impro technologies®

MODEL NUMBER:
XDB902-1-0-GB-XX XDB903-1-0-GB-XX
XDB904-4-0-GB-XX XDB905-4-0-GB-XX

IMPROX DBV

ImproX (DBv) Vertical Mount Drop Box
INSTALLATION MANUAL

SPECIFICATIONS

Read/Write Capability

XDB902 and XDB903 ..... Impro Tags: All standard ImproX Credit Card Tags, with or without the slot and clip.
Third-party Tags: Read only capabilities on selected HID 125 kHz Tags.

NOTE: HID is a registered trademark of HID Global Corporation (an ASSA ABLOY Group Brand).

XDB904 and XDB905 ..... FeliCa and MIFARE® Credit Card Tags.

CE Approval

XDB902 and XDB903 ..... Approved.

XDB904 and XDB905 ..... Pending.

Working Environment

XDB902 and XDB904 ..... Mounted in a suitably rated, user supplied cabinet; the Drop Box is designed to work in an indoor or outdoor environment similar to IP54.

XDB903 and XDB905 ..... The Drop Box is designed to work in an indoor or outdoor environment similar to IP66.

Input Voltage..... 12 V DC, polarity sensitive.

Power Requirements	**Current (mA)**	**Power (W)**
(XDB902 and XDB903)		
Input Voltage 12 V DC Solenoid OFF.....	45	0.54
Input Voltage 12 V DC Solenoid ON.....	800	9.60
Power Requirements (XDB904 and XDB905)		
Input Voltage 12 V DC Solenoid OFF.....	80	0.96

Power Requirements (XDB904 and XDB905) (Continued)	Current (mA)	Power (W)
Input Voltage 12 V DC Solenoid ON	950	11.4

The following specifications are common to all models of the ImproX DBv:

Solenoid

Input Voltage	12 V DC.
Type	Push, pull action.

Relays

Relay Output	2 Relays each with NO, COM and NC contacts.
Relay Allocation	
Relay 1	Factory configured to drive the Solenoid when a Tag is inserted and read inside the Drop Box.
Relay 2	User configured to control hardware at the exit point (typically a boom, vehicle gate or turnstile).
Relay Contact Ratings	3 A at 24 V DC or 125 V AC.
XDB902 and XDB903)	1.5 A at 220 V AC.
Relay Contact Ratings (XDB904 and XDB905)	10 A at 28 V DC, 5 A at 220 V AC, 12 A at 120 V AC.

Digital Inputs

Type	4 Dry-contact inputs.
Protection Range	+50 V to -50 V continuous, +80 V to -80 V surge.

LED "Diagnostic Indicators"

Status LED	
Power On	Continuous Red.
Upgrade Mode	Flashing Red (Steady).
RS485 Communications Failure	Flashing Red (Intermittent).
Incoming RS485 Data	Flashing Green LED.
Outgoing RS485 Data	Flashing Red LED.
Digital Inputs (1-4)	Continuous Green on detected contact closure.
Relays (1 and 2)	Continuous Red on activation of the Relay.

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INSTALLATION INFORMATION

Accessories

Find the following when unpacking the ImproX DBv:

NOTE: The ImproX TD or ImproX RTD included in the construction of the ImproX DBv uses the standard ImproX TT or ImproX TRT Hardware, with modified Firmware. The ImproX TD or ImproX RTD will NOT, however, operate as an ImproX TT or ImproX TRT.

XDB902 and XDB904

NOTE: This version of the Drop Box does NOT include a Tag Retention Box for catching the Tags.

- Either an ImproX (DBv) 125 kHz Vertical Mount Drop Box (XDB902-1-0-GB-XX) with an open frame construction. The Drop Box includes a 1 m (3.2 ft) twisted, black, 0.5 mm, 2-Conductor Power Cable.
- Or, an ImproX (DBv) 13.56 MHz Vertical Mount Drop Box (XDB904-4-0-GB-XX) with an open frame construction. The Drop Box includes a 1 m (3.2 ft) twisted, black, 0.5 mm, 2-Conductor Power Cable.
- A Mechanical Drilling and Cutting Template.
- Two Fixed Address Labels.

