ORPAK
Orpak Systems Ltd.

No. 817426100

Revision A

Secured OrPT Single Box

INSTALLATION MANUAL

SAFETY CONSIDERATIONS

Read all warning notes and instructions carefully. They are included to help you installing the Product safely in the highly flammable environment of the fuel station. Disregarding these warning notes and instructions could result in serious injury or property damage. It is the installer responsibility to install, operate and maintain the equipment according to the instructions given in this manual, and to conform to all applicable codes, regulations and safety measures. Failure to do so could void all warranties associated with this equipment.

Remember that the fuel station environment is highly flammable and combustible. Therefore, make sure that actual installation is performed by experienced personnel, licensed to perform work in fuel station and at a flammable environment, according to the local regulations and relevant standards.

WARNING - EXPLOSION HAZARD

Use separate conduit for the intrinsically safe wiring. Do not run any other wires or cables through this conduit, because this could create an explosion hazard.
Install the Product only in the non-hazardous area of the fuel station.
Use standard test equipment only in the non- hazardous area of the fuel station, and approved test equipment for the hazardous areas.
In the installation and maintenance of the Product, comply with all applicable requirements of the National Fire Protection Association NFPA-30 "Flammable and Combustible Liquids Code", NFPA-30A "Automotive and Marine Service Station Code", NFPA-70 "National Electric Code", federal, state and local codes and any other applicable safety codes and regulations.
Do not perform metal work in a hazardous area. Sparks generated by drilling, tapping and other metal work operations could ignite fuel vapors and flammable liquids, resulting in death, serious personal injury, property loss and damage to you and other persons.

CAUTION - SHOCK HAZARD

Dangerous AC voltages that could cause death or serious personal injury are used to power the Product. Always disconnect power before starting any work. The Product has more than one power supply connection port. Disconnect all power before servicing.

WARNING – PASSING VEHICLES

When working in any open area of fuel station, beware of passing vehicles that could hit you. Block off the work area to protect yourself and other persons. Use safety cones or other signaling devices.

CAUTION

Do not attempt to make any repair on the printed circuit boards residing in the Product, as this will void all warranties related to this equipment.

PROPRIETY NOTICE

DISCLAIMER

CAUTION

For supply connections, use wires suitable for at least 90°C.

Signal wiring connected in this box must be rated at least 300 V.

FCC COMPLIANCE STATEMENT IN USER'S MANUAL

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.

User information for a Class A digital device:

THE FCC WANTS YOU TO KNOW:

This equipment has been tested and found to comply with the limits for a 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.

FCC Warning

Modifications not expressly approved by the manufacturer responsible could void the user's authority to operate the equipment under FCC rules.

User information for a Class B digital device

THE FCC WANTS YOU TO KNOW:

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 area.

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 not 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 the receiver
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician

FCC Warning

Modifications not expressly approved by the manufacturer responsible could void the user's authority to operate the equipment under FCC rules.

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SECTION 1
GENERAL DESCRIPTION

1-1. *GENERAL*

This manual provides installation instructions for the Secured OrPT (Orpak Secured Payment Terminal, OrSPT) and the G2 Outdoor Printer. The Secured OrPT is an outdoor payment terminal that can accept a variety of payment types: smart cards, magnetic cards and contactless cards.

The G2 Printer Module is a compact, ruggedized thermal printer suitable for the harsh outdoor environments. It uses thermal printer paper only (55 gr., 40m x 57 mm).

1-2. *SECURED ORPT SPECIFICATIONS*

Table 1-1 displays the physical, electrical and environmental specifications applicable to the Secured OrPT.

Table 1-1. Secured OrPT Specifications

Supply Voltage:	15 – 24VDC
Power Consumption:	10 W with no heater (21 W with Heater on)
Maximum current without heater	0.7 A
Maximum current with heater	1.4 A
Operating Temperature:	-20°C to +70°C (optional -40°C to +70 °C with internal heater)
Storage Temperature:	-20 °C to +70 °C
Humidity:	80% Non-condensing
Communication Interface:	RS-485 – 9600 bps Half-Duplex
	Ethernet RJ-45 10 Mbps (x2)
	RS-232 (x2)
	GPIO (DB9)
Dimensions	H 197 mm X W 179 mm X D 162 mm ; Weight: 950 gr

1-2.1. *Secured OrPT Housing*

Secured OrPT enclosure is made of a plastic-molded front panel, and an aluminum rear casing (see Figure 1-1). The enclosure is weather-proof in order to sustain the harsh outdoor environments when installed in an outdoor enclosure. The front panel of the OrPT is made of rugged plastic. The devices front is sealed.

