COSEC ATOM

ATOM RD300

ATOM RD200

ATOM RD100

Quick Installation Guide

MATRIX
SECURITY SOLUTIONS

Safety Instructions

These instructions are intended to ensure that the user can use the product correctly to avoid danger or property loss.

⚠ Cautions

Do not install the device:

- On unstable surface.
- Where ferromagnetic field or noise is induced.
- Where static is created, such as desks made of plastics, carpets.
- Near volatile inflammable materials or inflammable goods such as drapes.
- Where volatile gas and/or inflammable gas is created.

🔔 Warning

- Installing and servicing should be done only by qualified technician.
- There are no user-serviceable parts inside.
- Opening or removing the device cover may result in electric shock or exposure to other hazards.
- Use the device only for the purpose for which it was designed.

Contents

Please read this guide first for correct installation and retain it for future reference. The information in this guide is prevailing at the time of publication. However, Matrix Comsec reserves the right to make changes in product design and specifications without prior notice.

Warranty
Limited Warranty. Valid only if primary protection is provided, mains supply is within limit and protected, and environment conditions maintained within product specifications. Complete warranty statement is available on our website:
www.matrixaccesscontrol.com

Know your ATOM

- COSEC ATOM is a slave reader which can work with COSEC ARGO, COSEC VEGA, COSEC PATH V2 using RS-232 and with COSEC ARC DC200 using RS-485. It can also work with 3rd party Wiegand Interface.
- It is an intelligent compact Access Control Device which supports Bluetooth and Card Credentials for Access Control and Time & Attendance.
- COSEC ATOM has three main variants that contains either Matrix FP sensor(MF) or Suprema Sensor(SF). The respective variants are listed below,

Type 1: COSEC ATOM RD300

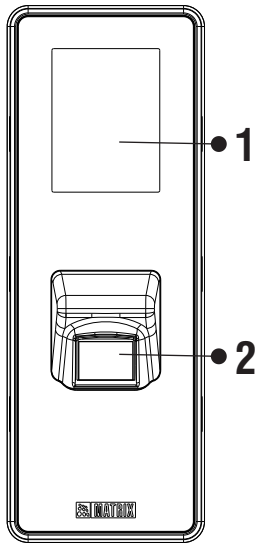


Figure 1: Front View

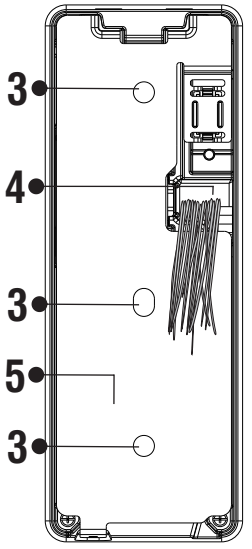


Figure 2: Back View

1. Display Screen
2. Finger Sensor
3. Mounting Screw Hole
4. Cable Assembly
5. Mounting Plate

Sub Variants

* ATOM RD300SFE
* ATOM RD300MFE
- ATOM RD300MFM
- ATOM RD300MFI
- ATOM RD300SFM
- ATOM RD300SFI

Type 2: COSEC ATOM RD200

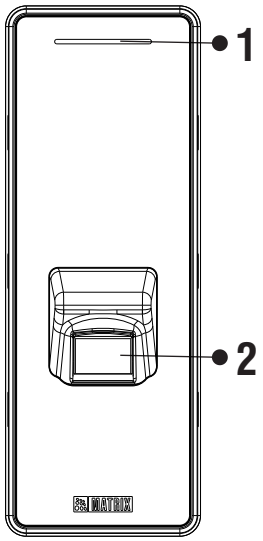


Figure 3: Front View

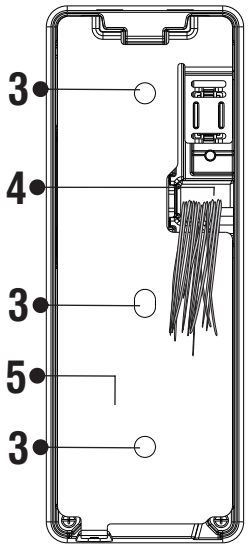


Figure 4: Back View

1. LED Indicator
2. Finger Sensor
3. Mounting Screw Hole
4. Cable Assembly
5. Mounting Plate

Sub Variants

- ATOM RD200MFM
- ATOM RD200MFI
- ATOM RD200SFM
- ATOM RD200SFI

Type 3: COSEC ATOM RD100

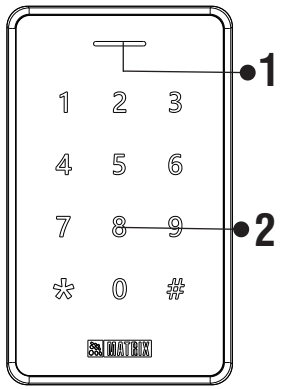


Figure 5: Front View

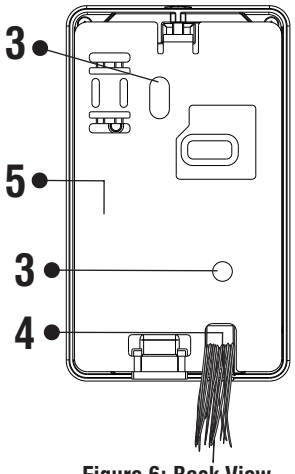


Figure 6: Back View

1. LED Indicator
2. Numeric Keypad
3. Mounting Screw Hole
4. Cable Assembly
5. Mounting Plate

Sub Variants

* ATOM RD100KE
* ATOM RD100E
- ATOM RD100KM
- ATOM RD100KI
- ATOM RD100M
- ATOM RD100I

What your Package Contains

- COSEC ATOM Unit
- Cable Assembly
- Wall Mounting Accessories
- Flush Mounting Accessories (*with Type 1 and Type 2 only*)

Things you will Need

- Power Drill
- Screw Driver Set
- A Wire Striper
- Insulation Tape
- Necessary Cabling
- Wiegand supported device
- Access to COSEC Server Application to configure COSEC ATOM

Before you Start

Make sure,

- The device in the package is in good condition and all the assembly parts are included.
- All the related equipments are powered-off before installation.

Installation

1) Installing the COSEC ATOM RD200/300: Wall Mounting

Step 1: Removing the Mounting Plate

- From the bottom of the COSEC ATOM RD200/300, unscrew the Mounting screw with the help of screw driver as illustrated in **Figure 8**.
- Separate the Mounting plate from the ATOM by pulling it downwards. Refer, **Figure 9** for the same.

