Mitel 3000 Installation Manual
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Safety Regulations

Important Safety Instructions

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

1. Read and understand all instructions.
2. Follow all warnings and instructions marked on the product.
3. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this product near water (for example, in a wet basement).
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
6. Slots and openings in the cabinet and the back or bottom are provided for ventilation, to protect it from overheating; these openings must not be blocked or covered. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should be operated only from the type of power source indicated in the manual. If you are not sure of the type of power source to your building, consult your dealer or local power company.
8. This product is equipped with a three-wire grounding type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.
9. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.
10. Do not use an extension cord with this product's AC power cord. The AC outlet for this product should not be used for any other electrical equipment.
11. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
12. To reduce the risk of electric shock, do not disassemble this product, but take it to a qualified serviceman when some service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassemble can cause electric shock when the product is subsequently used.
13. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
   - When the power supply cord or plug is damaged or frayed.
   - If liquid has been spilled into the product.
   - If the product has been exposed to rain or water.
   - If the product does not operate normally by following the operating instructions.
   - Adjust only those controls that are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
   - If the product has been dropped or the cabinet has been damaged.
   - If the product exhibits a distinct change in performance.
14. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

15. Do not use the telephone to report a gas leak if the telephone is in the vicinity of the leak.

Save These Instructions
Introduction

This document describes the practices to be adopted by field technicians during installation and maintenance of the Mitel 3000. A more detailed description of the product, along with customer programmable facilities and features, may be found in the Administrator's Manual, which should be read in conjunction with this document.

General overview

- The Mitel 3000 is a new converged PBX and Data product, which can be connected to PSTN, ISDN and LAN networks.
- The Mitel 3000 is a hybrid PABX/key-system, which may be equipped with Feature phones (Eight key or Sixteen key) or standard two wire DTMF telephones. Extensions can also be equipped with Fax or Answering machines.
- The Mitel 3000 is modular in construction and can be upgraded by adding various system expansion modules (Expansion Modules and Internet Module).
- The Mitel 3000 allows Voice connectivity to ISDN and PSTN exchange lines.
- The Mitel 3000 may be configured with up to four internal S-Bus interfaces for connection to approved ISDN apparatus.
- The Mitel 3000 is a versatile, easy-to-use system, which is simple to install and maintain.
- The Mitel 3000 Broadband Module provides data connectivity to the Internet via DSL lines or Cable Modems. It also provides an internal LAN. Up to 12 IP extensions and VoIP trunks are also supported.
Safety Precautions during installation and system upgrades

Always unplug or isolate the mains supply when installing or upgrading the system.

After installing the Main Equipment (CCU) and all required modules, ensure that the following points are checked before switching the mains power on:

- The cabled Extensions have a DTMF telephone or a (Eight key/Sixteen key) Feature phone connected.
- The CCU cover is in place and locked.

After switching on the main AC power source, allow at least thirty seconds for the CCU to go through its power up routine.

Electrostatic precaution (ESP)

The Mitel 3000 contains electrostatic components. To ensure long-term reliability of the system, electrostatic precautions should be taken when handling any of the system PCBs that are not enclosed in plastic.

Lightning and surge voltage protection

Extension cabling should not be exposed to high voltage surges, (for example, surges induced by lightning or neighbouring high current-carrying cables). If this is a possibility, external protection of the Main Equipment and Extensions using ‘earthed line surge protectors’ is essential.
Installation checklist

Carry out the following steps to install the system:

**FIRST**, read the safety and precaution information on page 7 carefully.

**SECOND**, mount the Main Equipment as detailed in the section on page 9

**THIRD**, install the Network and Expansion modules as required

At least one PSTN Line Module must be installed to access the PSTN network.
At least one ISDN Basic Rate Module must be installed to access the ISDN network.

An Expansion module must be installed if the following is required:
- More than 8 Extensions
- More than four PSTN Lines
- More than two ISDN Basic Rate Accesses

More than one ISDN S-bus

A Broadband Module must be installed if an internal LAN or connection to a DSL Line or Cable Modem is required. It must also be fitted if IP extensions are to be provided.

A Voice Module must be installed to provide Voice Mail, Customized Courtesy Service, Directory Service or Auto-Attendant functionality.

The Battery Back Up Module and battery must be installed if battery back up is required.

- **FOURTH**, cable the Extensions to the Main Equipment and install the system Feature phones and standard telephones as detailed in the Cabling Section Page 33. This section also covers installation the following:
  - Door Intercom
  - Doorstrike
  - External Music-on-Hold
  - Public Address
  - V24 Interface to provide Call Logging.

- **FIFTH**, cable the PSTN and ISDN Line connections as detailed in the cabling section Page 33.

- **SIXTH**, Power up the system and provide customer training as detailed on pages 48 and 49.
Installing the Main Equipment

Equipment Location

The equipment is intended for installation in a residential or office-type environment. It needs to be mounted at a convenient working height on a dry, flat wall. The normal height is 1.5 m from the floor to the bottom of the CCU case.

⚠️ Do not site the CCU where it will be subjected to excessive levels of heat, dust, damp or high humidity. Locating the equipment near sources of electromagnetic radiation, such as heavy electrical switchgear, lift machinery or electric arc welders, should be avoided.

Allow at least 150 mm of free space all around the CCU for ventilation.

The CCU needs to be located within two metres of a dedicated mains power supply outlet. The CCU must not share the same mains supply socket with any other electrical appliance.

Mounting the CCU

When a suitable location has been found, mark the screw locations on the mounting surface, using the mounting bracket provided.

If the CCU is being mounted on masonry or plasterboard, suitable wall plugs must be used. Drill and plug four holes in the wall at the marked locations. The holes should be deep enough to accept a 2.5cm screw.

Wall mount bracket
CCU Mounting bracket clearances

The main unit is mounted on a wall using the bracket supplied and should have top and side clearance as shown below.

If the system is to be equipped with a Expansion or Internet module then two mounting brackets need to be installed.
Mounting the CCU

The CCU is mounted on the bracket by sliding it on from the left hand side. When you slide it fully to the right-hand side of the bracket the CCU is automatically locked in place.

To remove the CCU depress the lock located on the left-hand side of the wall bracket. Slide the CCU to the left to remove it from the bracket.
Modules located in the CCU

There are a number of modules that can be installed in the CCU.

- PSTN Line Module (Coloured Black). This provides 2 PSTN exchange lines. Up to two of these modules can be installed in the CCU to provide two or four PSTN lines.

- Digital Line Module (Coloured Red). This card provides one ISDN Basic Rate Interface. The same module is used for the network T interface and the internal S-bus. Up to two of these modules can be installed in the CCU providing one or two Basic Rate Interfaces.

There are two slots in the CCU for the Network modules. If required one slot can be equipped with a PSTN module and the other with an ISDN Module.

- Voice module 2, 4 or 8 port (Coloured Blue). Only one of these modules can be inserted in a unit.

- Primary Rate ISDN module (Coloured Yellow). This module provides for a Primary rate ISDN interface. Up to 30 B-channels can be provided.

When a Primary Rate Interface is installed, the unit can be further equipped with one or two PSTN modules or one or two ISDN Basic Rate modules to provide backup in the event of the Primary Rate interface failing.

Module location

The Network, Voice and Primary Rate module locations in the CCU are indicated below.
System Expansion
To equip the switch with more than eight extensions, two network Modules or a Broadband Module, backplane, mounted on a second wall bracket, is needed.

⚠️ The power must be disconnected to install the backplane or expansion modules.