Figure 1-2 depicts the enclosure dimensions of the opening required for installing the Secured OrPT into 3rd party panels.

Figure 1-1. Secured OrPT – General View
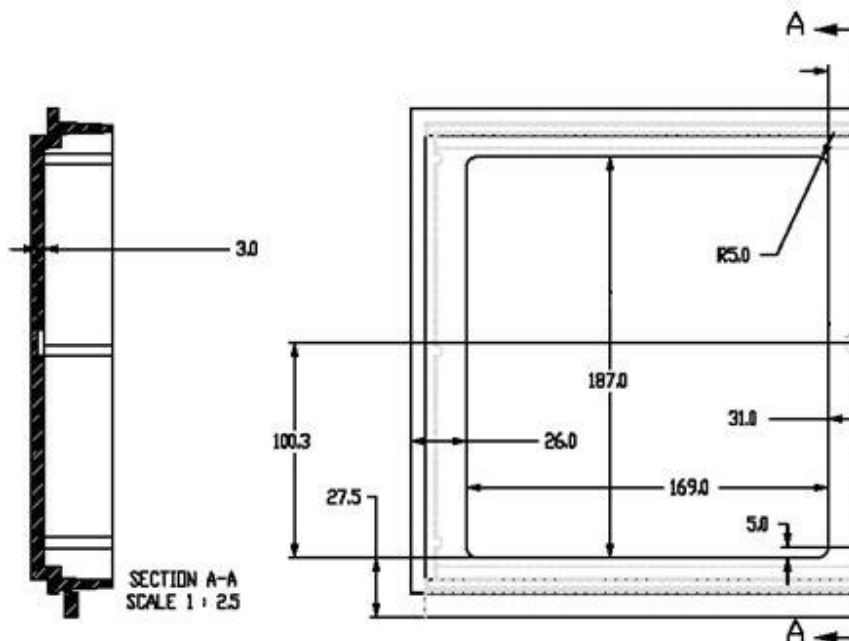
Figure 1-2. Secured OrPT – Enclosure Opening Dimensions

1-3. PRINTER SPECIFICATIONS

Table 1-2 displays the physical, electrical and environmental specifications applicable to the Printer.

Table 1-2. Printer Specifications

Supply Voltage:	24 VDC
Power Consumption:	Standby 15 W.
	Typical 60 W (without heater).
Maximum standby current	0.625 A
Maximum current	2.5 A
Dimensions (HxWxD):	110.2 x 178.4 x 100 mm
Operating Temperature:	-5 °C to +55°C (-40°C to +55°C with optional heater)
Storage Temperature:	-20 °C to +70 °C
Communication Interface:	RS-485 – 9600 bps Half-Duplex
Paper Type:	40m x 57 mm (L x W) 55 gr. – thermal
Paper Maximum Printing Area Width:	54 mm
Maximum Printing Speed:	120 mm/sec.
Paper cutter:	Integrated, Full cutter, Automatic

1-3.1. Printer Housing

The Printer module enclosure is made of aluminum (see Figure 1-3.). The front panel includes two green LED indicators and the receipt aperture, protected behind a metal lid. The printer lock is an electro-mechanic lock (Solenoid type) controlled by the Station Controller/POS.

Figure 1-4 depicts the enclosure dimensions of the opening required for installing the G2 Printer into 3rd party panels.

Figure 1-3. G2 Printer – General View
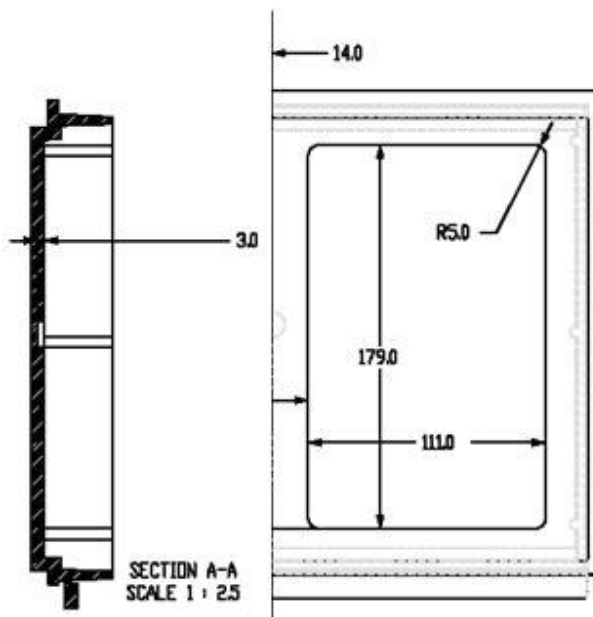
Figure 1-4. G2 Printer – Enclosure Opening Dimensions

