wiegand Out (5V TTL)
D1	Connection One	Out 2	Wiegand Out (5V TTL)
G	Ground		Ground for Wiegand

Serial Interface RS232

Please connect from TBS device RS232 port directly to controller:

Label on TBS Terminal	Name	Type	Voltage Level
TX	Transmit Line	Out	±12 V max output
RX	Receive Line	In	±12 V max input
G	Ground		

Serial Interface RS485

Please connect from TBS device RS485 port directly to controller:

Label on TBS Terminal	Name	Type	Voltage Level
D-	Data -	In/Out	0V-5V Bias (±7 V Offset)
D+	Data +	In/Out	0V-5V Bias (±7 V Offset)
G	Ground		

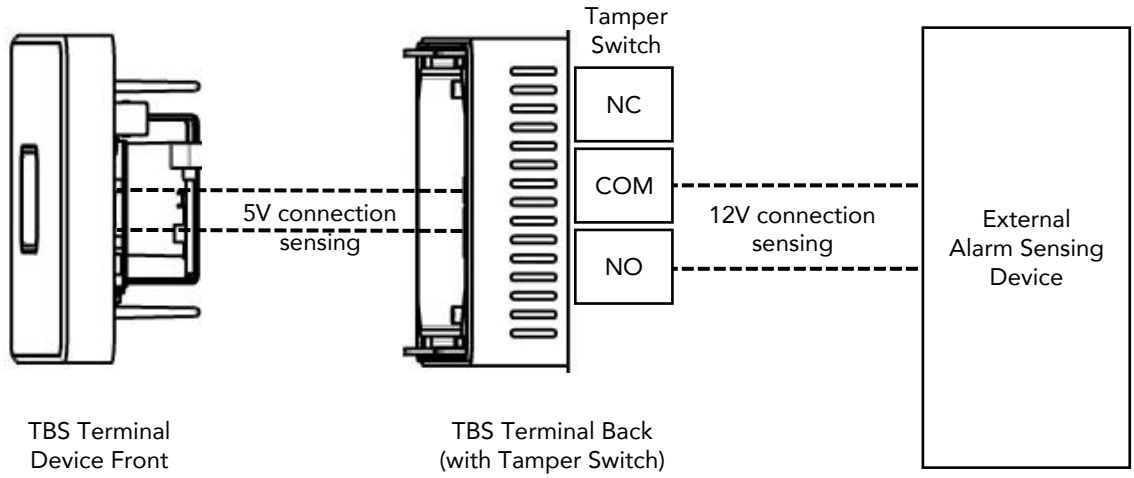
For farthest terminal, a 120-Ohm resistor termination may be added outside the terminal between D+ and D-.

5.8 Tamper Switch

The tamper switch is activated when the front panel is separated from the back panel. When the tamper switch is activated, it closes like a relay.

Label on TBS Terminal	Name	Power Rating	Function
NO	Normally Open		Closes when the tamper switch is activated
C	Common	30 VDC, 1A	
		220 VDC, 0.14 A	
		120 VDC, 0.25 A	
		250 VAC, 0.12 A	
NC	Normally Closed		Opens when the tamper switch is activated

A recommended way of utilizing the tamper switch is shown in the image below. As long as the front and back panels are connected, the tamper switch relay connects C (common) to NO (normally open). An alarm device is connected to a power line (e.g. 5 V DC) going through the tamper switch. As long as it senses the power, no tampering has been taken place. Should the front panel be removed, the tamper switch closes, and the 12 V line is broken, thus engaging the alarm. With this setup, the alarm is also engaged when the terminal is cut from power entirely.



6 Appendix

6.1 Maintenance

Cleaning

Prior to disinfection the devices should be cleaned to remove dust or dirt.

Use warm water with a few drops of soap or a combined cleaning & disinfection liquid normally used to wash hands. Don't use aggressive detergents.

Use soft towels for cleaning only, don't use abrasive cleaning equipment.

The optical sensor of 2D IRON is protected by a glass covering that withstands most chemicals. However, pay attention never to use aggressive chemical cleaning agents; these could attack plastic coatings around the sensor or the device itself.

In case of 3D AIR, the touchless sensor is protected by a transparent vitreous body. Clean the vitreous body with water and soap only (no aggressive detergents) and a soft towel only (don't use abrasive tools that would leave scratches). Make sure the vitreous body is clean and dry before inserting it back.