Installing the Backplane wall bracket
The CCU and Backplane brackets are identical. However when both are installed the backplane bracket is inverted so that it meshes closely with the CCU bracket.

Locate the second bracket and mark the screw holes. Drill and plug the holes in the wall at the marked locations. The holes should be deep enough to accept a 2.5 cm screw.

Mount the second bracket ensuring the two brackets are correctly interlocked and that sufficient clearance is provided on all sides.

Mounting the CCU with two brackets
Slide the CCU on to the brackets from the left-hand side. Ensure that the locking mechanism is activated.

Mounting the Backplane
Slide the backplane on from the right hand side. Ensure the connector is fully mated with the CCU.
Securing the backplane to the wall bracket
A mounting screw is used to securely locate the backplane on the wall bracket. This provides additional rigidity to ensure the backplane and CCU connectors do not move.

Remove the fourth and fifth cover from the backplane.

Locate the backplane on the bracket and connect it to the CCU.

The backplane must be fully connected to the CCU to correctly locate the mounting screw hole.

Insert the screw into the pillar on the bracket, which can be seen through the backplane mounting screw hole.
Expansion Modules

There are two types of expansion module that can be installed on the back plane. These are the Expansion Module and the Broadband Module. These modules are installed in the same way.

Modules are supplied in two parts. The MDF, which is connected to the backplane, and the module part which is inserted into the MDF.

The Expansion module is also equipped with two connectors for the PSTN and/or the ISDN Basic Rate modules.

⚠️ The power must be disconnected when installing the Backplane or expansion modules

![Module with MDF](image1)

![Module and MDF separated](image2)
Installing an Expansion module

Install the Backplane as described on page 13.

Install the MDF in the first free left-hand slot on the backplane.

Lock the MDF in place by pushing the lock bar upward using a screwdriver.

Lift the MDF cover and install the module.
PSTN line module

The PSTN Line module contains circuitry for 2 PSTN Lines. The module is coloured BLACK and it can be installed in the CCU and also on the Expansion module.

Installing the PSTN Module in the CCU

Remove the cover of the CCU.

Insert the PSTN module in the Network slot or slots in the CCU.

The left-hand slot is the first module position.
To Locate the PSTN Module in the Expansion Module:

Remove the Expansion Module by firstly opening the Expansion MDF cover

Open the Expansion Module and remove it from the MDF

Insert the PSTN Module (or modules) on the MDF connectors

The upper slot is the first module position
Basic Rate ISDN expansion module
The ISDN Basic Rate Module provides one Basic Rate ISDN circuit (2B+D). The module is coloured RED, and can be installed in the CCU and also in the Expansion module.

Installing the Basic Rate ISDN Module in the CCU
Remove the cover of the CCU as shown. Insert the Basic Rate ISDN module in the Network slot or slots in the CCU as shown:
To Locate the Digital Line Module (ISDN) in the Expansion Module

Remove the Expansion Module by firstly opening the Expansion Module cover

Open the Expansion Module and remove it from the MDF

Insert the Digital Line Module (or modules) on the MDF connectors

The upper slot is the first module position

The top connector is for the first module that connects to the Network only.

The lower connector is for the second module. This can be an ISDN Network connection or an internal ISDN S-bus connection.
**System ISDN settings**

The system can be configured with 8 Basic Rate ISDN interfaces. Half of these can be configured for internal S-bus operation.

The second interface on the CCU and each of the Expansion Modules can be programmed as S-bus interfaces for ISDN to-the-desk.

**T₀ interface termination**

An ISDN bus must be terminated twice, once at the start and once at the end of the bus. The Network Terminating Equipment (NTE) will provide the termination at the start of the bus. The end termination is also provided by the NTE if the Mitel 3000 is directly connected to one of the NTE RJ45 sockets.

If ISDN Extension cabling and sockets are provided between the NTE and the switch the end terminating resistor will normally be provided by an ISDN type 2 RJ45 line jack.

In both of these cases Mitel 3000 T₀ interface does not require the terminating resistor to be connected and the associated switches in the MDF associated with the T₀ interface must be set to OFF (Default).

**NOTE:** In the case of structured cabling if no end termination is provided, the associated switches in the MDF associated with the T₀ interface must be set to ON.

**S₀ interface termination**

An ISDN S-bus must be terminated twice, once at the start and once at the end of the bus. The Mitel 3000 S₀ interface emulates the Network Terminating Equipment (NTE) and consequently is always terminated with 100 ohm resistance. In this case the switches associated with the interface in the MDF must be set ON.
Voicemail module
The Voice module is coloured BLUE

It is located in the Voice Module slot in the CCU.

There are three versions, two-port with five hours capacity, four-port with 10 hours capacity and eight-port with 20 hours capacity.

A label identifies the different modules. The label location is indicated in the drawing below.

Back up Voice Module voice messages and Greetings
The ability to back up all the voice messages and greetings recorded on the voice module is available, so that they are not lost if the system software is upgraded. Before the software download is started the voice module information is retrieved using that option in the Maintenance and Programming Software.

Once this is done the voice module is effectively deactivated, therefore it is unavailable to users trying to record messages until the software download is completed and the voice module information restored back to the system.

The voice module is now re-activated and available for use and all the greetings and messages present before the software download are still present.
Primary Rate Interface

The Primary rate ISDN Module (30B+D) is coloured Yellow

It is located in the Primary rate ISDN Slot in the CCU
Connecting the battery backup unit to the system

The Battery back up provides full operation of the system for approximately one hour in the event of a power failure. The battery will support 11 erlangs of voice traffic for 1 hour.

An erlang is a measure of telephony traffic. 1 erlang = 1 circuit fully occupied for 1 hour

The Battery back up consists of the 12 V battery and the charger unit

**Before installing the battery charger unit ensure that the system is powered down by disconnecting the mains.**

To install the unit, remove the blanking cover on the left side of the CCU.

- Open the CCU main cover by releasing the four ‘quarter turn’ screws
- Slide the BBU in about half way.
- There are three cables connected to the charger unit. One with a connector, which connects to the PSU and two with spade connectors that are connected to the battery.
- Connect the cable with the connector to the PSU (Power Supply Unit).
- Thread the two cables for the battery up the cable guide to the battery compartment.
- Push the charger unit home.
- Replace the CCU cover.
Connecting the Battery

Ensure the battery switch on the BBU unit is turned off.

- This switch does not turn off the mains supply. The mains is disconnected by unplugging the mains cord

- Insert the battery into the battery cavity in the CCU

- Connect the cables from the battery charger to the battery ensuring that the cables are connected correctly. Red cable to Red battery terminal, black cable to Black battery terminal

- Turn the battery charger switch on.

- Reconnect the mains.

Light Emitting Diode (LED) Indicators

A status LED on the BBU is provided.

- GREEN indicates the unit is running from mains power and the battery is charging or fully charged.

- ORANGE indicates the unit is running off the Battery

- RED indicates that the battery is discharged

- Flashing RED indicates the battery is disconnected and the switch is running from the mains
Extensions

Sixteen key Feature phone

Sixteen key Feature phone connections (underside of phone)
All Sixteen key Feature phones are supplied with a 5v DC Power transformer
Eight key Feature phone

Eight key Feature phone connections (underside of phone)
Attaching the Feature phone desk plinth (Eight key and Sixteen key)

Position at 35 degrees

Position at 20 degrees
Direct Station Selection (DSS) unit

The sixteen key feature phone can be equipped with a 32 key DSS. This provides 32 additional programmable keys. Up to eight sixteen key feature phones can be equipped with a DSS. From the system programming menus, you program which extensions are equipped with this module.