1-4. *VOLTAGE PROTECTION*

Secured OrPT and Printer housing requires a grounding attachment, i.e. the devices should be connected to the dispenser (in case of retrofit in petroleum environments) for protection against high voltage transient and lightning.

Furthermore, two types of protections are included in the devices:

- Isolation of 1.5 KVDC to protect against galvanic connection between the host side and the device side.

- In RS-485 communication, the terminal side is protected against high voltage transient and lightning by using Spark Gaps and transorbs. This allows the use of long communication cables.

SECTION 2
SINGLE BOX INSTALLATION

2-1.   *GENERAL*

The single box configuration takes into consideration the ease of use of the user related equipment. The front panel of the Secured OrPT faces the attendant and the driver, and the printer is located below the keyboard.

This section provides instructions for installing the Secured OrPT & Printer Single Box on its pole (accessory, see Figure 2-1) or on the wall (see Figure 2-2).

Figure 2-1. Secured OrPT Single Box – Pole Installation

Figure 2-2. Secured OrPT Single Box – Wall Mounted

2-2.   COMPONENTS

Table 2-1 defines the Secured OrPT Single Box components (see Figure 2-3 for the location of the main components within the box). Communication link is obtained either directly from the LAN, or via the RS-485 link.

The Secured OrPT Single Box components are interconnected within the box by an RS-485 link.

Table 2-1. Secured OrPT Single Box Components

No.	*Function*	*Module Type*	*Quantity*
1.	Payment terminal	Secured OrPT – P/N 800926100-800926299	1
2.	Printer	Outdoor printer (G2 model) - P/N 800919900	1 (Optional)
4.	Power Supply	100-220 VAC input; 75W, 24 VDC output, power supply unit - P/N 811308210	1
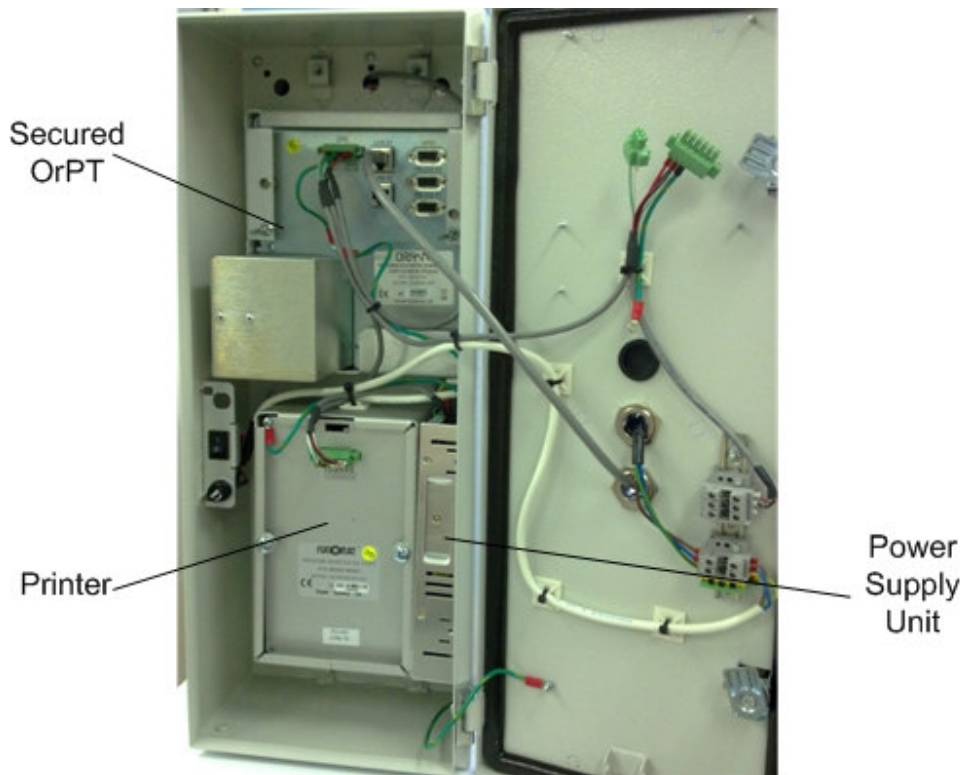
Figure 2-3. Secured OrPT Single Box Components Location

2-2.1. *Single Box Specifications*

Table 2-2 displays the physical, electrical and environmental specifications applicable to the Secured OrPT Single Box.