Disinfection

TBS devices can be disinfected with antiseptic liquid, e.g. Sagrotan, Dettol or a similar disinfectant applied as a spray.

Function check

TBS terminals are designed for permanent usage. Therefore, problems in the operation of the devices are detected during regular usage. Special tests to check for correct functioning are therefore not required.

TBS recommends checking the integrity of the sensor surfaces and openings of the terminals at least every 6 months. If the devices are used in environments with dust or where oily substances are handled or other extraordinary environmental factors are present, the sensor surfaces need to be checked and cleaned with increased frequency.

Replacement Parts

When used in normal operation, no maintenance parts should be needed for 2D IRON.

The vitreous body in the 3D AIR is a replacement part. The replacement interval depends entirely on installation environment and user behaviour. Please refer to our TBS Help-Center (https://help-center.tbs-biometrics.com) for information on how to replace this part or how to obtain a replacement.

6.2 Trouble Shooting

The following table provides brief description of device error codes and quick resolutions.

Error code	Description	Resolution
0	No error.	
1	General error.	
42	Sensor image caching (sensor returned two same images in a row).	
100	Unknown DB error.	
101	DB empty.	Add users or reload database from BioManager.
102	Database limit reached.	
103	DB corrupted.	Reload database from BioManager.
200	Unknown configuration error.	Verify the settings in DeviceConfig.
201	Wrong configuration set.	Verify the settings in DeviceConfig.
300	Unknown server communication error.	
301	Device blocked (Off Active flag on server).	Enable active flag on BioManager.

302	Device blocked remotely using RemoteControl interface.	
303	Device not connected to server (either wrong configuration or connection problems).	
304	Device not validated on server.	Validate the device on BioManager.
305	Device in non-operable state - DB reload in progress.	Wait for DB reload process to complete.
400	General HW error.	
401	Intrusion detected.	Resolve using DeviceConfig under Maintenance / Security / Intrusion Prevention page.
410	Unknown sensor error.	
411	Sensor lost from USB interface.	
412	Sensor incorrect behaviour - sensor thread stops etc.	
413	Wrong sensor configuration.	
414	Runtime sensor error.	
415	Sensor too long in pos. loop three times in row.	The sensor is continuously triggered either manually or by external light or object inside sensor cavity. Rectify the cause and re-power the device.
420	Unknown RFID error.	
421	RFID initialization failed.	Ensure that RFID module is connected.
422	RFID runtime error (e.g. communication with reader failed).	Shutdown and re-power the device.
423	RFID card reading error.	
430	Unknown Relay/GPIO error	
431	Relay/GPIO communication error	
440	General problem with external verification initiated from 3rd party software.	
441	Empty token comes from external device.	
500	General logic error.	
501	User presented card in smartmode and he does not have it allowed.	Enable RFID flag in 'Id factors' for user in BioManager.
600	Unknown profile set.	
601	Wrong profile configuration.	
602	Communication error in profile (e.g. with SmartController).	
701	Too many pending access infos (TnA records) in the cache (device offline for long time).	Verify the connection to XML or WE server.
702	Enrollment error appeared (e.g. due to UserID duplication reported by server).	Delete error user in Admin DB page and ensure duplicate UserID or PIN code is not enrolled again.
703	One or more enrollments are pending on device (device is offline).	Verify the connection to WE server.
800	Too old BSP version for current FW or BSP Unknown reported.	
900	Unknown (general) camera error.	
901	Camera service communication error.	Verify camera endpoint configuration in DeviceConfig and ensure camera service is running on server.
1000	General network error.	
1001	No Wifi signal.	
1002	Low Wifi signal.	

6.3 TBS Port Assignments

The following tables list all TCP/UDP ports that are used in TBS software and firmware as part of the biometric subsystem infrastructure.