To connect the DSS Console to a Feature phone (Sixteen key only)

Use the 15 cm cord to connect the DSS to the base of the sixteen key Feature phone. The DSS connector is marked on the base of the Feature phone.

Additional power must be supplied to the Feature phone. This is done by connecting the 5V power supply to the DC jack on the base of the Feature phone.
Clip, Plinth and installation of the DSS console

NOTE: For the 20 degrees position or the 35 degrees position, relate to page 28.
Wall-mounting a Feature phone

The phone plinth is inverted on the base to wall mount the phone.

Locate, drill and plug the 2 screw locations as shown below. The holes should be deep enough to accept a 2.5 cm screw. Insert the two screws leaving sufficient space to clip the base over them. Locate the phone and base over the screws.
Door Intercom

The door extension is connected to Extension 23, the fourth Extension on the CCU.

Connect the single pair from the door Extension to the AB connections on Extension 23. The system must be programmed to recognise the Door Intercom. Refer to the Administrator's Manual for programming details.
Cabling the unit

All Line and Extension circuit cabling is inserted from the top of the unit. There are breakouts as shown on the top of the unit to facilitate routing of cables into the MDF area.

Connecting the Extensions

It is recommended that all Extensions be cabled with two pairs. The Feature phones use all four wires and standard phones use the AB pair only. Do not exceed the following resistance or distance limits when connecting extensions to the System Unit. (The distances listed assume 0.5mm-tinned copper conductor is used).

- 100 Ohms, or 500 metres, for system Feature phones.
- 200 Ohms, or 1.4 kilometres, for a standard telephone

The Extension cables must be of twisted-pair construction, using insulated tinned copper wires of nominal 0.5 mm cross-sectional area.

Category 5 cable must be used for all ISDN installations.

It is important that this size and type of wire is correct since incorrect types can result in unreliable connections. Care should be taken to ensure that the cabling complies with all relevant cabling requirements.

Run cable from each Extension location to the Main Equipment. Pass the cable through the cable entry hole in the CCU or Expansion Module and terminate the Extension wiring at the appropriate connector in accordance with the table below.

Four wires per Extension are connected at the Main Equipment.

Spare wires must be neatly laid back away from the connectors. To prevent cross talk or interference, cable pairs should not be split or the spare wire of cable pairs used.

**All Extensions should connect into standard line jack units. Extension cabling should not be exposed to high voltage surges, (for example, surges induced by lightning or neighbouring high current-carrying cables). If this is a possibility external protection of the Main Equipment and Extensions using ‘earthed line surge protectors’ is essential.**
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<tr>
<td>B</td>
<td>Speech</td>
<td>Pin 4</td>
</tr>
<tr>
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<td>Data</td>
<td>Pin 2</td>
</tr>
<tr>
<td>D</td>
<td>Data</td>
<td>Pin 5</td>
</tr>
</tbody>
</table>

**Standard 4-Wire IDC Krone connector**

A Speech - RJ 11 Pin 3
B Speech - RJ 11 Pin 4
C Data - RJ 11 Pin 2
D Data - RJ 11 Pin 5

**CCU connections**

The CCU has the following connectors:

- Eight four-way krone connectors for the Extensions
- Two four-way krone connectors for the PSTN Lines. Two lines are terminated on each connector.
- Three RJ45 connectors for the Basic rate ISDN interfaces. Two T₀ network connections and one Internal S₀ connector.
- One RJ 45 for the ISDN Primary Rate interface PRI.
- One RJ11 connector for Serial Interface RS232 (V24)
- A two-position screw terminal for a doorstrike connection, labelled as “DS”
- An Electrostatic Precaution (ESP) connector.
- A reset switch is provided which provides a warm reset.
- Two 2 pole switches are provided which provide the 100 ohm terminating resistance for the ISDN Basic Rate terminations, SW1 and SW2.
Door Intercom
The door intercom is cabled to Extension 23, the fourth extension on the CCU. To operate the door extension it must be programmed in system programming. See the Programming section in the Administrator’s manual.

Doorstrike
The doorstrike port provides a closed relay contact when in the operated condition. The relay contact is designed for low voltage DC equipment and should not be used for any voltages greater than those specified within the technical specification.

Connecting a MOH (Music On Hold Module)
Any of the extensions on the system, with the exception of the programming position, can be programmed as the external music on hold position. The MOH Module is connected to the AB pair of the extension.

- The MOH Module is an optional component and must be ordered in addition to the system

The MOH Module provides an isolation barrier between the Extension Port and the Music Source and it MUST be installed if an External Music Source is being connected to an Extension Circuit

**The MOH Module contains:**
1. An adhesive pad for mounting in the MDF area of the CCU (see diagram)
2. A “bare wire” lead for connection to the AB connectors of an extension port
3. A 3.5mm Stereo jack for connection to the External Music Source
Installation and connection

1. Open the MDF Cover of the CCU
2. Remove the MOH Module from packaging
3. Ensure clear access to the MOH fitting position (as below)
4. Remove Adhesive Backing paper from MOH Module
5. Fit MOH Module using Adhesive Pad in area shown
6. Fit with cables exiting to Right Side as shown below
7. Route Extension cable to preferred extension on the CCU or Expansion module
8. Connect cable to AB port on extension using KRONE tool
9. Route the 3.5mm Stereo Jack connector to the Music Source external to the system, and connect source.
10. Complete any cabling and close the MDF.
11. Program the External MOH Extension Source
   
   11.1 Programming / System
   11.2 Music on Hold / Select External Source
   11.3 Select “External MOH Position”

Confirm operation and audio levels are satisfactory
Connecting a PA (Public Address) amplifier

Any of the extensions on the system, with the exception of the programming extension, can be programmed as a PA position. The PA is connected to the AB pair of the extension.

Mitel 3000 can work with two types of paging amplifiers on an extension port; those designed to work on telephone systems, and those that only offer a microphone input.

If the PA Amplifier is one designed to work on telephone systems then the extension port can be directly connected to the PA amplifier. On the amplifier, typically, the input is marked "telephone" and has the internal 600 ohm transformer isolated input built in.

If the paging amplifier is the type that provides a microphone input a 1:1 Audio Isolation transformer with a 600 to 900 ohm impedance must be connected between the extension port and the microphone input.

Connecting a PC or Printer to the Serial Port

A 2 metre RS232 (Serial) to V24 (RJ10) cable is provided.

Connect the cable to the RJ10 connector on the CCU.
Connect the serial port RS232 to the PC or to the DB9-DB25 converter if connecting to the printer.

The pinouts from the RS 232 interface of the DB9 to the RJ10 are:

<table>
<thead>
<tr>
<th>DB9 connector</th>
<th>RJ11 plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

Central Bell

If a central bell is required, connect it to a spare extension position and include the extension in the Ringing Groups that require the bell.
Expansion Module MDF Connections

The connections on the Expansion Module are shown below.

- Eight four-way Krone connectors for the Extensions
- Two four-way Krone connectors for the PSTN Lines. Two lines are terminated on each connector
- Three RJ 45 connectors for the Basic rate ISDN interfaces. Two T₀ network connections and one Internal S₀ connector.
- Two 2-pole switches are also provided for the 100 ohm terminating resistance for the ISDN Basic Rate accesses, SW1 and SW2.