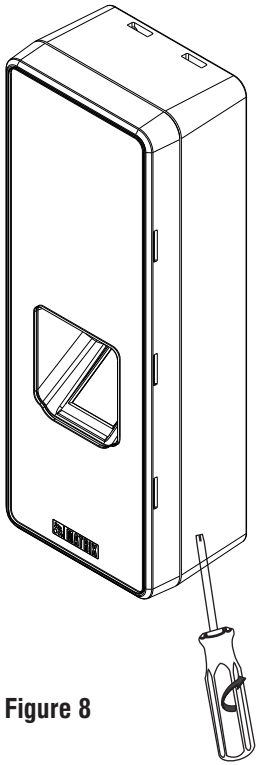


Figure 8

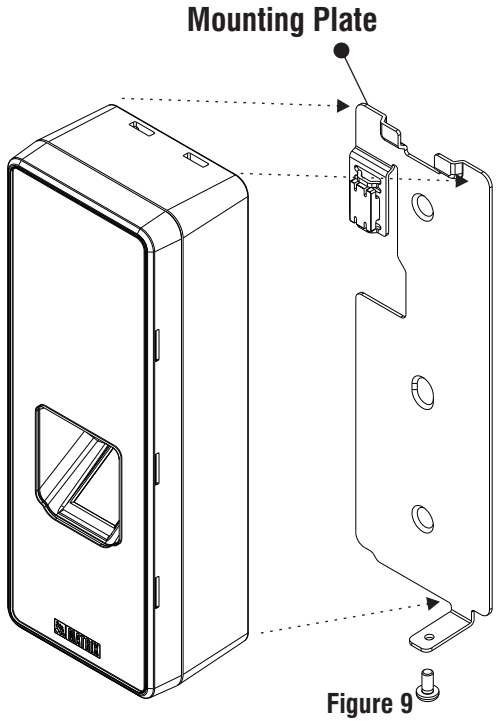


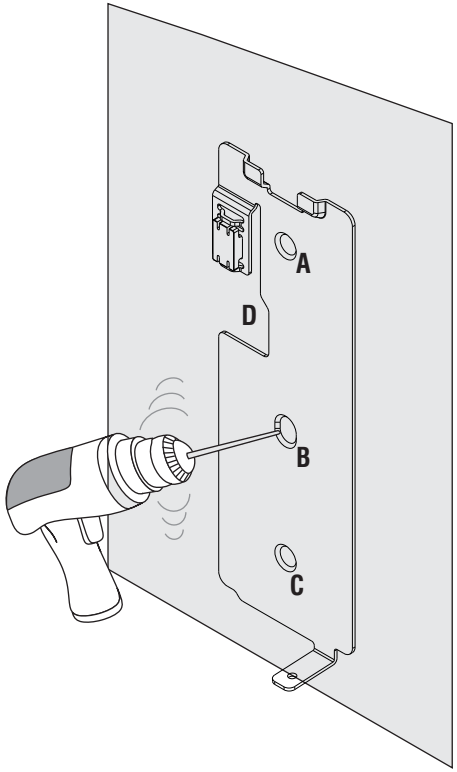
Figure 9

Step 2: Connecting the Cables

- You can mount COSEC ATOM RD200/300 in two ways : Concealed Wiring or Non-concealed Wiring as explained below.

A. Concealed Wiring

1. Take the Mounting Plate and trace screw holes A , B & C. Trace out the area D also drill along the marking as shown below.



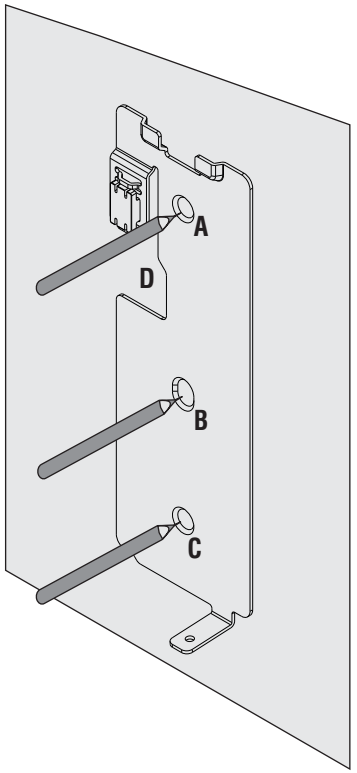


Figure 10

2. Affix the mounting plate with the help of the screws and screw grips through the holes **A**, **B** and **C**.

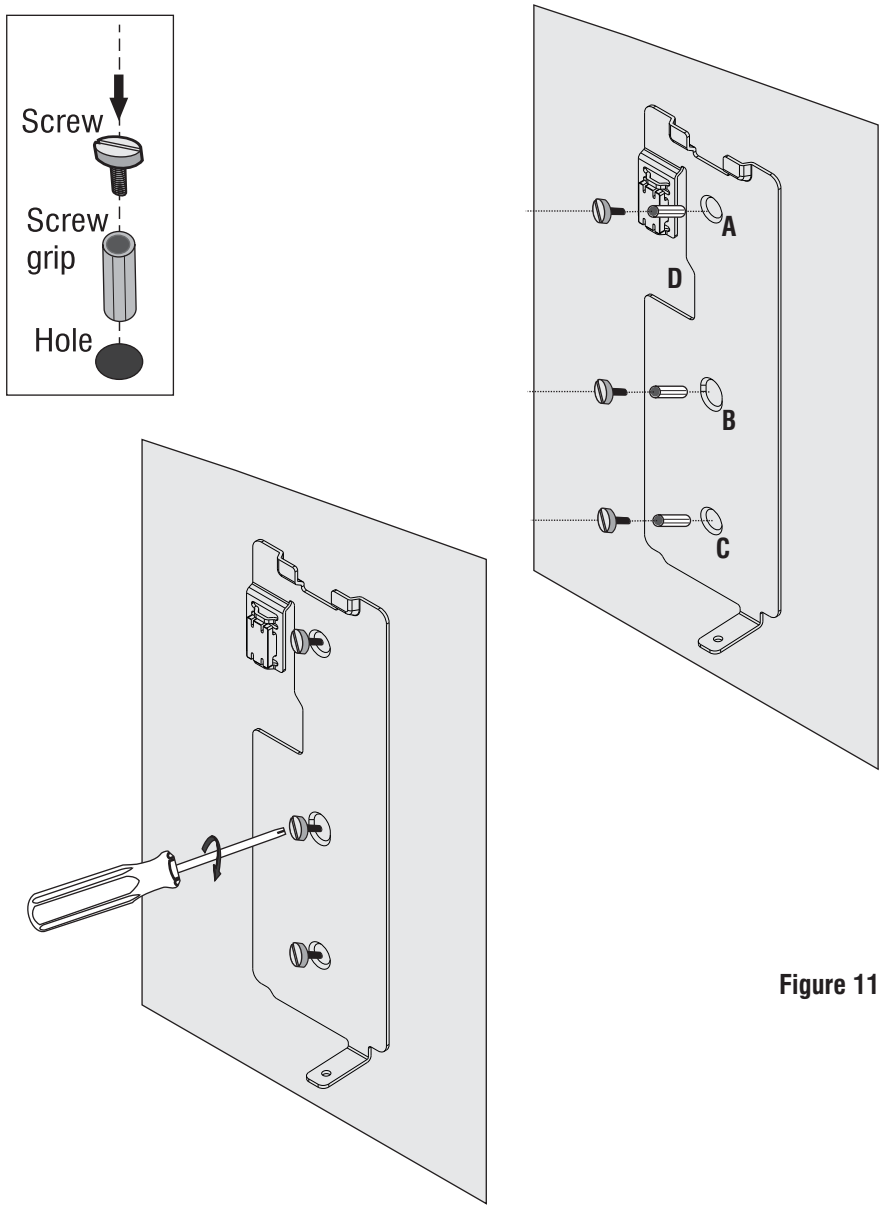


Figure 11

3. Lead the cables from the wall through the drilled area **D** of the Mounting Plate as illustrated in **Figure 12**. Connect the necessary cables with COSEC ATOM.

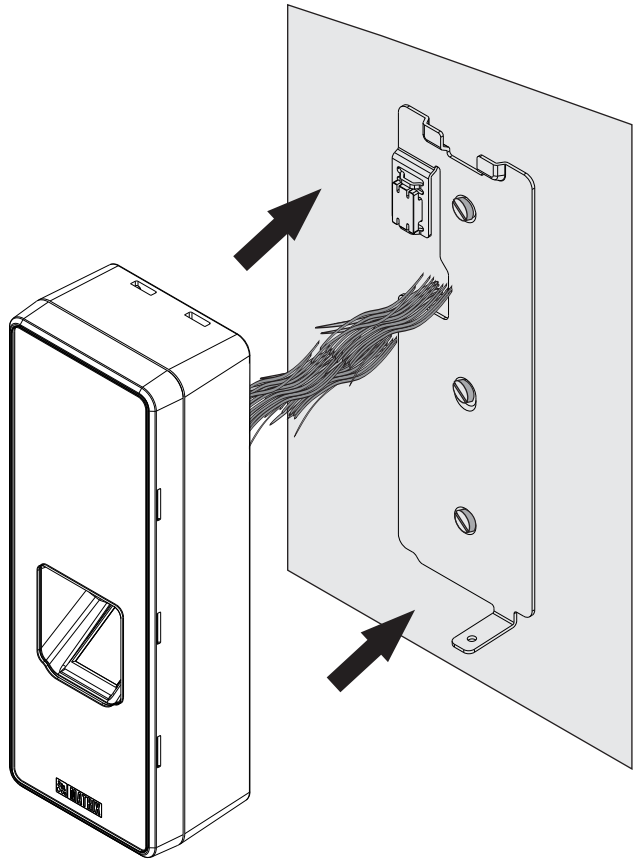


Figure 12

B. Non-Concealed Wiring

1. Follow the Step 1 and Step 2 as explained for the Concealed Wiring and fix the mounting plate on the wall.
*(For non-concealed wiring, you do not need to drill the area **D**.)*