XDB903 and XDB905

- Either an ImproX (DBv) 125 kHz Vertical Mount Drop Box (XDB903-1-0-GB-XX) with a white powder coated 3CR12 steel Cabinet. The Drop Box Cabinet's design includes a Tag Retention Box for catching the Tags. The Drop Box Throat Assembly includes a 1 m (3.2 ft) twisted, black, 0.5 mm, 2-Conductor Power Cable.
- Or, an ImproX (DBv) 13.56 MHz Vertical Mount Drop Box (XDB905-4-0-GB-XX) with a white powder coated 3CR12 steel Cabinet. The Drop Box Cabinet's design includes a Tag Retention Box for catching the Tags. The Drop Box Throat Assembly includes a 1 m (3.2 ft) twisted, black, 0.5 mm, 2-Conductor Power Cable.
- One mild steel Mounting Bracket.
- Two Keys.
- Two PG7 Plastic Cable Glands.
- Two M10 Rawl Bolts.
- Two Fixed Address Labels.

General

Remember the following when installing the ImproX DBv:

Communications Distance

The RS485 communications distance between the ImproX Controller and the LAST ImproX unit in a cable run, MUST NOT exceed 1 km (1 090 yd). Achieve this by using good quality screened, twisted 2-pair cable, with the screen EARTHED at one end.

Jumper Links

Long transmission lines or multiple “star” connections, may cause communication problems. Placing a Jumper Link across the jumper [TR1] in the LAST UNIT AT THE END OF THE CABLE RUN should solve the problem.

EARTH Connection

Connect the Drop Box to a good EARTH point. Using the RS485 Port, connect the EARTH Lead to the ‘⏚’ Terminal. Mains EARTH can be used, but electrical noise may exist.

Drop Box Connection

Distance between Drop Boxes

To avoid mutual interference, install the Drop Boxes alongside each other at least 500 mm (20 in) apart.

Antenna Reader Connection (XDB902 and XDB903 only)

Antenna Reader Distance

As the Drop Box makes use of the connections to “Reader 1”, “Reader 2” is available for connection to any ONE of the available Antenna Readers.

The ideal cable distance between the Drop Box and its Antenna Reader ranges between 2 m to 16 m (7 ft to 53 ft). Optimal performance is not guaranteed outside of this range. Achieve optimal performance using good quality screened, twisted pair cable.

Distance between the Antenna Reader and the Drop Box

To avoid mutual interference, install the Antenna Reader and the Drop Box alongside each other at least 150 mm (6 in) apart.

Distance between Antenna Readers from DIFFERENT Drop Boxes

To avoid mutual interference, install the Antenna Readers alongside each other at least 500 mm (20 in) apart.

Multi-mode Remote Reader Connection (XDB904 and XDB905 only)

Multi-mode Remote Distance

As the Drop Box makes use of the connections to “Reader 1”, “Reader 2” is available for connection to any ONE of the available Multi-mode Remote Readers.

The maximum cable distance between the Drop Box and the Multi-mode Remote MUST NOT exceed 10 m (33 ft). Achieve this by using good quality screened, twisted pair cable.

Distance between the Multi-mode Remote and the Drop Box

To avoid mutual interference, install the Multi-mode Remote and the Drop Box alongside each other at least 150 mm (6 in) apart.

Distance between Multi-mode Remotes from DIFFERENT Drop Boxes

To avoid mutual interference, install the Multi-mode Remotes alongside each other at least 500 mm (20 in) apart.

Arc Suppression

Snubber devices are recommended for EMF Flyback and Arc Suppression when driving an inductive load with the Relay, see Figure 1.

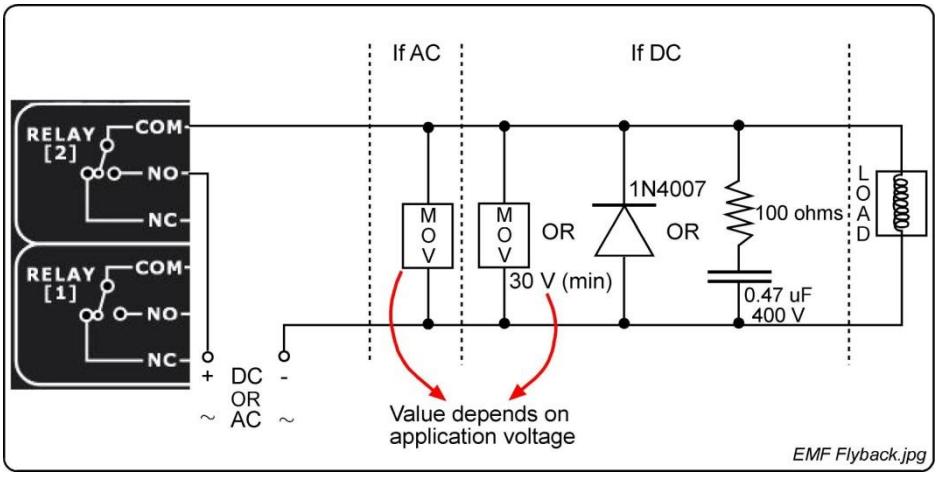

Figure 1: EMF Flyback and Arc Suppression

NOTE: The connections shown in Figure 1 are for models XDB904 and XDB905. Connections remain the same for XDB902 and XDB903.