Table 2-2. Secured OrPT Single Box Specifications

Supply Voltage:	100-220 VAC
Maximum current (230VAC)	1.2 A
Maximum current (115 VAC)	2 A
Operating Temperature:	-5°C to +60°C (optional -40°C to +60 °C with internal heater)
Storage Temperature:	-20 °C to +70 °C
Humidity:	80% Non-condensing
Communication Interface:	RS-485 – 9600 bps Half-Duplex
	Ethernet RJ-45 10 Mbps (x2)
Dimensions	H 505 mm X W 200 mm X D 160 mm

2-3. INSTALLING SECURED OrPT PANEL & PRINTER IN THE SINGLE BOX

The following instructions provide the procedures for the installation of the Secured OrPT & Printer modules in the Single Box. The Single Box is delivered fully installed, thus no further installation is required. Use these instructions only for replacing the unit, due to a malfunction or unit upgrade.

The Secured OrPT installation procedures consist of two main steps:

- Mechanical installation of the Secured OrPT inside the Single Box using the holder

- Connecting the Secured OrPT cables in the Single Box

2-3.1. Wiring

Table 2-3 and Table 2-4 list the different types of Single Box internal cables to be connected to the Secured OrPT and to the G2 Printer during installation.

Table 2-3. Secured OrPT Internal Wiring

Cable Type	*Function/ Connection*	*Termination*	*Note*
Communication & Power	Connects Secured OrPT to RS-485 &Power	RS-485 comm. connector	
Shielded CAT-5	Connects Secured OrPT to Ethernet	Hub/Switch inside or outside the Single Box.	Only in Ethernet connectivity
Ground single wire	Connection to earth for surge protection	Ring connector with Phillips screw	Connected to Secured OrPT box chassis (Thread M3)

Table 2-4. G2 Printer Internal Wiring

Cable Type	*Function/ Connection*	*Termination*	*Note*
Communication & Power	Connects printer to RS-485/Power harness	6-pin green connector (P/N 813326106)	
Ground single wire	Connection to earth for surge protection	Ring connector with Phillips screw	Connected to printer box chassis (Thread M3)

2-3.2. *Secured OrPT & Printer Installation*

Perform the following procedures for installing the Secured OrPT and the printer in the Secured OrPT Single Box:

1. Prepare a comfortable place to perform the installation, which will allow easy access to the Secured OrPT Box

2. Disconnect all power sources to the Single Box and in installation area

3. Insert the Secured OrPT Panel to its designated aperture in the Single Box (see Figure 2-3)

4. Place the spacers on the protruding screws on the rear side of the Secured OrPT

5. Place the Secured OrPT Panel holder on top of the spacers

6. Close the Secured OrPT Panel holder using two wing screws

7. Connect the applicable cables to the Secured OrPT in accordance with the connectors' description given on paragraph 2-3.1

8. Connect the grounding cord to the designated screw in the Secured OrPT Panel (near the center of the panel)

9. Insert the printer into the designated aperture in the Single Box (see Figure 2-3)

10. Secure the printer using the clamp housing, two flat washers, two spring washers and two wing screws

11. Connect the applicable cables to the Secured OrPT in accordance with the connectors' description given on paragraph 2-3.1

12. Connect the grounding cord to the designated screw in the Printer (on the upper left corner on the rear panel)

2-4.   *INSTALLING SECURED ORPT SINGLE BOX & PRINTER ON THE POLE*

2-4.1. *General*

Orpak offers a standard pole, P/N 814921650, or an adjustable pole, P/N 819038025, on which the Secured OrPT Single Box can be mounted. Installation instructions are provided below. However, the customer should develop installation plans for each specific installation.

☞ | **NOTE**
Perform a site survey of the site prior to installation. For further information, contact Orpak Technical Support.

The customer should provide an installation plan, designed by an authorized engineer, and applicable to all authorities having jurisdiction. This plan design should reflect the existing electric infrastructure of the site.

Regardless of the installation plan, the safety precautions and installation requirements, detailed in the following paragraphs, must be conformed to.