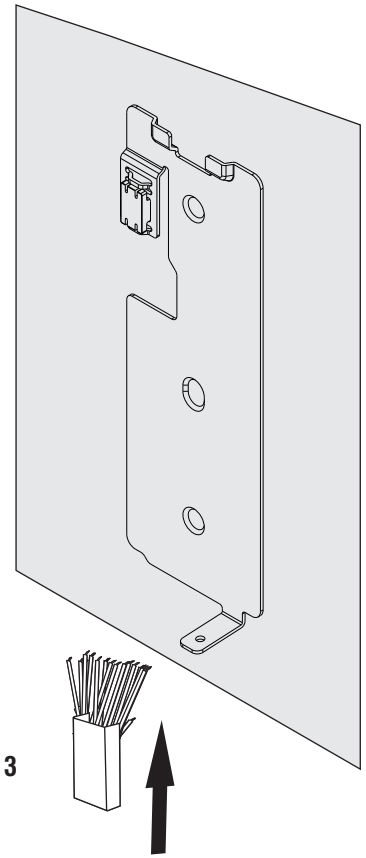


Figure 13

2. Unscrew the Back Plate screw with the help of screwdriver and remove the Back Plate.

3.Pull out the Cables from the Back Plate hole and lead the cables outside from the bottom opening of COSEC ATOM, as illustrated in **Figure 14**.

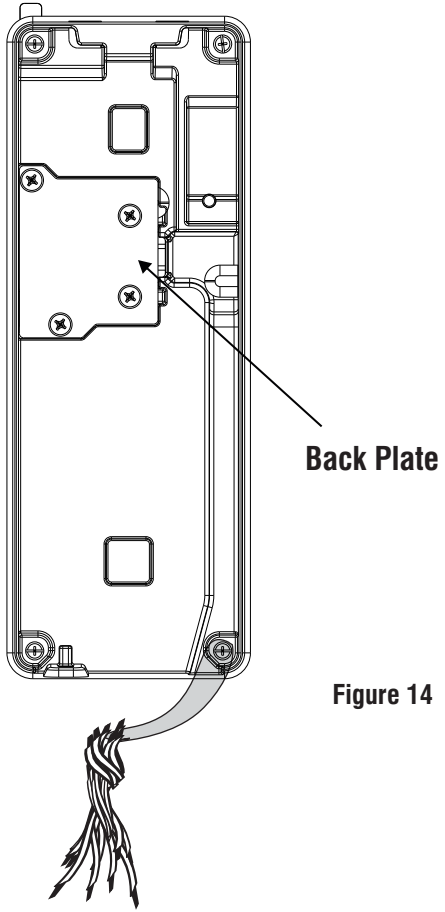


Figure 14

4. Connect the necessary cables and align the COSEC ATOM body with the Mounting Plate.

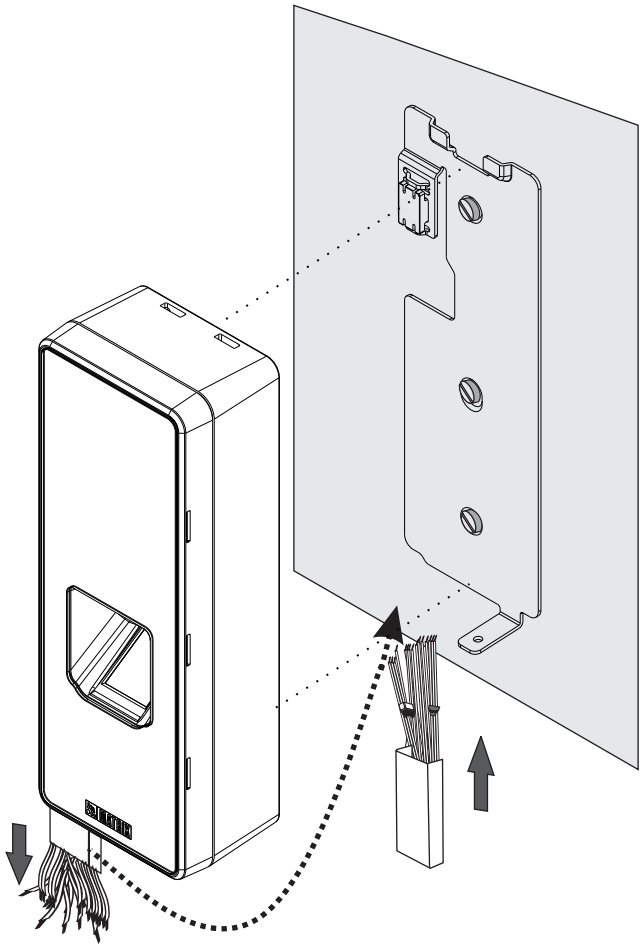


Figure 15

Step 3: Inserting Mounting Screw

1. Fix the Reader body with the Mounting Plate such that the Mounting Slots of the Reader and Mounting Plate align with each other.

2. Slide the reader downwards to fix it into the groove of the Mounting Plate and insert the Mounting screw back in place at the bottom of the device.

3. Tighten the screw with 2 kgf-cm torque as shown in **Figure 17**.

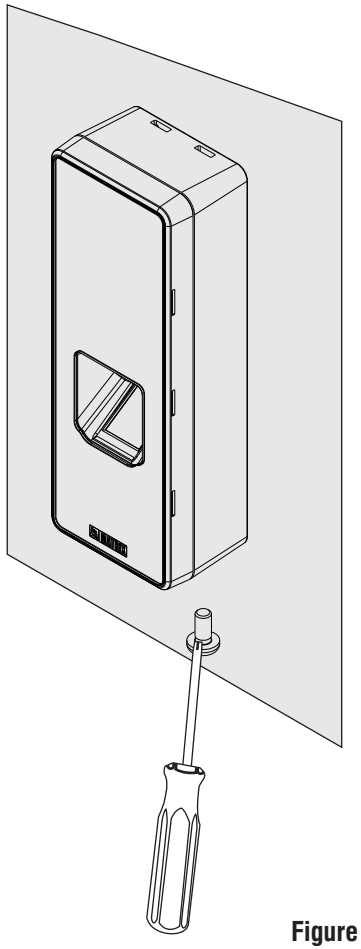


Figure 17

2) Installing the COSEC ATOM RD200/300: Flush Mounting

Step 1: Take the Surface Mount Plate provided with the package and trace screw holes A, B, C and D on the surface where COSEC ATOM is to be installed, see **Figure 18**. After tracing drill along the markings as shown in **Figure 19.**