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Mounting the Drop Box

CAUTION: Make certain that you mount the Drop Box on a vibration-free surface.

NOTE: The Drop Box can be mounted against virtually any surface, including metal, a maximum of 25 mm (0.98 in) thick.

XDB902 and XDB904

Mount the Drop Box against the side of a counter taking into consideration any security issues, accessibility, routing of wires and visibility of the “Diagnostic Indicators”. The Front Mouth Plate is mounted on the outside of the counter and the Throat Assembly is mounted on the inside of the counter.

CAUTION: Make allowance, during installation, for the Tag Retention Box. Ensure that the Tag Retention Box does NOT restrict the Tags from dropping out of the Drop Box.

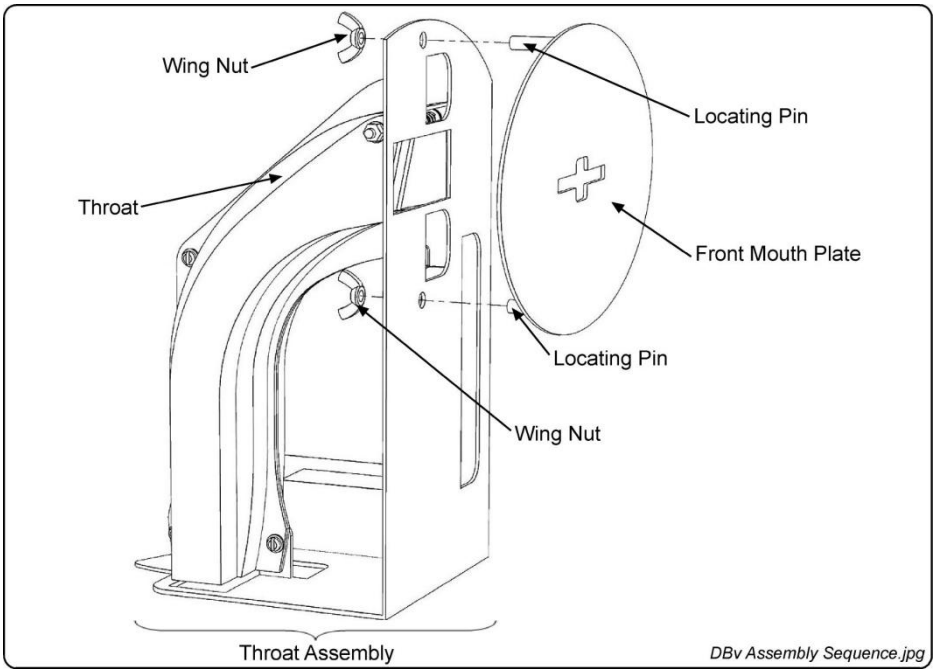


Figure 2: Sequence of Assembly

1. Mark out, drill and cut according to the indications on the Mechanical Drilling and Cutting Template.
2. Connect the Drop Box as per Figure 4 (XDB902) or Figure 5 (XDB904).
3. Place the Front Mouth Plate into position, using the Locating Pins on the back of the Front Mouth Plate for correct location.
4. Slide the Throat Assembly from inside the counter onto the two Locating Pins, and tighten using the Wing Nuts supplied.

XDB903 and XDB905

Mount the Drop Box in a suitable location on a cement slab. Take into consideration any security issues, accessibility, routing of wires and visibility of the “Diagnostic Indicators”.

Figure 3: Tag Retention Box Position

1. Position the Mounting Bracket inside the base of the Drop Box.
2. Mark out and drill the mounting hole.
3. Fix the Drop Box into position (using the Mounting Bracket and M10 Rawl Bolt).
4. Remove the Face Plate Assembly (including the Throat Assembly).
5. Connect the Drop Box as per Figure 4 (XDB903) or Figure 5 (XDB905).
6. Re-attach the Face Plate Assembly.
7. Hang the Tag Retention Box in position 1 (see Figure 3) below the Throat Assembly.
8. Mark out and drill two suitable holes for the Power Cable and Comms Cable.
9. Seal the Power Cable Hole and Comms Cable Hole using the supplied PG7 Cable Glands.