Figure 2-4. Secured OrPT Single Box – Installation Pole P/N 819038022

2-4.2. *Safety Distances*

The Secured OrPT is suitable for use over Class 1, Division 2. Figure 2-5 shows the safety distances required for the installation of the Secured OrPT in a non hazardous location adjacent to the dispensers. When mounting the Secured OrPT, a minimum clearance of 18 inches between the unit and any of the pumps or the dispensers must be maintained. This clearance allows room for the wiring and maintenance of the system.
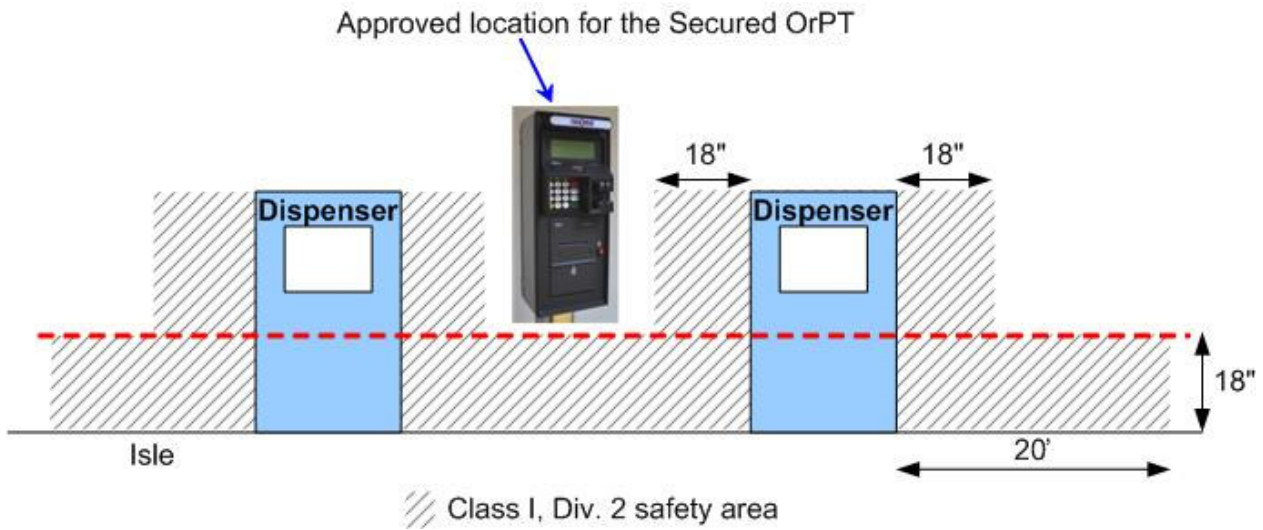
Figure 2-5 Secured OrPT – Installation Control Drawing

2-4.3. *Precautions and Safety Notes*

Prior to actual installation activities, carefully observe the precautions and safety notes below.

> ### WARNING
> Before installing or servicing equipment, carefully observe the warnings and precautions in the beginning of this manual.

- Remember that the fuel station environment is highly flammable and combustible. Therefore, make sure that actual installation is performed by experienced personnel, licensed to perform work in fuel stations and capable of implementing all applicable requirements of the National Fire Protection Association NFPA-30 "Flammable and Combustible Liquids Code", NFPA-30A "Automotive and Marine Service Station Code", NFPA-70A "National Electric Code", federal, state and local codes and any other applicable safety codes and regulations.

- Remember that high quality installation will ensure correct system operation and user safety:

  - All installed wiring must conform with all building/fire codes, all Federal, State and Local codes and regulations, the National Electrical Code (NFPA 70), NFPA 30, and the Automotive and Marine Service Station Code (NFPA 30A).

  - Use only threaded, rigid, metal conduits.

  - Use only UL-approved correctly sized insulated gasoline and oil-resistant copper wiring.

  - Unit power should be supplied from a dedicated circuit breaker (6A). No other equipment should be powered from this breaker.

- System power may come from more than one source. Disconnect all power sources before attempting to work on the system.

● Install the Secured OrPT Single-Side Box only in non-hazardous locations.

● Do not connect power to the device until complete station installation is inspected and certified.

● Do not perform any metal work in the hazardous area. Sparks generated by drilling, tapping and metal work operations could ignite fuel vapors and flammable liquids, resulting in death, serious personal injury, property loss and damage to you and other persons.