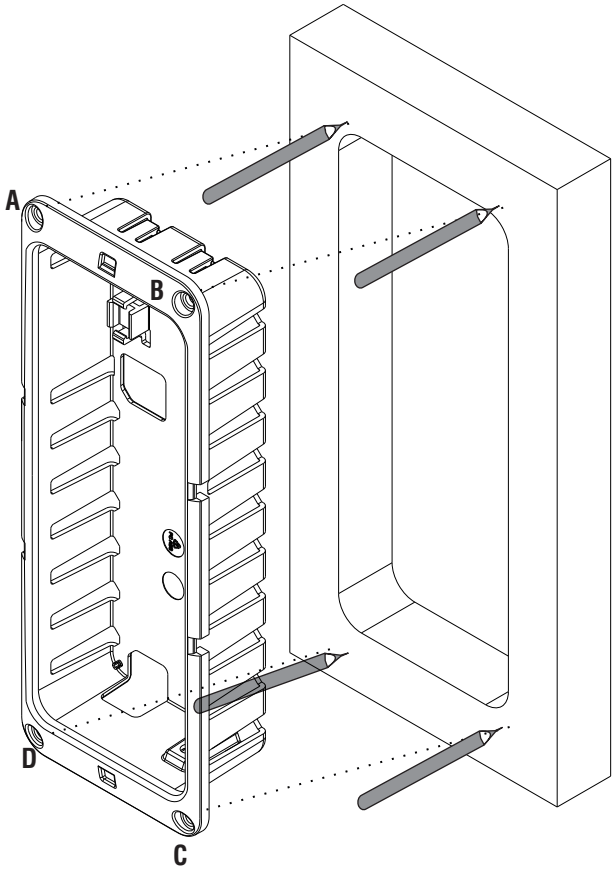


Figure 18

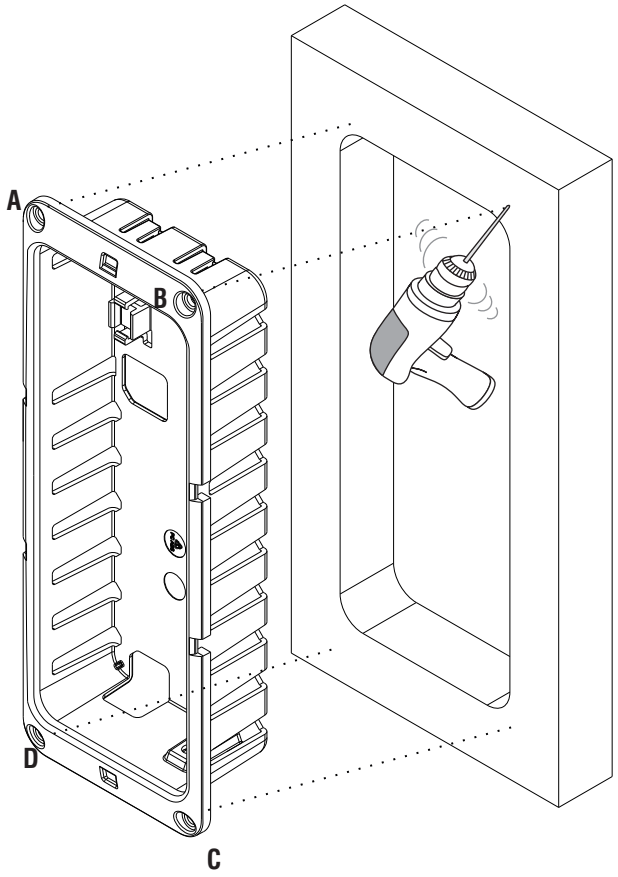


Figure 19

Step 2: Assemble the device with the Surface Mount Plate as shown in **Figure 20**.

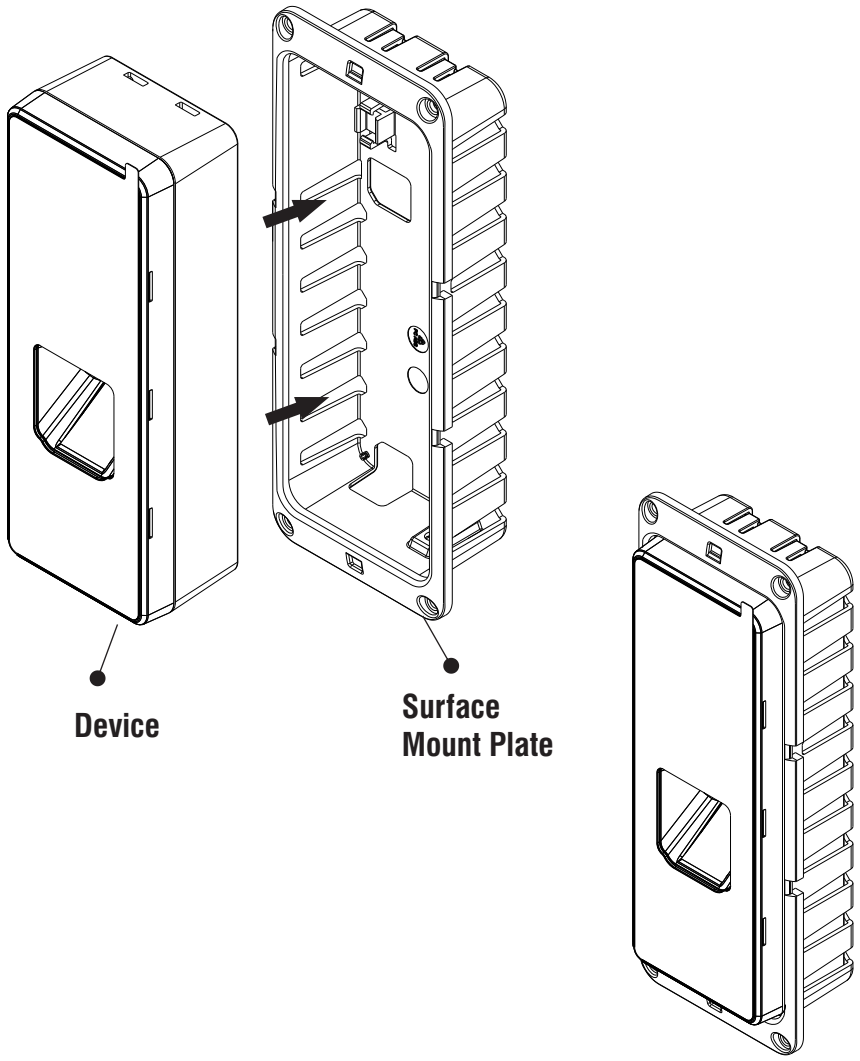
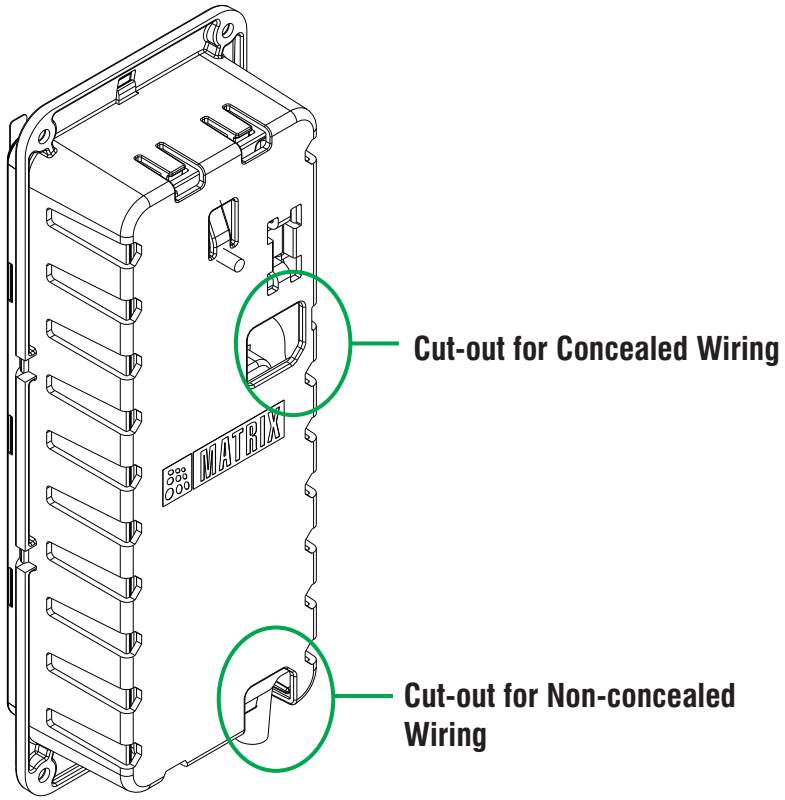


Figure 20

Step 3: To connect the cables refer below image for Concealed and Non-concealed Wiring positions.