Table 3: Port Assignments for BIOMANAGER ENTERPRISE installations (BME, Firmware 3.xx):

Machine	Port	Protocol	Comment	Inbound	Outbound
BME Server PC					
Secure device channel (1)	8808	HTTPS	default communication channel. BME installer sets required firewall settings by default	Yes	No
Biometric Client Service PC					
BME channel (1)	8808	HTTPS	communication channel to BME server and Device Control Center (DCC)	No	Yes
Enrollment API	8281, 8282, 8284	HTTP/S	communication channel between enrollment components.	Yes (2)	No
	8283	MQTT			
Enrollment PC					
BME channel (1)	8808	HTTPS	communication channel to BME server and Device Control Center (DCC)	No	Yes
Terminal					
BME On-Prem (1)	8808	HTTPS	communication channel to BME local server and Device Control Center (DCC)	No	Yes
BME CLOUD	443	HTTPS	communication channel to BME Cloud server	No	Yes
DeviceConfig	443	HTTPS	public web interface to configure devices	Yes	No
DeviceConfig (3)	18883	MQTT	additional web sockets based control channel	Yes	No
DeviceControl	8200	HTTPS	public interface to remotely control devices	Yes	No

(1) Can be customized during installation

(2) Ports are bound only to localhost

(3) Not used anymore in FW3

Table 4: Port Assignments for WebEdition installations (WE, Firmware 2.xx):

Machine	Port	Protocol	Comment	Inbound	Outbound
WE Server PC					
Device channel	80	HTTP	default communication channel (SOAP needs to be enabled in firewall settings, if deep inspection mechanisms are used)	Yes	No
Secure device channel (1)	443	HTTPS	optional secure communication channel (SOAP needs to be enabled, see above)	Yes	No
Biometric Client Service PC					
WE channel (1)	80/443	HTTP/S	communication channel to WE server and Device Control Center (DCC)	No	Yes
Enrollment API	8281, 8282, 8284	HTTP/S	communication channel between NT service and JavaScript component	Yes (2)	No
	8283	MQTT			
Enrollment PC					
WE channel (1)	80/443	HTTP/S	communication channel to WE server and Device Control Center (DCC)	No	Yes
Series12 terminal					
WebEdition (1)	80/443	HTTP/S	communication channel to WE server and Device Control Center (DCC)	No	Yes
DeviceConfig Firmware 1 or 2 (1)	443	HTTPS	public web interface to configure devices	Yes	No
DeviceConfig Firmware 2.xx	18883	MQTT	additional web sockets based control channel	Yes	No
DeviceControl	8200	HTTPS	public interface to remotely control devices	Yes	No
RemoteControl	8220	HTTPS	internal interface to remotely control devices, incl. enrollment	Yes	No
RemoteEnroll (3)	8282	HTTPS	internal interface required for remote enrollment	Yes	No
Terminal Updater PC					
UDP channel	47815	UDP	required for remote firmware update	Yes	No
TCP channel	47816	TCP	required for remote firmware update	Yes	No

(1) Can be customized during installation

(2) Ports are bound only to localhost

(3) Port is not mandatory in FW 2.xx since DCC channel is used for enrollment

6.4 References to other TBS documents

TBS 2D IRON and 3D AIR Mounting and Installation Guideline

Permanent link: https://cloud1.tbs-biometrics.com/index.php/s/rZ1LVs8tacOCoKA

The QR code printed on the product opens this link, leading to the 2D IRON and 3D AIR product folder from where this manual is available.

TBS Terminal Firmware

Permanent link: https://biometrics.talentlms.com

TBS Partner Portal with full product documentation and access to latest firmware for terminals. Access is restricted to registered TBS Partners.

TBS System Requirements

Permanent link: https://cloud1.tbs-biometrics.com/index.php/s/q8V3hzrLyR0Mnyg

Summarizes the prerequisites a site needs to offer regarding server & network to host a TBS installation.

TBS Short instruction - Biometric Enrollment on 2D IRON

Permanent link: https://cloud1.tbs-biometrics.com/index.php/s/G8RLMbwMCt8NAiU

Provides guidance for the enrollment process to TBS system operators.

TBS Short instruction - Biometric Enrollment on 3D AIR

Permanent link: https://cloud1.tbs-biometrics.com/index.php/s/gIaEBeOl2P54u9f

Provides guidance for the enrollment process to TBS system operators.

TBS Manuals for TBS System Operators (Endusers)

Permanent link: https://cloud1.tbs-biometrics.com/index.php/s/JBNh6zAMJbRQoZD

Access all published manuals for TBS system operators, including the above short instruction.