Broadband Module connections

The Broadband Module has a built in ADSL modem. To connect to an ADSL line use the gray lead provided to connect between the ADSL connector on the MDF and the data port on the splitter. If connecting to a cable modem or a managed IP network use the blue cable to connect between the 10/100 Base-T WAN connector and the external router / modem.
There are six indicators (LEDs) on the MDF cover.
- Heartbeat – flashes to indicate normal processor activity
- ADSL - a solid light indicates ADSL line synchronisation
- LAN 1 - a solid light indicates an Ethernet connection
- LAN 2 - a solid light indicates an Ethernet connection
- LAN 3 - a solid light indicates an Ethernet connection
- LAN 4 - a solid light indicates an Ethernet connection

- There is an additional indicator inside on the MDF. This is the WAN indicator - a solid light indicates an Ethernet connection
Expanding an Existing system

Modules may be removed and re-inserted in a system without disconnecting the power. See page 41.

However if additional modules are being installed in a working system it is necessary to power the system down before installing an MDF or Backplane.

If additional network modules are to be installed in spare slots, the system needs to be reset before the switch recognises the new modules.

Installing an additional Network (PSTN or ISDN) module

Modules can be installed in spare slots on the system without powering the system down. However the module will not be activated until the system is reset. This can be achieved by pressing the reset button on the CCU MDF.

Pressing the reset button will invoke a warm reset and clear any calls in progress

Installing additional Extension modules or a Broadband Module

The system must be powered down before installing an additional MDF on the Backplane. When the MDF is installed it is recommended that the Module and any additional Network modules that may be required, be installed before the system is powered up. When the system is powered up the additional modules will be recognised by the system.

The power must be disconnected before installing an MDF or Backplane. If Battery Back up is provided ensure the BBU switch is off and the mains is disconnected.
Maintenance procedures
Faults can be rectified on site by replacing faulty modules or PCBs (Printed Circuit Boards).

Hot Swapping faulty modules
The Network modules can be replaced without powering the system down.

- If a Network module is replaced by the same type of module e.g. PSTN by PSTN, the switch will return to normal operation when the new module is inserted.
- If a Network Module is to be replaced by a different type of Network Module (e.g. a PSTN module replaced by an ISDN module) the system must be reset, by pressing the reset switch in the CCU MDF area, so that the system can recognise the new module type.

⚠️ If an ISDN line is replacing an PSTN line ensure the PSTN line cable is disconnected before connecting the ISDN Line or installing the module. The same applies if an PSTN line replaces an ISDN line.

- The Expansion Modules can be removed and replaced without powering down the system.
- The Voice module can be removed and replaced without powering down the system.
- When a Voice Module is replaced all recorded messages and greetings are lost.
- The Broadband Module cannot be removed and replaced without powering down the system.
- The Primary Rate ISDN Module can be removed and replaced without powering down the system.
Replacing a faulty Module MDF
To replace a faulty MDF of an Expansion or Broadband Module the procedure is as follows:

1. Remove the cabling from the MDF ensuring the cables are correctly tagged so they can be readily reinstalled.

2. Power the system down by unplugging it at the mains.

3. If a battery is installed turn off the BBU switch to disconnect the battery.

4. Remove the Module and any Network modules if appropriate.

5. Unlock the MDF module by pulling the locking bar down with a screwdriver.

6. Remove the MDF.

7. Reverse the procedure to install a new MDF.
Replacing Faulty PCBs

Replacing the 008 Extension board

If a fault occurs on the first eight Extensions the 008 Extension PCB must be replaced.

This PCB is NOT hot swappable. The System must be powered down to change this board

The procedure in replacing the 008 PCB is:

ESD precautions must be taken when replacing this board. Connect to the ESD pillar on the CCU MDF before removing the CCU cover

1. Power the system down by unplugging it at the mains.
2. If a battery is installed turn off the BBU switch to disconnect the battery.
3. Remove any voice or network modules installed.
4. Open the CCU main cover by releasing the four ‘quarter turn’ screws indicated in the first diagram below.
5. Remove and replace the 008 card as indicated in the second diagram.
6. Replace the cover.
7. Replace any voice or network modules.
8. Replace the cover and power the system up.
Replacing the CCU Control PCB

This PCB is NOT hot swappable. The System must be powered down to change this board

ESD precautions must be made when replacing this board. Connect to the ESD pillar on the CCU MDF before removing the CCU cover

The procedure to be used when replacing the CCU control PCB is:

1. Power the system down by unplugging the battery at the mains.
2. If a battery is installed turn off the switch.
3. Remove any voice or network modules installed.
4. Open the CCU main cover by opening the four ‘quarter turn’ screws indicated in the first diagram below.
5. Remove the 008 card as indicated in the second diagram.
6. Remove the three fixing screws on the CCU control PCB as indicated.
7. Remove the power lead from the left-hand side of the CCU control PCB.
8. Slide the PCB to the left to remove it.
9. Reverse the above procedure to install a new PCB.
Power supply unit spare fuse
A spare fuse is located in the Power supply unit. It is in a holder directly below the installed fuse. If there is no power being supplied to the unit check if the fuse is blown using the following procedure:

1. Power the system down by unplugging it at the mains.
2. If a battery is installed turn off the BBU switch to disconnect the battery.
3. Remove any voice or network modules.
4. Open the CCU main cover by opening the four ‘quarter turn’ screws indicated in the first diagram below.
5. Check the fuse on the Power supply
6. If it is blown replace it with the spare fuse

Replacing the Power Supply Unit
The procedure to be used when replacing the Power Supply unit is:

1. Power the system down by unplugging it at the mains.
2. If a battery is installed turn off the BBU switch to disconnect the battery.
3. Remove any voice or network modules.
4. Open the CCU main cover by opening the four-quarter turn screws indicated in the first diagram below.
5. Unplug the PSU cable from the CCU PCB.
6. Disconnect the mains lead.
7. Disconnect the Battery charger lead if equipped.
8. Unscrew the four retaining screws on the PSU as indicated below.
9. Remove the PSU.
10. Reverse the above procedure to install a new PSU
Replacing the CCU MDF

⚠️ This PCB is NOT hot swappable. The System must be powered down to change this board

⚠️ ESD precautions must be made when replacing this board. Connect to the ESD pillar on the CCU MDF before removing the CCU cover

The procedure to be used when replacing the CCU MDF unit is:

1. Power the system down by unplugging it at the mains.
2. If a battery is installed turn off the BBU switch to disconnect the battery.
3. Remove any voice or network modules installed.
4. Remove the MDF Cabling making sure to tag the cabling so they can be readily reinstalled.
5. Open the CCU main cover by opening the four-quarter turn screws indicated in the first diagram below.
6. Remove the 008 PCB
7. Remove the retaining screw in the MDF PCB
8. Remove the MDF PCB
9. Reverse the above procedure to install a new MDF PCB
Power fail

When planning the extension wiring for the system, consideration should be given to the use and location of feature phones and 2-wire extensions where they may be used in power-fail situations.

PSTN

In the event of a total system power failure, at least 50% of the equipped lines are switched to Extensions. Lines 1 and 2 are power-failed to Extensions 26 and 27, the last two Extensions on the basic unit. Line 5 is power-failed to Extension 34 and Line 7 to Extension 35, the last Extensions on each of the expansion boards. These line positions are summarised in the table below.

Note: If lines are power-failed to Extension positions equipped with Feature phones, the user must replace the Feature phone with a standard 2-wire phone to answer or make calls. FEATURE PHONES CANNOT BE USED IN POWER FAIL.