Step 4: Affix the Surface Mount Plate with the Device on the surface with the help of the screws and screw grips through the holes **A**, **B, C** and **D, see Figure 21.**

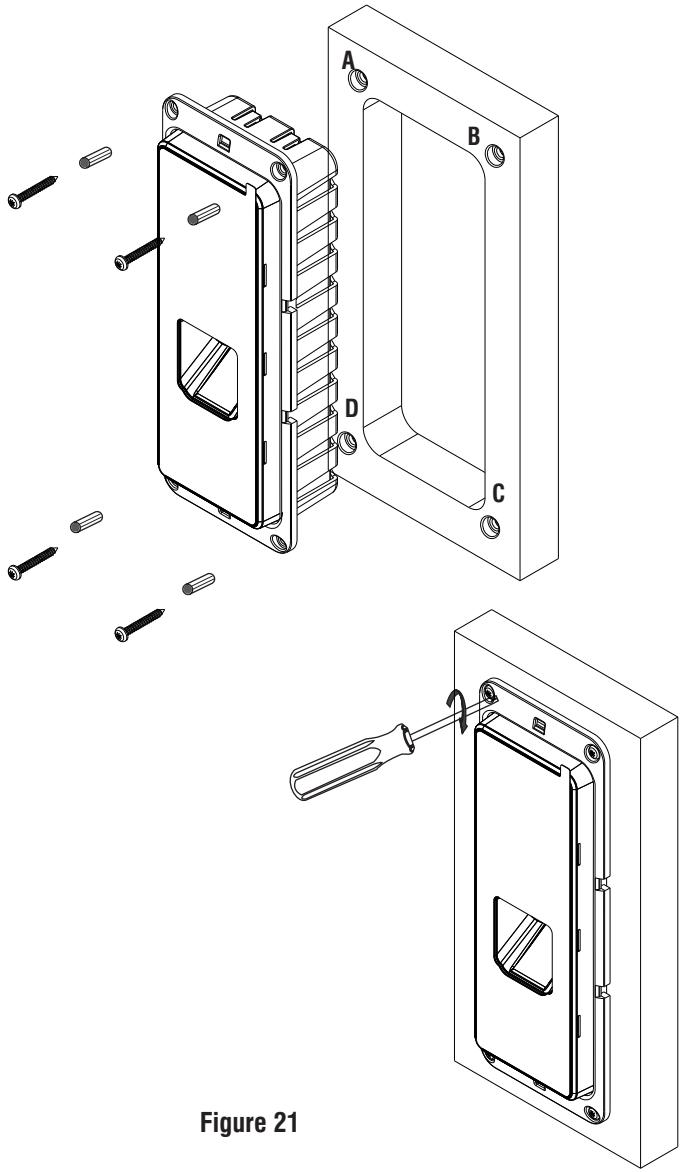


Figure 21

Step 5: Place the Surface Mount Top Facia Plate on the installed Device**, see Figure 22.**

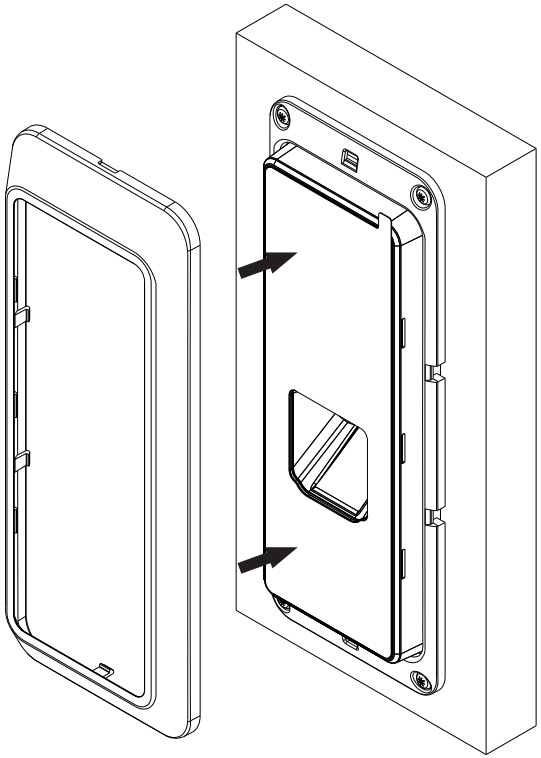
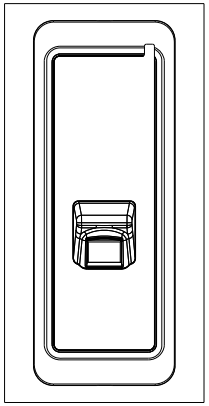


Figure 22



Front View

3) Installing the COSEC ATOM RD100

Step 1: Removing the Mounting Plate

- From the top of the COSEC ATOM, unscrew the Mounting screw with the help of screw driver as illustrated in **Figure 24**.
- Separate the Mounting Plate from the ATOM by pulling it downwards. Refer, **Figure 25** for the same.

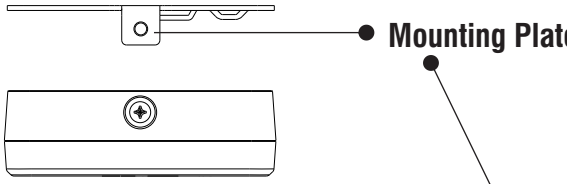


Figure 23

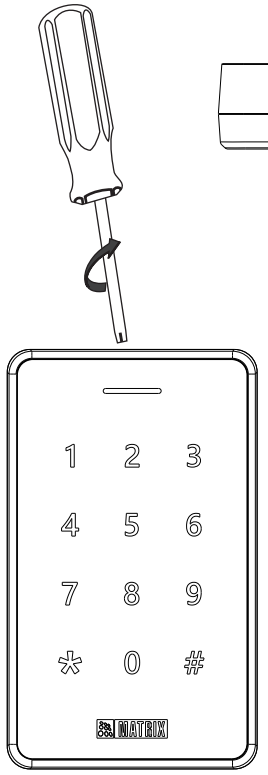


Figure 24

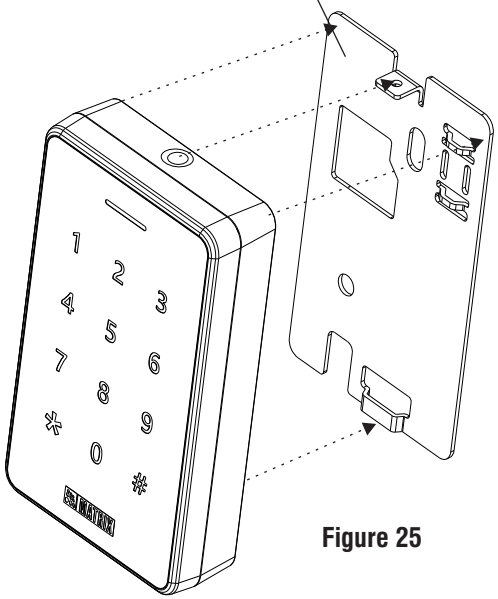


Figure 25

Step 2: Connecting the Cables

- You can mount COSEC ATOM in two ways : Concealed Wiring or Non-concealed Wiring as explained below.

A. Concealed Wiring

1. Take the Mounting Plate and trace screw holes A & B. Trace out the area C also drill along the marking as shown below.