● When working in any open area of fuel station, beware of passing vehicles that could hit you. Block off the work area to protect yourself and other persons. Use safety cones or other signaling devices.

2-4.4. *Installation Requirements*

When installing the Secured OrPT Single Box, conform to the following requirements:

● As the units inside the Single Box require interaction with people, install the Box in a convenient place and height for allowing easy access to the Secured OrPT panel and the Outdoor Printer.

● Avoid proximity to heat sources such as vents from air conditioners, heat dispersal ducts, etc'.

● Avoid exposure of the Secured OrPT Single Box to direct sunlight.

● Verify that the cable lengths are sufficient to your installation location.

● Install the Secured OrPT & Printer in a non hazardous area according to Figure 2-5.

• The installation procedures must meet all safety regulations according to local state regulations.

• For UL listed Secured OrPT, all wiring to device must be in UL listed rigid metal conduit or other methods permitted in NFPA 70 or NFPA 30A determined acceptable by the authority having jurisdiction

• For non-UL Secured OrPT, glands are provided for the power and data openings

2-4.4.1. Conduits Sealing

The conduits shall be sealed in accordance with NFPA requirements and local regulations, to prevent the passage of gases through conduits, cables and conductors. The fittings are requested wherever volatile liquids or gases are present in the surroundings (see Figure 2-6).

Figure 2-6 Conduit Fitting

2-4.5. *Preliminary Pole Installation Instructions*

Perform the following preliminary instructions (see Figure 2-7):

☞ | **NOTE**
Perform a site survey of the station prior to installation. For further information, contact Orpak Technical Support.

1. Obtain an installation plan, designed by an authorized engineer, and applicable to all authorities having jurisdiction

2. Ensure that this plan design reflects the existing electric infrastructure of the site

3. Run cable conduits for power and communication cables to the spot for the installation of the pole of the single Secured OrPT Single Box

4. Prepare Installation Plate with four ICU bolts attached with M10 nuts. Check that the bolts protrude from the plate by 35 mm

5. Dig a hole on the ground of:
    Width x Length x Depth – 300 x 300 x 400 mm

6. Insert Installation Plate in the hole

7. Take care that the power and communication cable conduits pass through the central hole in the Installation Plate

8. Pour concrete type B200 in the hole as a support base for the pole

9. Take care that, as the concrete fills the hole, the Installation Plate is on a same level as the ground (asphalt, pedestal) on which it is installed. Check repeatedly that the Installation Plate is leveled otherwise make the necessary adjustments so the plate is perfectly leveled

10. Wait the necessary time for the concrete to harden and dry (as per local practice), Check anew that the Installation Plate is leveled.

2-4.6. *Pole Installation Instructions*

Perform the following Pole installation instructions (see Figure 2-7):

1. Remove the four M10 nuts from the four ICU bolts attached to the Installation Plate

2. Insert Pole on top of the Installation Plate

3. Secure Pole on the Installation Plate to the Installation Plate to the four installation threads in the inner ground area of the Pole

4. Secure the Installation Plate with four M10 spring washers, M10 washers and M10 nuts

5. Insert right and left Rozetas on the Installation Plate, and secure to Pole with two flathead M3x10 screws

This completes the installation of the Pole for the Secured OrPT Single Box. Proceed with the installation of the Secured OrPT Single Box.

2-4.7. *Single Box Pole Installation Instructions*

Perform the following Single Box Pole installation instructions (see Figure 2-7 and Table 2-5):

1. Pull out power and communication cable conduits from the Pole

2. Open Single Box door, use the dedicated key if it is locked

3. Insert the cables to be connected to the Single Box. All wiring to the device must be done in UL listed rigid metal sealed conduit, at least 18" higher than surface

4. Install the Single Box on the upper installation flange of the Pole

5. Secure the Secured OrPT Single Box to the Pole with four M6 flat plastic washers (for waterproof purpose), four M6 flat washers, four M6 spring washers and four M6x16 screws