<table>
<thead>
<tr>
<th>Line position</th>
<th>Power-fail Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line 1</td>
<td>Stn 26</td>
</tr>
<tr>
<td>Line 2</td>
<td>Stn 27</td>
</tr>
<tr>
<td>Line 5</td>
<td>Stn 34</td>
</tr>
<tr>
<td>Line 6</td>
<td>Stn 35</td>
</tr>
<tr>
<td>Line 9</td>
<td>Stn 42</td>
</tr>
<tr>
<td>Line 10</td>
<td>Stn 43</td>
</tr>
<tr>
<td>Line 13</td>
<td>Stn 50</td>
</tr>
<tr>
<td>Line 14</td>
<td>Stn 51</td>
</tr>
</tbody>
</table>

ISDN

In the event of a total system failure, the ISDN lines will not operate. ISDN devices can be connected directly to the ISDN NTE or an external S bus, and work independently of the system.
Power up and test

- Ensure the mains plug is fitted with a 3A fuse.

Switch on

- Power up the system by inserting the mains plug.
- Wait 30 seconds for the system power up routine to be complete. Check that the vital activity LED is flashing. This is the top led of the four LEDs in the CCU MDF area.
- Check the Power led is lighting. This is the third led in the CCU MDF area.
- Check the DSP led is flashing. This is the fourth led in the CCU MDF area.

Commissioning

1. Remove any anti-scratch protective film from Feature phone LCD’s.
2. Label up all Feature phones and other telephones.
3. Ensure that all Feature phones provide dialling tone, ringing and hands free (loud speaking) facilities. Check that the display is not showing corrupt information.
4. Reset the system to default.
5. Check that all other telephones are connected. Make sure all these phones ring and that you can dial from them.
Programming

Essential programming is carried out either from a Feature phone connected to Extension 20 or via the Programming and Maintenance software on the programming PC.

Ensure that the following programming is done.

**Equipped exchange lines**

The system assumes that all line cards have lines connected to them. If lines are not connected, it is vital to unequip these lines in system programming, as follows:

- From the programming position, press the phone programming key select ‘System programming’.
- Enter the PIN and select ‘Lines’.
- Select ‘Equipped lines’.
- Equipped lines are denoted by ◆. Unequipped lines are denoted by ◊.
- Press HANDS FREE to finish programming.

**Incoming ringing**

The phones to be rung for incoming calls are programmed as follows

- Select 'Lines'
- Select 'Incoming Ringing'
- Select the Line or Access
- Select ‘Day mode’, ‘Night Mode’ or ‘Day and Night mode’
- Select whether the line is to ring a Extension or Group. If the Line is to be presented to the Auto Attendant or Courtesy service it is selected here.

Note that the first 8 Extensions are in group 1 as default. To change the Extensions in a group, select 'Lines' and then 'Group Programming'.

**Call Barring**

Extensions are entered into different Classes for barring purposes. There are 6 classes selected under 'Extension' programming. There are also four tables of codes selected in 'System' programming which determine additional codes that are barred or allowed:

- Select 'Extensions'
- Select Restriction classes
- Select 'Day class of service' or 'Night class of service'
- Select the class and enter the Extensions
- Class 1 is no calls barred
- Class 2 is International calls barred. Also any additional codes added to Table 2 in Class codes programming are barred
- Class 3 is National and International numbers barred. Also any additional codes in Tables 2 and 3 in Class codes programming are barred.
- Class 5 is associated with Extensions when codes entered in the ‘Allowed Table’ in Class codes programming are to be allowed. This is combined with Classes 2 and 3
- Class 6 is the additional restriction codes in the ‘Restricted Table’ in Class Codes programming. These can be combined with Classes 1,2 and 3.

**Note:** As the Mitel 3000 can support both ISDN and PSTN, it may be necessary to enable features for ISDN and PSTN options on the same system.
Recommendations for customer training

As part of the installation, the customer is entitled to a 30 minute, system familiarisation tutorial. This should cover the following:

- Use of the Feature phone menus and associated keys
- Taking, making and transferring calls on Feature phones and two-wire phones
- Accessing system programming

The customer may wish to use the 30 minutes to explain a selection of other features, such as:

- Call transferring capabilities
- Programming Feature phone keys
- Time and date programming
- System and/or personal speed dial programming
- Incoming call handling
- Call barring, class of service parameters
- Extension reset facilities
- Connecting modems, fax machines, EPOS machines, etc.
- Use of Voice module features.

The features should be explained by using the:

- Mitel 3000 Phone Quick Reference Guide
- Getting Started Guide.

Ensure the customer has:

- Phone Quick Reference Guide for each Extension
- One copy of the Getting Started Guide
- Mitel 3000 CD-ROM.
Troubleshooting

All faults can normally be traced quite readily to a particular PCB. Prior to replacing any PCB, fault conditions should be checked to see if they are caused by programming or mis-operation. The Feature phone display will often indicate which system features have been set.

- **System not initialising**
  Check that all system cards have been properly installed, with all connectors fully located.

- **No incoming calls**
  Check that all phones programmed to ring are not programmed for DND or divert.

- **Extension outgoing locked**
  If you cannot get outgoing access on a 2-wire telephone, move a Feature phone to the Extension. If it shows EXT LOCK, the Extension has been locked and you will need the unlock code to unlock it.

- **No Extension dial tone**
  Check that the Extension has not been disconnected through programming.

- **Not seizing a line for outgoing calls**
  Check if the line has been programmed for incoming calls only.
  Check if the line is equipped in programming.
  Check that the key is programmed for line access.

- **Door Intercom not operating**
  Check the programming for the door extension.

- **Phone reset**
  Remember the simple phone reset code 739, which can be dialled from any Extension phone.

- **System reset**
  **Reset**: To do a warm reset of the Mitel 3000 press the reset button on the CCU MDF. You may also choose programming mode and choose system, reset options, and reset.

  **Reset to default**: To do a cold reset of the Mitel 3000, enter programming mode and choose system, reset options, and reset to default.

  ![Warning]

  This will reset ALL programming to factory default.
Additional troubleshooting information

Voice Mail

<table>
<thead>
<tr>
<th>Calls to an extension are giving a busy tone and showing 'Invalid' on the display.</th>
<th>When a voice mailbox is programmed for an extension, Forward On No Answer is automatically set to it. When the voice mailbox is removed through programming, the Forward On No Answer is automatically removed. However, if the extension has set Forward All Calls or Forward When Busy to the voice mailbox then both of these forwarding options must be manually canceled from the extension telephone. If they are not the system will attempt to forward the calls to voice mail that is no longer there and gives the 'Invalid' indication and busy tone.</th>
</tr>
</thead>
</table>
| The Voice Mail is not operating but the module is installed. | 1. If the voice mail is installed after the system has been powered up it will not operate until the system is reset. Use the reset button in the MDF or the 'Reset option in system programming or power the system on and off again.  
2. You must allow an additional 30 seconds after the system has returned from the reset before the Voice mail becomes available. |
| Voice mail passwords are not as programmed. | If more than eight digits are entered for the voice mail password, the password is not changed and the original password is retained (1111 in default). Up to eight digits can be set as a voice mail password. Voice mail passwords can be checked in System Programming / Extensions / Examine Passwords. |
| The voice mail messages are not properly restored after a new software version is downloaded. | Allow sufficient time for system and voice mail to reset properly before reconnecting and sending the database. An option is provided in the “System” drop-down menu of the Maintenance and Programming Software application to allow the voice mail greetings and messages to be retained after a new system program has been flashed to the system. The procedure for flashing a new operating system program to the Mitel 3000 is as follows:  
1. Connect to the switch with the Maintenance and Programming Software application either locally (on site) via the serial interface or remotely.  
2. Retrieve the full database of the switch and store it in an appropriately named file.  
3. Retrieve the Voice Mail file using the VM Backup \ Restore Manager in the System drop-down menu. (When this data is being retrieved, the voice mail ports on the switch are temporarily disabled to prohibit changes to the voice mail until the file is restored).  
4. Send the new system software to the switch. When the file is sent, the system will automatically reset and the connection to the switch will be broken.  
5. Do not reconnect to the switch for some 90 seconds to allow both the switch and the voice mail to reset correctly. The switch will start running approximately 30 seconds before the voice mail, and if you reconnect in this period and re-send a database or the voice mail file, the voice mail will not be correctly programmed and some messages will be lost. |
### Caller ID