Emptying the Tag Retention Box (XDB903 and XDB905)

1. Unlock the Tag Retention Cabinet.
2. Lift the Tag Retention Box off the lip located at position 1 (see Figure 3).
3. Turn the Tag Retention Box so that the lip faces away from the open Cabinet door.
4. Hang the Tag Retention Box on the lip located at position 2 (see Figure 3).
5. Empty the Tag Retention Box and return the Box back to position 1 (see Figure 3).
6. Lock the Tag Retention Cabinet.

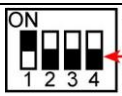
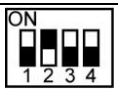
DIP-switch Settings (XDB904 and XDB905 only)

NOTE: Once the DIP-switch settings are modified reset the ImproX DBv to acknowledge the new settings.

Remote 2 Select DIP-switch Settings

The Remote 2 Port has a 4-way DIP-switch to select the function of that Port.

NOTE: If you set both Remote DIP-switches to the all off position then an Auto-ID will not return any Fixed Addresses.

DIP-switch Position		Connections
0		Channel unused.
1		No Remote attached, the Channel is used for Relay and Digital Inputs only.
2		ImproX Remote (including the ImproX Multi-mode Remote).
3		ImproX RF 4-Channel Receiver or ImproX (IR) Infrared Receiver.
4		Magstripe.
5		Barcode (code 3 of 9) with Checksum.
6		Barcode (code 3 of 9) without Checksum.
7		Wiegand 26-bit, 44-bit, 40-bit, 37-bit and Tag + PIN-code or Reason Code Mode. (Sagem MA100, MA200 or MA300).
8		Wiegand open format.

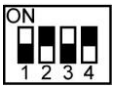
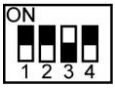
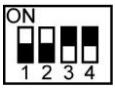
DIP-switch Position	Connections
9 	An ImproX RF is connected to Channel 2 of the ImproX Multi-mode DBv. Button 2 of the ImproX (QT) Quad Transmitter reports from Channel 2, Button 1, 3 and 4 do not report at all.
10 	An ImproX RF is connected to Channel 2 of the ImproX Multi-mode DBv. Button 4 of the ImproX (QT) Quad Transmitter reports from Channel 2, Button 1, 2 and 3 do not report at all.
11 	An ImproX RF is connected to Channel 2 of the ImproX Multi-mode DBv. Button 1 of the ImproX (QT) Quad Transmitter reports only on Channel 1 and Button 2 reports only on Channel 2.
12 	An ImproX RF is connected to Channel 2 of the ImproX Multi-mode DBv. Button 3 of the ImproX (QT) Quad Transmitter reports only on Channel 1 and Button 4 reports only on Channel 2.

Table 1: Remote 2 Select DIP-switch Settings

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ELECTRICAL CONNECTIONS

Typical Electrical Connections

Figure 4 and Figure 5 show a typical electrical connection diagram for the ImproX DBv.