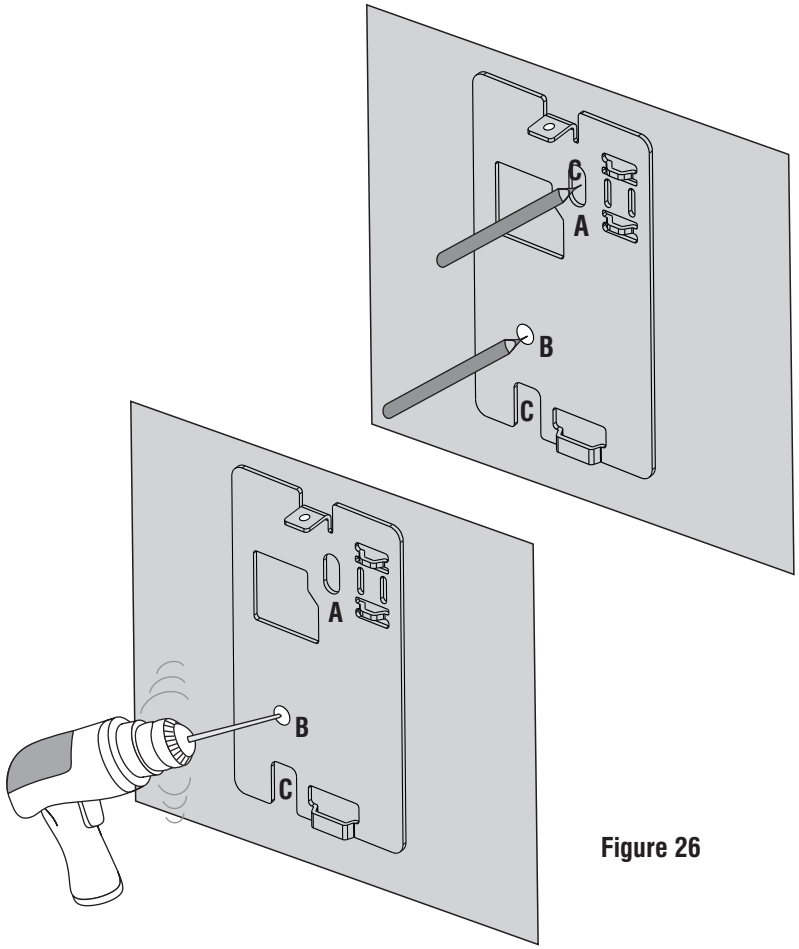


Figure 26

2. Affix the Mounting Plate with the help of the screws and screw grips through the holes A and B.

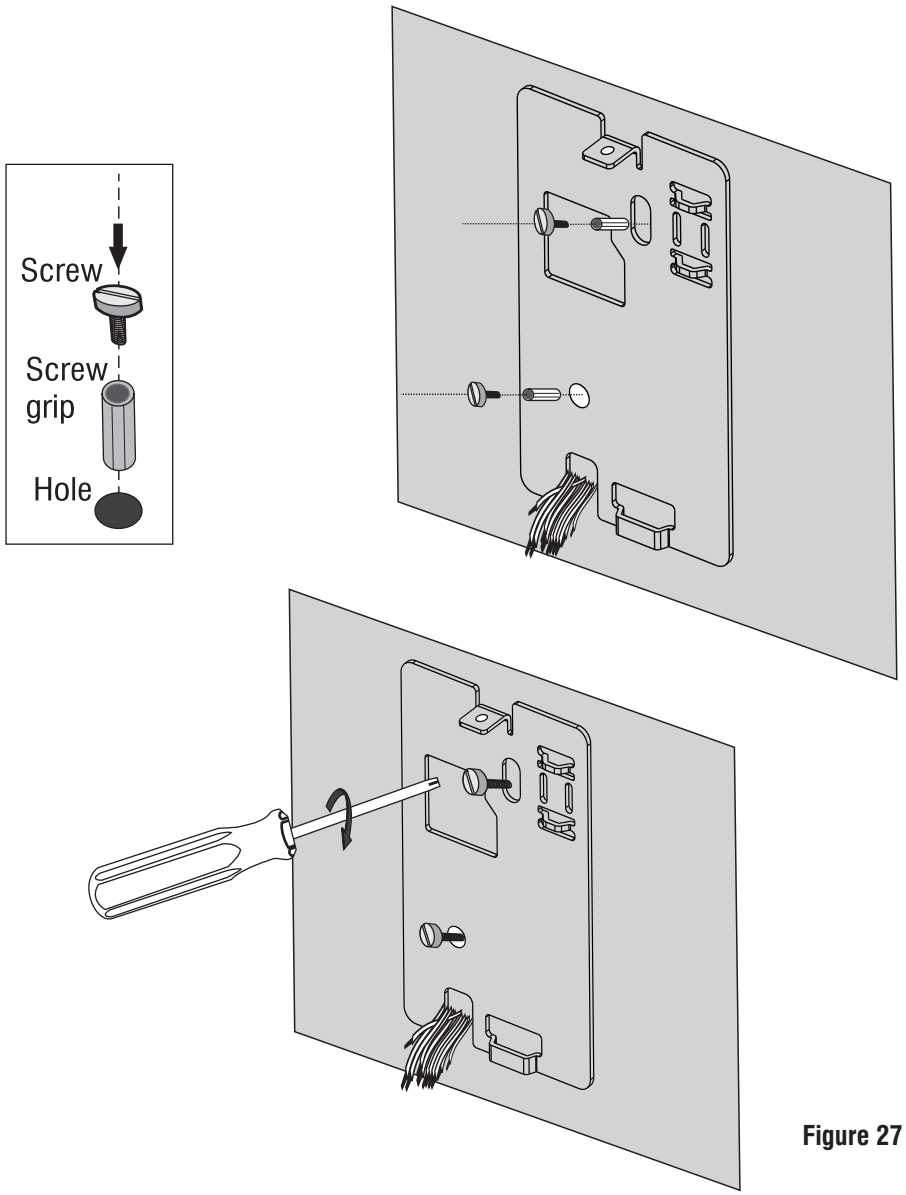


Figure 27

3. Lead the cables from the wall through the drilled area **C** of the Mounting Plate as illustrated in **Figure 24**. Connect the necessary cables with COSEC ATOM, see **Figure 28**.

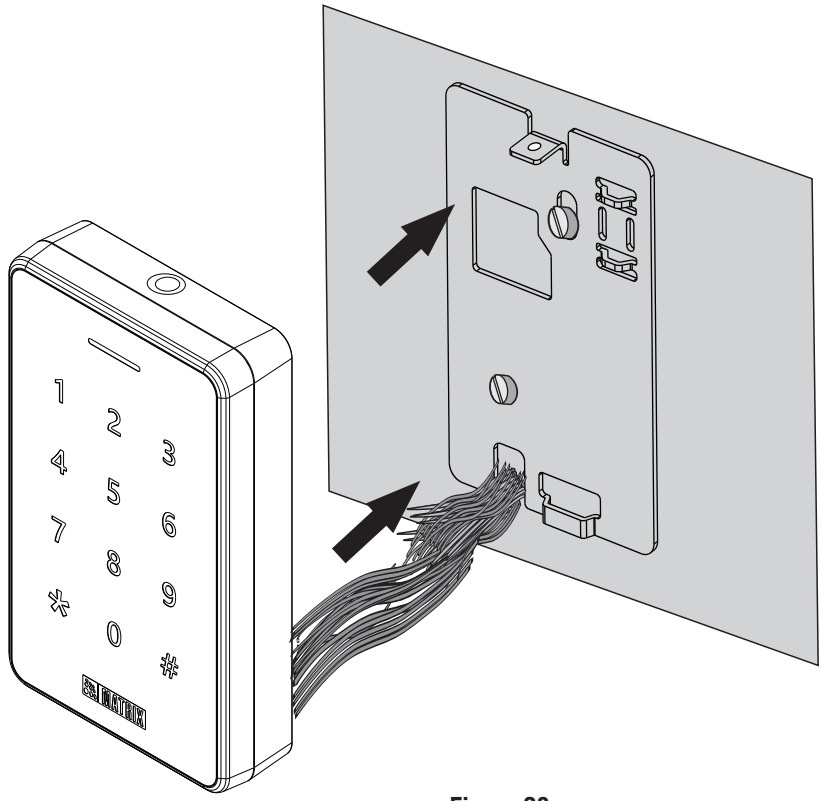


Figure 28

B. Non- Concealed Wiring

1. Follow Step 1 and Step 2 as explained for the Concealed Wiring and fix the Mounting Plate on the wall.
*(For non-concealed wiring, you do not need to drill the area **C**.)*