<table>
<thead>
<tr>
<th>No Caller ID information is shown on a telephone connected to a dataport on an Feature Phone</th>
<th>The data port is primarily intended for PC modems rather than standard telephones. Caller ID information is supplied to Feature Phones as a digital signal on the c-d pair. This means that the Caller ID information is not supplied on the a-b pair, so it is not available to any device connected to the data port on the Feature Phones.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Caller ID number shown on Caller ID telephones shows the digit 0 before the number</td>
<td>The Caller ID information for internal and external calls is supplied to the phone. The 0 is inserted when the number is received from an external call. The 0 is not stored when the call is received from an internal call. Using the 0 allows both internal and external calls to be redialed from within the phone's Caller ID store.</td>
</tr>
</tbody>
</table>

### Feature Phones

<table>
<thead>
<tr>
<th>When a telephone is connected to a dataport on a Feature Phone there are issues with calls.</th>
<th>The data port provides the location for the connection of devices such as PC modems, cordless telephones, additional ringers/ringer lights or recording equipment (recording equipment needs to be ac coupled). It is important not to go off hook on a cordless telephone or modem when on a call on the feature phone as you will hear 'dead air' on the feature phone, which might be mistaken for a loss of transmission. Equally, do not try to operate the feature phone when the data port (analog phone or modem) is off-hook. If you are swapping between a Feature Phone and cordless telephone you should go off hook on the cordless telephone before hanging up on the Feature Phone if you want to maintain the call in progress. <strong>Note:</strong> If your modem is configured in auto-answer mode (for example because the connected PC is running a fax or answering machine application), then incoming calls may be answered unexpectedly by the modem.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Speakerphone key is flashing permanently.</td>
<td>As Designed. This shows that handsfree intercom answer is enabled.</td>
</tr>
<tr>
<td>Some Feature Phone settings are missing.</td>
<td>The phone programming settings are not updated when a database is restored. This includes:-  - Auto Answer  - Headset mode  - Background music  - Ringing Options  - Contrast Options  The Time and date is not restored. This needs to be set separately when a database is restored as the recovered time will not be correct by the time it is resent.</td>
</tr>
</tbody>
</table>

### Phantom Calls

| When a call is answered there is no one there. | This is usually caused when the caller has hung up and the phone(plies) continue to ring for a period. If the ringing phones are answered during this period it will appear to be a "Phantom call" - no one is on the line. The ringing signal on the PSTN line is ringing on for 1 second, off for 4 seconds, repeated. When a caller hangs up the line stops sending the ringing signal. However the system will not be aware that the ringing has stopped for some seconds. The system will stop ringing the internal extensions when it has not detected a ringing signal on the line for a period 5.5 seconds. The internal phones will still indicate there is a call |
ringing within this interval. This period will be variable but can be up to the 5.5 seconds. If a phone is answered in this period there will be no one on the line as this is a function of the ringing signal detection timing, there is nothing that can be done other than make the user aware of the issue.

If the call is on a line that is programmed for Auto-Attendant or Courtesy Service, it is essential that the PSTN line has calling party supervision. This provides a disconnect signal when the outside caller goes on hook When a call is received by the system, the Auto-Attendant or Courtesy service will answer the call and ring the appropriate extension(s). If the external caller hangs up before an extension answers the call, the line will send a disconnect signal to the system. The system detects this signal and stops ringing the extensions.

If the PSTN line is not supervised, the caller can go on hook but as no indication is given to the switch that the caller has gone, the switch will continue to ring the internal extensions until the ring detection timer times out on no repeated ring from the network provider. When this call is answered there will be no one there. It is important to check with the network provider that Calling Party Disconnect supervision is provided on the lines connected to the system.

Call Pickup

<table>
<thead>
<tr>
<th>Call Pickup is not answering calls.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The 'Call Pickup' facility allows extensions within the same group to answer each others calls. All calls to the extension, internal and external, are answered using this facility. Separate pick up group programming is not provided. However, up to 20 groups can be programmed in the system. Program the extensions that are to answer each other's calls using the 'Call Pick up' facility into groups. Up to 16 extensions can be entered into each group.</td>
</tr>
</tbody>
</table>

Open the door facility

<table>
<thead>
<tr>
<th>When the 'Open the Door' facility is operated from a Feature Phone the door does not open.</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is most likely because the key on the Feature Phone is pressed for greater than 2 seconds. This timer applies to all keys on the system phones and if the key is pressed for too long a period it is ignored. In the case of &quot;Opening the Door&quot; some people are used to pressing door opening keys for the duration they expect the door to stay open and are inclined to press the key for too long a time.</td>
</tr>
</tbody>
</table>

Flexible Numbering

<table>
<thead>
<tr>
<th>How do I return to a two digit numbering scheme?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The default setting on the Mitel 3000 is that the extension numbers are two digits long. If a system is reprogrammed with a three- or four-digit numbering scheme, it must be reset to its default values to get back to a two-digit numbering plan. It is possible to go between three and four digit numbering by reprogramming rather than defaulting. If the numbering plan is being changed in the flexible numbering programming, it is essential that this is the first programming to be carried out as it affects many of the other programming options.</td>
</tr>
</tbody>
</table>
### Ringback to a busy extension

| Ringback to a busy extension does not seem to work. | When ringback is set to a busy extension, it operates immediately the called extension becomes free as long as the extension that set up the ringback is also free. If the extension that set up the ringback is busy, when the other extension becomes free, the operation is different. In this case, the ringback is activated when the extension that has the ringback set to it becomes free and then goes off hook and on hook again. This is the same operation when a ringback is set to an extension when it is ringing. |

### Group Divert

| Calls to a group are not diverting. | Calls to groups are diverted only if the Group Divert facility is programmed. If group calls are to be forwarded to a mailbox, they can only be diverted to the Group Mailbox. Individual extensions can forward their phone to their own voice box. However only calls for the extension (not calls to the group that may be ringing the phone) will be forwarded to the extension's voice box. These calls are internal calls to the extension, dialed using the extension number (not the group number), incoming calls to the extension routed using Caller ID, or lines programmed to ring the extension only. |

### Modems

| Calls to the switch are answered with modem tones. | During the Beta trial of Mitel 3000, it was found that a number of sites had modems connected to the lines and they were answering calls before the calls were answered by the system. It is important to check, particularly on small office or domestic sites that did not have a system installed, that all Fax machines, modems, etc. are connected to extension ports in Mitel 3000. |