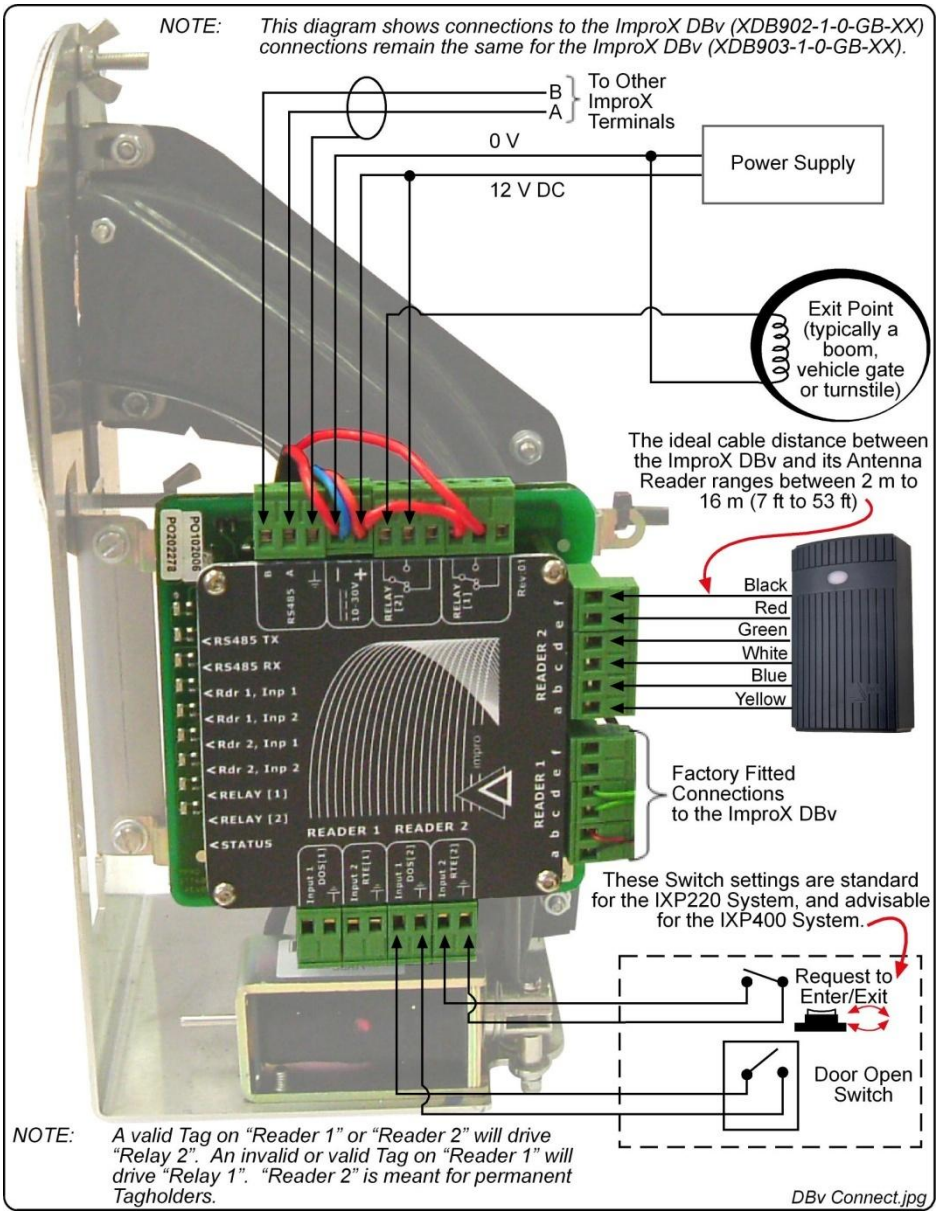

Figure 4: Typical ImproX DBv (XDB902 and XDB903) Electrical Connections

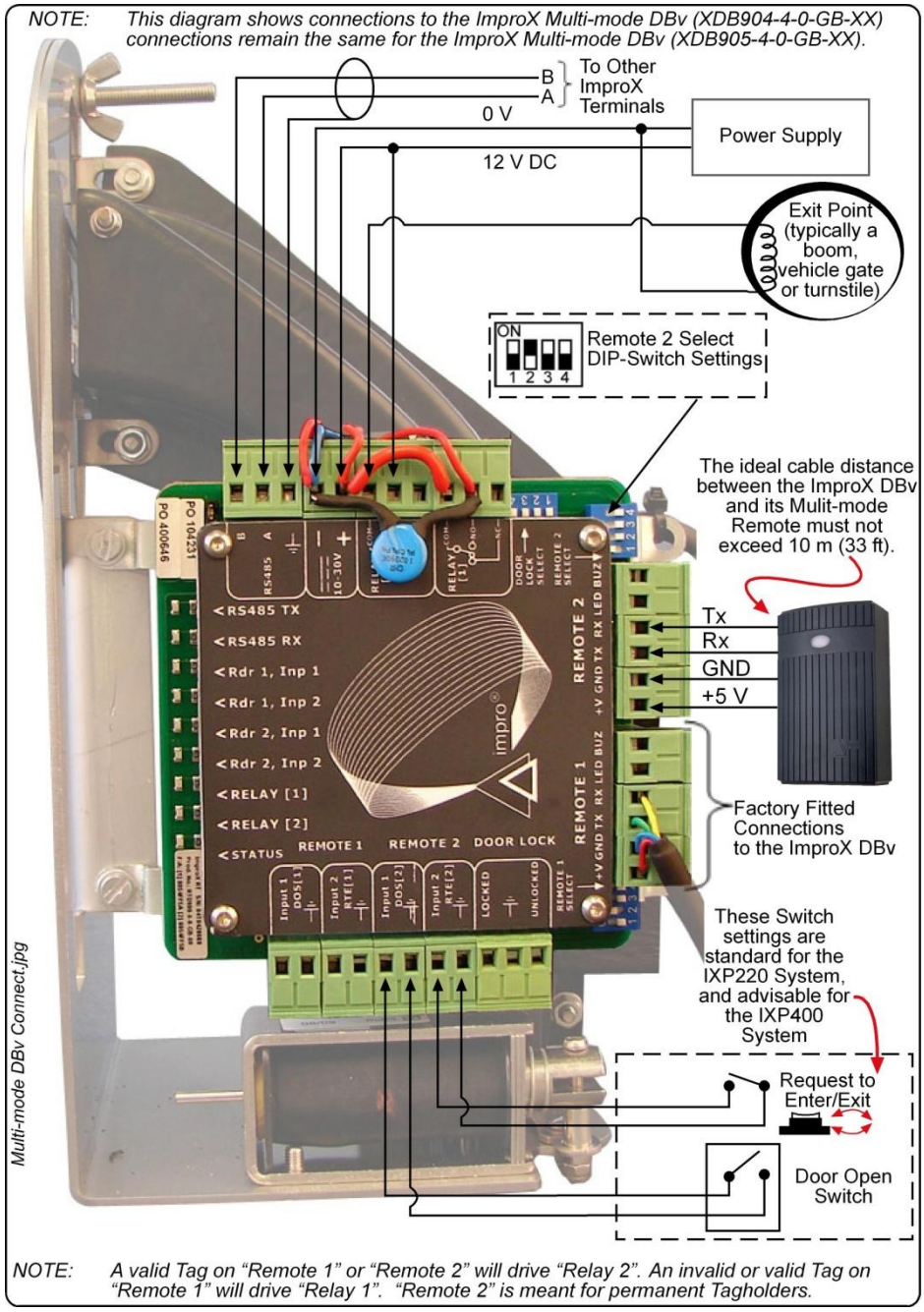

Figure 5: Typical ImproX DBv (XDB904 and XDB905) Electrical Connections

Power-on Self-test

The Power-on Self-test tests the RAM and Flash Checksums and the Read/Write Circuitry. The results of the Self-test are available as diagnostic information from the Controller or PC.

If any parameter in the Self-test fails, the Antenna Reader** or Multi-mode Remote emits a continuous beep for 2 seconds.

When the Terminal passes the Self-test, the Antenna Reader** or Multi-mode Remote emits two short beeps, each 200 ms in duration, separated by a 200 ms inter-beep pause.

*NOTE: **The ImproX MMA Antenna Reader DOES NOT include a Buzzer.*

ImproX DBv Address Allocation

Each ImproX DBv is, in fact, two "Terminals" in one. The first "Terminal" Fixed Address is associated with "Reader 1", and the second with "Reader 2".

Each ImproX DBv is allocated two unique Fixed Addresses at the factory. These addresses are stored in the Drop Boxes memory. When the Drop Box is installed in an IXP220 or IXP300/400 System, the System allocates two separate Logical Addresses to the Drop Box for communication purposes.

Address Allocation – IXP220, IXP300 and IXP400 Systems