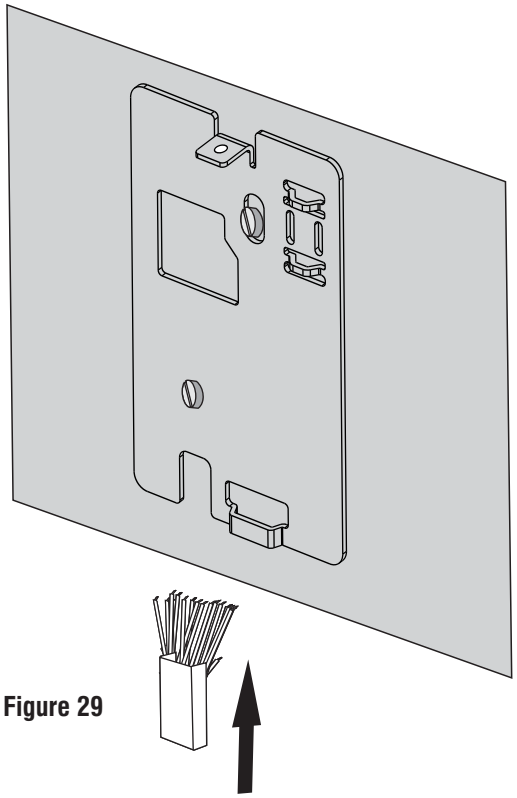


Figure 29

2. Unscrew the Back Plate screw with the help of screwdriver and remove the Back Plate.

3.Pull out the Cables from the Back Plate hole and lead the cables outside from the bottom opening of COSEC ATOM, as illustrated in **Figure 30**.

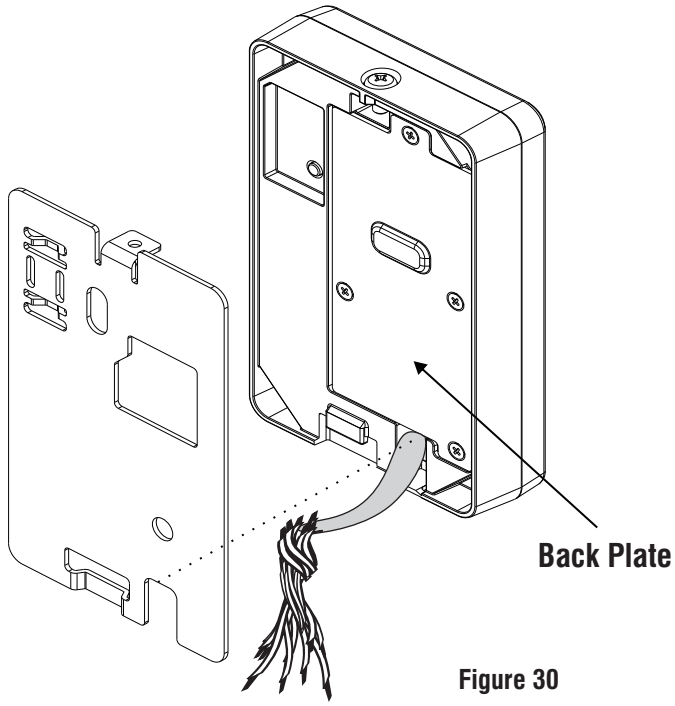


Figure 30

4. Connect the necessary cables and align the COSEC ATOM body with the Mounting Plate.

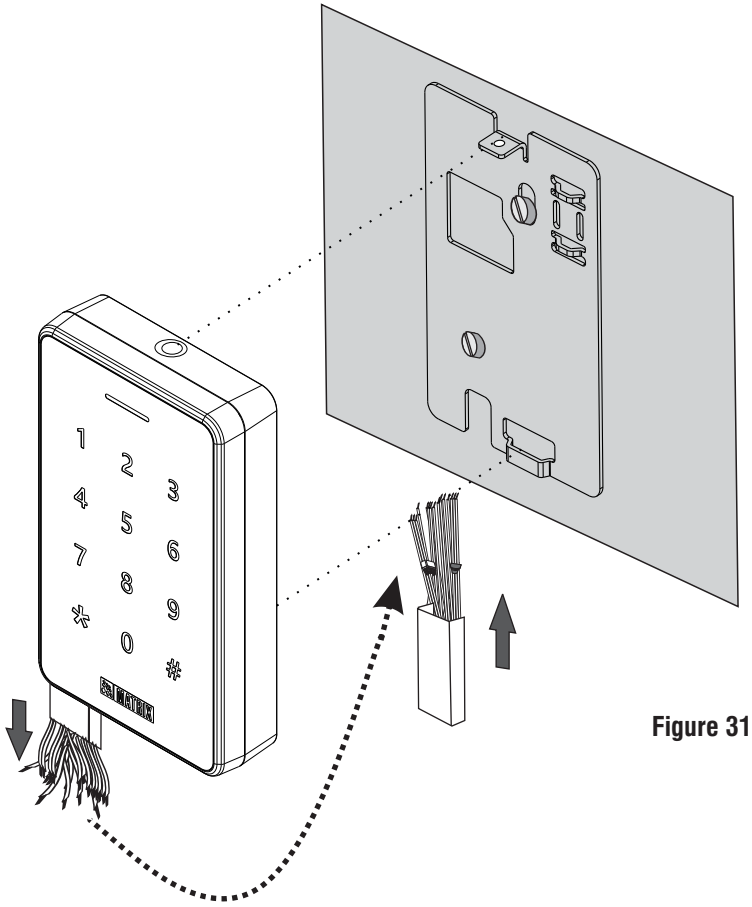


Figure 31

Step 3: Inserting Mounting Screw

1. Fix the Reader body with the Mounting Plate such that Mounting Slots of the Reader and Mounting Plate align with each other.

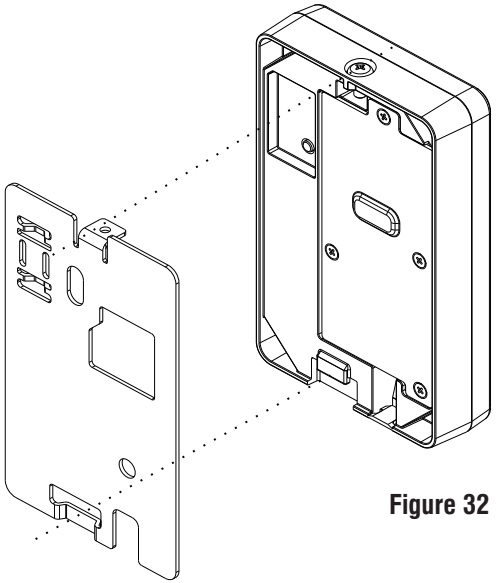


Figure 32

2. Slide the reader downwards to fix it with the groove of the Mounting Plate and insert the mounting screw back in place on top of the device.