### System Time

| Why is the time on the system incorrect? | The time on the Mitel 3000 must be corrected after a reset or software upgrade. The time is reset to a default setting if the switch is reset to default. The clock also loses some time during a power/switch reset. If there is Caller ID on the lines the time is corrected on the first incoming call after a reset so in this case the time is corrected automatically. However if there is no Caller ID on the CO lines the time must be reset from the programming phone or the Management and Programming application, MPS. It should be noted that the time is updated immediately if there is no outgoing PSTN Line call in progress. However, in order to ensure the duration of any originating calls in progress is correctly logged in the SMDR the update of the time is held off until there is no originating call in progress. |

### Answering machine

| How do I remotely retrieve messages left in the answering machine? | Call into the system and when the answering machine answers, dial ". Call when it asks for an extension, dial 9 for the answering machine, not 20. Dialing 20 accesses the voice mail for extension 20 and not the answering machine. |
Standard Telephones

| The bells on standard telephones tinkle. | Mitel 3000 provides a message-waiting signal to standard telephones using the CallerID protocol. The CID signal is preceded by a reversal to put the phone into "listening" mode so that it correctly detects the signal. On some older phones with electromechanical ringers the bell will "tinkle" when a reversal is sent. So if an extension is programmed with a voice mail box, or is in a group that has a group box, it may tinkle when the signal to turn the 'message waiting' indication on or off is sent to it. The message is sent: - When a new message is left in a box. When the indication is being turned off. It is also sent some seconds after the handset is replaced on every call. This is to ensure that the message indicator on CID phones are in sync with the voice mailbox. This may cause the bell to tinkle about 5 seconds after the user goes on-hook. |

Loop Start Lines

| There is a delay in ringing extensions on incoming calls. | If Caller ID is not provided on the lines and the system is programmed to expect Caller ID, there will be a delay between calls being presented to the system and the extensions ringing. This is caused by the system trying to detect the Caller ID signal after the first ring burst. It delays a period of several seconds trying to detect the Caller ID signal before it rings the extensions. This delay can be eliminated by reprogramming the lines not to detect caller ID. If Caller ID is presented on the line, there is a delay as the system detects the Caller ID information after the first ringing burst and transmits it to the extensions. The extensions are rung when the Caller ID information has been decoded and the information can be presented to the extensions. This can cause a delay of some seconds before the extensions are rung. |

SMDR Printout

| Dialed digits not showing in SMDR printout or on system phone display | This is because the line or lines are incorrectly programmed as "Loop Calling" lines. Go into programming lines and turn the loop calling off for all lines. Loop calling should only be used for a ring down circuit / tie line. |

External Calls

| There is a delay in hearing ring back when I make an outbound call. | If a call is made by dialing 0 and continuing to dial the phone number without waiting for the PSTN line dial tone, there will be a delay in switching through the speech path after the call is dialed. This is because the system stores the digits and then resends them once the Network provider dial tone is detected. However, the system does not know when the last digit is dialed so it switches the speech path through if it has not detected a dialed digit for about 4 seconds. If this is causing a problem, users should wait after dialing 0 and then continue dialing the number when they hear the Network provider dial tone. This delay will always be present if they use redial on standard phones. |
## Router

| I cannot access remote servers via the router. | The Mitel 3000 Broadband Module is specifically designed as an Internet Sharing device for small businesses. It is not designed to provide the Branch Office or VPN access. It does not support VPN passthrough. It is designed purely to enable web access to multiple client PCs. VPN passthrough is typically used for Branch Office Remote Access, which is not supported. |
Software Upgrade Instructions
This is the procedure to be followed upgrading software on the Mitel 3000. Once connected
the same procedure applies if you are connected over a modem or via the Serial Port.

- Connect to the switch using MPS
- Retrieve and save the Database Programming using the “Get All and Save” command.
- Retrieve and save the VM messages and greetings using the “Voice Mail BackUp Manager” (under “System Programming”)
- Select the SW Flash location (Flash 1 or Flash 2)
- Select the “Flash Files” tab and locate the pabxxx.olp file for the software version to be downloaded
- Send the pabxxxx.olp file to the switch.
- The system will reset after the flash has been sent.
- Allow at least 90 seconds for the reset then reconnect.
- Send the saved database file using “Load and Send All”
- Set the time and date by selecting “System Date and Time”
- Restore the VM messages and greetings using the “Voice Mail Restore Manager”

Connecting to the Mitel 3000 locally
Select “Connect” button, on the MPS, select the “V24 via serial Port” radio button and press
the “Connect” button.
If a connection cannot be made, recheck the connections on your V24 cable and that the
correct serial port and speed are correct.

Connecting to the Mitel 3000 Remotely
Call the customer and ask them to transfer your call to “721”, retrieve your call from hold and
hang up.
Then select the “Connect” button, on the MPS, select “PSTN”, enter the remote telephone
number and select “Dial”.

NOTE: If using the US Robotics modem please insert four commas after the telephone
number. There is no need to insert commas if using a Multitech modem.

If a connection cannot be made recheck, the connections on your modem, that the correct
serial port, and telephone number (including trunk access digit if necessary) are being used.
Also check that the correct modem is selected from the list on the “Setup/PSTN
Configuration” menu.

Retrieving the Customer Database.
This is done by selecting the “Get All and Save” button in the MPS. Select a file name and
location.
Retrieve the Customer VM messages and greetings
This is done by selecting the “VM Backup Manager”. First select a file name and location (saving as a ‘.xml’ file) then select “Backup VM Database”.

Select the Software Flash location
This is done by selecting the flash location (choice of flash 1 or flash 2) and selecting “Set Flash Options”.

**NOTE:** Flash 1 should be used.

Sending the new Software File.
Select the Flash Tab and select the “PBX System Software”. Select the file to be downloaded, which is pabxxxx.olp

When the flash is updated the system will reset and you will be disconnected. Reconnect to the switch (after allowing 90 second for the reset to finish).

Restore the Customer Database.
This is done by selecting the “Load and Send All” button in MPS. Select and send the Customer Database file that you saved earlier.

Set the correct time and date
This is done by selecting “System Date and Time”.

**NOTE:** The system time and date must be set following a cold reset or a software upgrade. The system time and date is updated daily when caller ID from the network is sent. However to ensure the correct year is displayed please change the year following a cold reset or a software upgrade.

Restore the customer VM messages and greetings
This is done by selecting the “VM Restore Manager”. First select the customer file using “open” then select “Restore VM Database”.

**NOTE:** The customer programming database must be restored before restoring the VM messages and greetings. Also the time must be set before the Voice Mail is reinstated as an incorrect time in the switch may trigger the clean up routing and delete messages.