IXP Software Suites allocate Logical Addresses to the Drop Box, either on initial software start-up, or on request, depending on the system configuration.

Address Allocation - OEM Systems

In an OEM System, the Drop Box's Logical Addresses are allocated individually using commands available in the ImproX Secure Communications Protocol. Details of this process are described in the ImproX Secure Communications Protocol document.

Fixed Address Label

Once the ImproX DBv is installed, sketch a rough site plan. Attach the loose (additional Fixed Address Labels packaged with the Drop Box) Fixed Address Labels in the position of the Drop Box on the sketched site plan. When the system installation is complete and all the units are represented on the site plan by their Fixed Address Labels, file the site plan for future reference.

GUARANTEE OR WARRANTY

This product conforms to our Guarantee or Warranty details placed on our Web Site, to read further please go to www.impro.net.

USER NOTES

USER NOTES

CE

This manual is applicable to the ImproX (DBv) Vertical Mount Drop Box, XDB902-1-0-GB-02, XDB903-1-0-GB-01, XDB904-4-0-GB-00 and XDB905-4-0-GB-00. (The last two digits of the Impro stock code indicate the issue status of the product).			
XDB300-0-0-GB-07	Issue 08	Jun 2011	ImproX DBv\English Manuals\LATEST ISSUE\ ImprXDBv-insm-en-08.docx