3. Tighten the screw with 2 kgf-cm torque as shown in **Figure 33**.

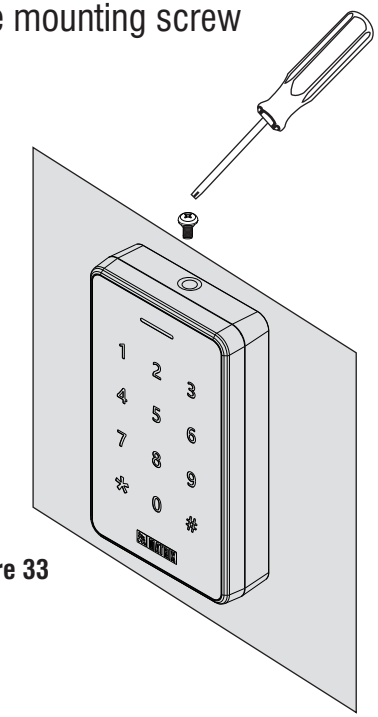


Figure 33

Technical Specifications

Specification Parameters	ATOM RD300	ATOM RD200	ATOM RD100
Credential Support	PIN, RFID Card, Mobile Credential over BLE and Finger	RFID Card, Mobile Credential over BLE and Finger	Card, Mobile Credential over BLE
User Capacity	Depends on Master Device		
**Type of Card	HID I - class, **MIFARE®** / Desfire / Combo Cards / NFC		
Card Read Range	**MIFARE®**-5 cm or more, Desfire Ev1-Atleast 4 cm		**MIFARE®**-6 cm or more, Desfire Ev1-Atleast 4 cm
Reader Interface Type	RS-232, RS-485, WIFI and Wiegand		RS-232, RS-485 and Wiegand
Interface Support Length	RS-232 (10ft), RS-485 (1200meter), Wiegand (150meter)		
Input Power	9-14 VDC through main door controller or external power source		
Buzzer	Yes (>55db at 10cm)		
LED	No	Yes *(Tri Colour)*	
Keypad	Yes *(in Display)*	No	Yes *(in ATOM RD100KM & ATOM RD100KI)*
Built in Bluetooth	Yes BLE (4.0 and above)		

Specification Parameters	ATOM RD300	ATOM RD200	ATOM RD100
Tamper Detection	Yes		
Operating Temperature	-20°C to +55°C		0°C to +55°C
Humidity	5% to 95% RH Non-condensing		

*** The type of Supported Card in COSEC ATOM is different as per their variants. Refer COSEC Server User Guide for the type of supported card in each variant.*

LED and Buzzer Indications

ATOM RD100/200: Connected through RS-232/ RS-485

State	Single LED (tri color)	Buzzer
Power On	Blue (ON)	OFF
Idle Online	Blue (ON: 200ms OFF: 2200ms)	OFF
Idle Offline/ Network Failure	Red (ON: 200ms OFF: 2200ms)	OFF
Degraded Mode	Orange (ON: 200ms OFF: 2200ms)	OFF
Processing	Green (ON: 200ms) Red (ON: 200ms)	OFF
Wait	Green (ON: 200ms) Red (ON: 200ms OFF: 800ms)	ON: 200ms OFF: 1000ms
Alarm Minor	Red (ON: 200ms OFF: 1000ms)	ON: 200ms OFF: 1000ms
Alarm Major	Red (ON: 400ms OFF: 800ms)	ON: 400ms OFF: 800ms
Alarm Critical	Red (ON till Reset)	ON till Reset
Alarm Clear	OFF	OFF
Access Allowed	Green (ON: 1200ms)	ON: 1200ms
Access Denied	Red (ON: 200ms OFF: 200ms) 3 Cycles	ON: 200ms OFF: 200ms 3 Cycles
System Default	Red (ON: 400ms OFF: 200ms)	ON till Reset
Lost Connectivity with the ARC Controller	Red (ON: 200ms OFF: 200ms)	OFF

ATOM RD300: Connected through RS-232/ RS-485

State	Buzzer
Power On	ON (1s)
Idle Online	OFF
Idle Offline/ Network Failure	OFF
Degraded Mode	OFF

State	Buzzer
Processing	No Change
Wait	ON: 200ms OFF: 1000ms
Alarm Minor	ON: 200ms OFF: 1000ms
Alarm Major	ON: 400ms OFF: 800ms
Alarm Critical	ON till Reset
Alarm Clear	OFF
Access Allowed	ON: 1200ms
Access Denied	ON: 200ms OFF: 200ms 3 Cycles
System Default	ON till Reset
Lost Connectivity with the ARC Controller	OFF

ATOM RD100/200/300: Connected through Wiegand Interface

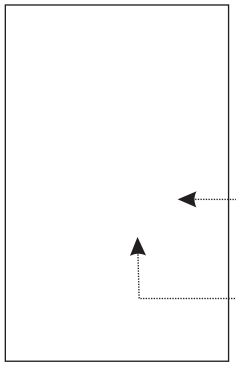
State	Single LED (tri color)	Buzzer
Idle	Blue (ON: 200ms OFF: 2200ms	No Change
Card Detection/ PIN Transmission/ BLE Punch	Green (ON: 100ms)	ON: 100ms
Key Press	No Change	ON: 100ms
Failed	Red (ON: 200ms OFF: 200ms) 3 Cycles	ON: 200ms OFF: 200ms 3 Cycles
System Default	Red (ON: 400ms OFF: 200ms)	ON till Reset

Connecting the Reader

1. RS-232 connectivity for COSEC Doors, COSEC VEGA, COSEC PATH and COSEC ARGO.

2. RS-485 connectivity for COSEC ARC.

3. Wiegand connectivity for 3rd party Access Control Panel.



COSEC ATOM

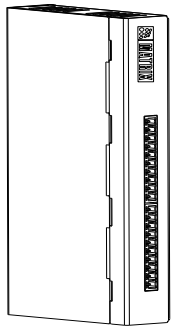
Figure 34

Pin no.	Pin name(P1)(Connector)	Cable colour
1	GND	Black
2	RS232_RX	Pink
3	TEMPER	Light Blue
4	RS232_TX	Grey
5	RS485_A	Blue
6	GRN_LED	Orange
7	RS485_B	Brown
8	RED_LED	Purple
9	BEEPER	Yellow
10	WDATA1	White
11	WDATA0	Green
12	+12VDC	Red
13	GND	Black
14	GND	Black

Pin Diagram

RS-485

RS-485 A	Blue
RS-485 B	Brown
GND	Black
+12V_RDR	White
GND	Black



TO COSEC ARC Controllers

Figure 35

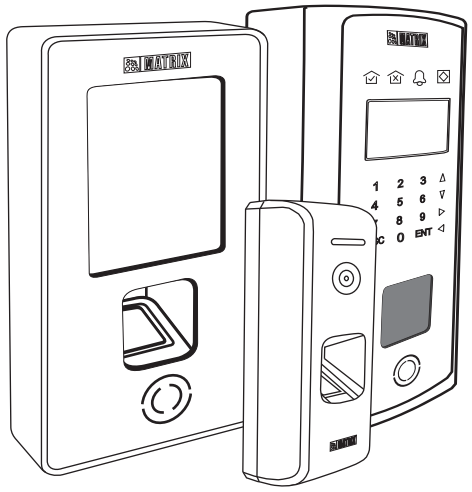
GND	Black
RS232 TX	Grey
RS232 RX	Pink
TEMPER	Light Blue
W DATA1	White
W DATA0	Green
BEEPER	Yellow
RED LED	Purple
GREEN LED	Orange
GND	Black
+12V_RDR	Red

RS-232

D1

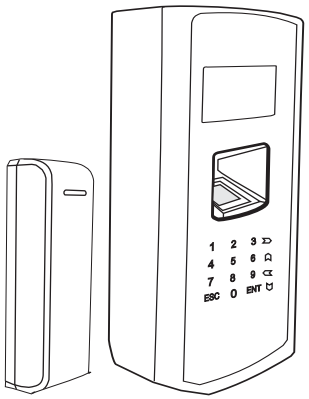
D0

Wiegand Interface



TO COSEC DOORs

Figure 36



TO 3RD PARTY ACCESS CONTROL DEVICES

Figure 37

FCC Compliance

This device complies with part15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits of Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CE RoHS COMPLIANT Bureau of Indian Standards FCC

Certification in-progress for ATOM 200/300

Caution:

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

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2. This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment.

3.This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

MATRIX
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