**NOTE:** If the switch is equipped with Caller ID lines you could program the Caller ID of the phone you are calling from, before you start the process. This information is retained in the switch even after the reset when the Flash is upgraded. This will allow you to reconnect without disturbing the customer.
### Technical specification

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of system</strong></td>
<td>Hybrid/PBX</td>
</tr>
<tr>
<td><strong>ISDN line</strong></td>
<td>Max 8 ISDN (2B+D) Basic Rate lines</td>
</tr>
<tr>
<td><strong>PSTN lines</strong></td>
<td>Max 16 PSTN lines</td>
</tr>
</tbody>
</table>
| **Terminals**                                | Max 40 standard terminal  
                      Max 40 eight key Feature phone  
                      Max 40 sixteen key Feature phone  
                      Max 8 DSS console - Additional 32 programmable keys |
| **Extension capacity**                       | 40 |
| **Feature phone capacity**                   | 40 |
| **Standard 2-wire apparatus capacity**       | 40 |
| **Extension loop resistance**                | 67 ohms (0.4 km) 4-wire Feature phones  
                      336 ohms (2 km) Standard Telephone |
| **System REN**                               | 40 |
| **Extension REN**                            | 2 (see above for system max.) |
| **Extension cabling**                        | Standard 4 wire  
                      Twisted pair 0.5 mm cu |
| **Main Equipment (CCU) 008**                 | Height 390 mm  
                      Width 295 mm  
                      Depth 160 mm  
                      Weight 3.5 kg |
| **Maximum capacity system 8+32 CCU**         | Height 390 mm  
                      Width 595 mm  
                      Depth 160 mm  
                      Weight 6.1 kg |
| **Battery**                                  | 12 V/7.2 AH |
| **Mains supply voltage**                     | 230 ± 10% V 50 Hz |
| **Maximum power consumption**                | 150 watts |
| **Standard 2-wire telephone signalling**     | DTMF |
| **Standard 2-wire telephone recall signal**  | Timed break |
| **Serial Port**                              | 8 bit, no parity, 1 stop bit speed programmable 115k2, |
| **Voice Mail Capacities**                    | 2 Port 5 hours messaging capacity supporting 40 mailboxes, 10 Phantom Voice Boxes, 20 Group Boxes  
                      4 Port 10 hours messaging capacity supporting 40 mailboxes, 10 Phantom Voice Boxes, 20 Group Boxes  
                      8 Port 20 hours messaging capacity supporting 40 mailboxes, 10 Phantom Voice Boxes, 20 Group Boxes  
                      Maximum message length is default at 3 minutes but is programmable up to 5 minutes |
| **Music on hold**                            | External calls only  
                      Internal or External source |
| **Tone on hold**                             | 200 ms on 200 ms off, 200 ms on 3.4 s off |
| **External Music on hold**                   | Stereo jack connector  
                      Input impedance 10k ohm  
                      Nominal 775 mV RMS |
| **External Paging Port**                     | Output Level 25 - 32mA  
                      Impedance 600 ohm |
| **System speed dials**                       | Max. 500 |
| **Extension current and voltage feed**       | Voice 40 volts 25 mA constant current (nominal)  
                      Data 40 volts 10 mA constant current (nominal) |
<p>| <strong>Dial tone duration</strong>                       | 10 s |
| <strong>Programming</strong>                              | Feature phone (default Extension 20) or PC Wizard through |</p>
<table>
<thead>
<tr>
<th>Remote access</th>
<th>On ISDN or PSTN Lines. (Built in V32bis modem)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ringing voltage/frequency</td>
<td>± 40 V 50 Hz (trapezoid)</td>
</tr>
<tr>
<td><strong>Ringing cadences</strong></td>
<td><strong>Tone frequencies</strong></td>
</tr>
<tr>
<td>Incoming call</td>
<td>400 ms on 200 ms off, 400 ms on 2.0 s off</td>
</tr>
<tr>
<td>Internal call</td>
<td>1 s on 2 s off</td>
</tr>
<tr>
<td>Door Intercom call</td>
<td>400 ms on 2.6 sec off</td>
</tr>
<tr>
<td>Call recalling</td>
<td>1s on 400 ms off, 400 ms on 1.2 s off</td>
</tr>
<tr>
<td>440 Hz ±5 Hz, unless stated otherwise</td>
<td></td>
</tr>
<tr>
<td><strong>Tone frequencies</strong></td>
<td><strong>Environmental requirements</strong></td>
</tr>
<tr>
<td><strong>Tone cadences</strong></td>
<td><strong>Doorstrike relay contact</strong></td>
</tr>
<tr>
<td>Dial Tone</td>
<td>Continuous tone of 440 Hz ±5% and 350 Hz ±5% combined</td>
</tr>
<tr>
<td>Special dial tone</td>
<td>800 ms on 800ms off of 440 Hz ±5% and 350 Hz ±5% combined</td>
</tr>
<tr>
<td>Ringback tone</td>
<td>1 sec on 2 sec off</td>
</tr>
<tr>
<td>Busy tone</td>
<td>500 ms on 500 ms off</td>
</tr>
<tr>
<td>Congestion tone</td>
<td>200 ms on 200 ms off</td>
</tr>
<tr>
<td>Hold tone</td>
<td>200 ms on 200 ms off, 200 ms on 3.4 s off</td>
</tr>
<tr>
<td>Conference tone</td>
<td>One burst of 400 ms</td>
</tr>
<tr>
<td>NU tone</td>
<td>Continuous tone</td>
</tr>
<tr>
<td>Call waiting tone</td>
<td>100 ms on 4.9 s off</td>
</tr>
<tr>
<td>Normal working temperature</td>
<td>0°C to 40°C</td>
</tr>
<tr>
<td>Working humidity (non-condensing)</td>
<td>5% to 95%</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Storage humidity</td>
<td>5% to 95% @60°C</td>
</tr>
<tr>
<td>Max rating</td>
<td>24 Volts DC 2 Amps</td>
</tr>
<tr>
<td>Safety Standard</td>
<td>AS/NZ 60950</td>
</tr>
<tr>
<td>Door Intercom Size</td>
<td>Height 203 mm</td>
</tr>
<tr>
<td></td>
<td>Width 703 mm</td>
</tr>
<tr>
<td></td>
<td>Depth 38 mm</td>
</tr>
<tr>
<td>Colour of System</td>
<td>Charcoal ref: Pantone 432C</td>
</tr>
<tr>
<td>Broadband Module Info</td>
<td>LAN 4 x 10/100 Base-Tx Extension</td>
</tr>
<tr>
<td></td>
<td>DSL On Board ADSL Modem</td>
</tr>
<tr>
<td></td>
<td>ISDN Access to B-channels on PABX PPP</td>
</tr>
<tr>
<td></td>
<td>Protocols IP V4</td>
</tr>
<tr>
<td></td>
<td>Authentication PAP/CHAP</td>
</tr>
<tr>
<td></td>
<td>DHCP DHCP server</td>
</tr>
<tr>
<td></td>
<td>Routing Static routing</td>
</tr>
<tr>
<td></td>
<td>Firewall NAT, Packet filtering, stateful inspection.</td>
</tr>
<tr>
<td></td>
<td>VoIP 12 VoIP channels</td>
</tr>
<tr>
<td></td>
<td>Management Local management via MPS or LAN Browser.</td>
</tr>
<tr>
<td></td>
<td>Remote management via MPS over CO Line</td>
</tr>
<tr>
<td></td>
<td>Hotel Facilities</td>
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<td></td>
<td>Optional software</td>
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<tr>
<td></td>
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<td></td>
<td>Room Status</td>
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<td>Guest / Administration extensions</td>
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<tr>
<th>Location</th>
<th>Global Headquarters</th>
<th>U.S.</th>
<th>EMEA</th>
<th>CALA</th>
<th>Asia Pacific</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Tel: +1(613) 592-2122 Fax: +1(613) 592-4784</td>
<td>Tel: +1(408) 961-9000 Fax: +1(408) 961-1370</td>
<td>Tel: +44(0)1291-430000 Fax: +44(0)1291-404000</td>
<td>Tel: +1(613) 592-2122 Fax: +1(613) 592-7825</td>
<td>Tel: +852 2508 9780 Fax: +852 2508 9282</td>
</tr>
</tbody>
</table>

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