6. Connect the power and communication cables to the Single Box.

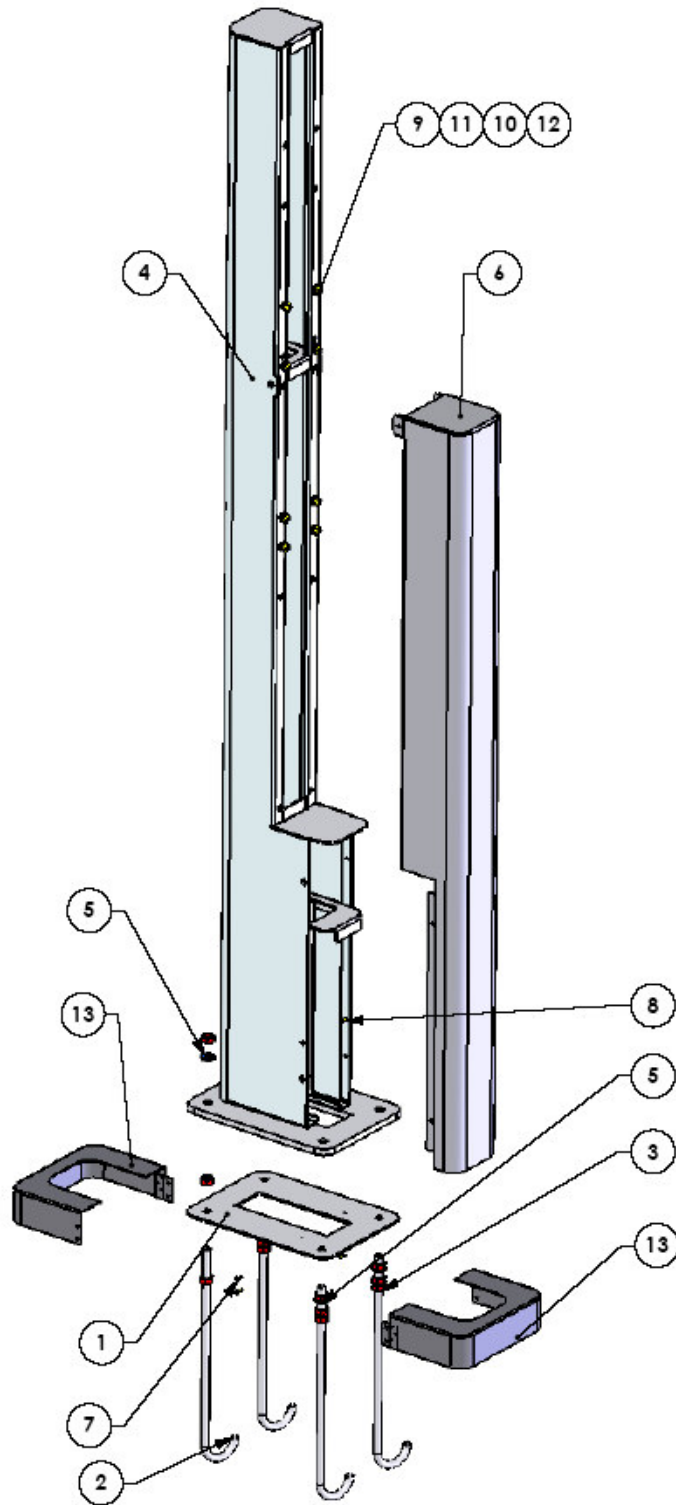7. Lock the Secured OrPT Single Box door using the provided key

Figure 2-7. Single Box – Pole Set, P/N 819038022

Table 2-5. Secured OrPT Single Box – Pole, Single Box, Installation Assembly Parts

Item N o.	Part Number	Description	Qty
1	814921800	Installation Plate	1
2	814906200	Bolt, ICU	4
3	815103000	Nut, M10	12
4	814921650	Pole, In House	1
5	815300700	Spring Washer M10	4
6	814921670	Pole, Long Cover	1
7	815201900	Screw, M3x10 Flat HD Cross Reces	4
8	815203200	Screw, F/H M4 x 10	4
9	815216200	Screw, M6x16 Pan HD CROSS Reces	8
10	815303100	Washer, Spring, M6	8
11	815322200	Washer, Flat, M6	8
12	815330300	Washer, Flat, Plastic, M6	8
13	814921700	Rozeta, Right\Left, Pole,	2

2-5.   SINGLE BOX WALL INSTALLATION INSTRUCTIONS

Perform the following Single Box wall installation instructions (see Figure 2-8, Figure 2-9 and Figure 2-10, and refer to Table 2-6):

1. Bring power and communication cable conduits to the installation spot on the wall. All wiring to the device must be done in UL listed rigid metal sealed conduit

2. Attach two installation brackets to the Single Box using M6X16 screws, M6 flat washers and M6 plastic washers and secure each flange with M6 washers, M6 spring washers and M6x16 nuts on the top and bottom of the single box

3. Open Single Box door , use the dedicated key if it is locked

4. Insert cables in the Single Box to be installed

5. Locate the exact spot on the wall for the installation of the Single Box, and mark spots for holes drilling (see dimensions in Figure 2-8) – while allowing a distance of 160 to 165 cm from the center of the display to the ground, as shown below

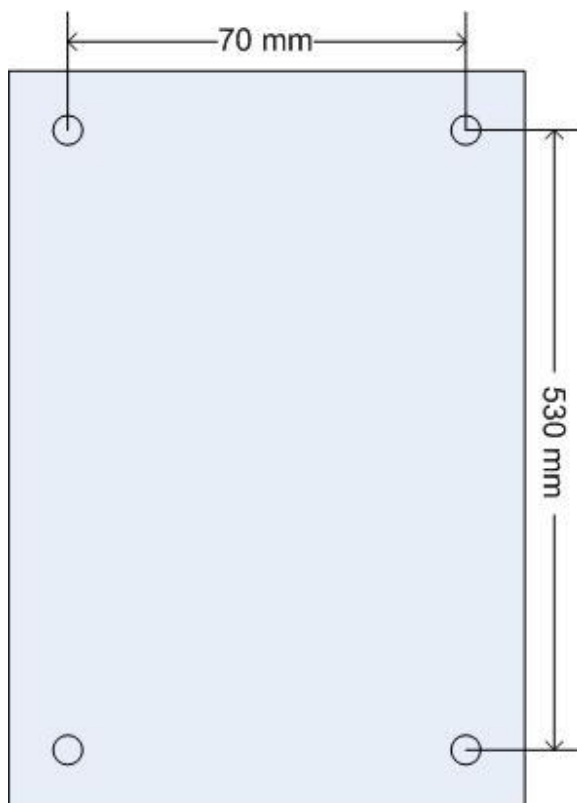6. Drill four holes for M6x74 anchor dibbles

Figure 2-8. Single Box Wall- Mounted Perforation's Dimensions

7. Install the Single Box on the wall

8. Secure the Single Box to the wall with four M6x74 anchor dibbles

9. Lock the Secured OrPT Single Box door with the provided Key

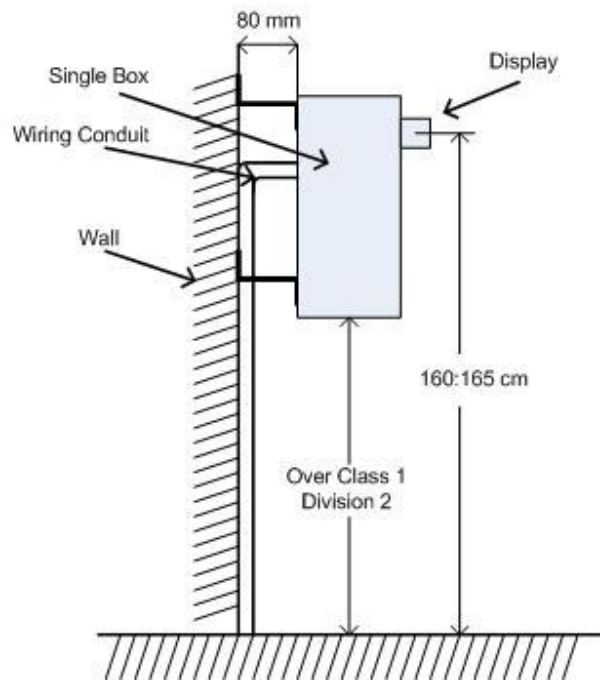10. Connect the power and communication cables inside the Single Box

Figure 2-9. Single Box Wall-Mounting Installation Instructions

Figure 2-10. Single Box –Installation Kit (Optional) for Wall Mount Installation, P/N 819022519

Table 2-6. Single Box –Installation Assembly Part List for Wall Mount Installation

Item N o.	Part Number	Description	Qty
1	813100010	Key, Double-bit, 2531, Rittal, 90d	1
2	814423300	Wall Mounting, Bracket, Single	2
3	815000200	Dibble, AB10/15, m6x74, (anchor)	4
4	815103200	Nut, m6, Din934, Iso4033	4
5	815216200	Screw, m6x16 Pan Hd Cross Recs	4
6	815303100	Washer, Spring,m6, D-7980, Palbor	4
7	815322200	Washer, flat, m6	4
8	815330300	Washer, flat, Plastic, m6	4