



IP Office - Small Office Edition

Installation Manual

Contents

Introduction.....	4
General.....	4
Scope of Manual	4
The IP Office - Small Office Edition Platform.....	5
General.....	5
Power Fail	5
Avaya IP Office - Small Office Edition (Front View)	6
Port connections	6
Avaya IP Office - Small Office Edition (Rear View).....	7
Port connections	7
Typical Configurations.....	8
Home Based Business.....	8
Single Site Business	9
Multi-site Business	10
Country Variants.....	11
Avaya IP Office - Small Office Edition Systems	11
Trunk Module Kits	11
Power Supplies	12
Avaya IP Office - Small Office Edition PCMCIA Cards	12
Avaya IP Office - Small Office Edition Applications	13
Preparing for Installation	14
Introduction.....	14
Tools & Parts Required	14
Space requirements	14
Environmental requirements	15
Power Supply Requirements.....	15
Installing a New System	16
Unpacking.....	16
Initial Assembly - Overview	16
Avaya IP Office - Small Office Edition Shelf/Wall Mounting.....	17
Installation of Integral Modules	18
Basic System Programming.....	19
Introduction.....	19
Programming Tools	19
PC to Avaya IP Office - Small Office Edition LAN Port Connection	19
Initial Programming	20
Telephone Installation	22
Checking Telephones.....	22
Connecting & Testing Avaya IP Office - Small Office Edition Telephones.....	22
Connecting & Checking Two-Wire Telephones.....	23
Power Fail Telephones and Sockets	23
Wall Mounting 2000 Series Telephones	24
Wall Mounting 44/4600 & 6400 Series Telephones.....	25
System Handover	26
Checklist.....	26

Contents (Cont.)

Safety and Homologation Statements.....	27
Lithium Batteries.....	27
Lightning Protection/Hazard Symbols.....	27
Electromagnetic Interference Information.....	28
Federal Communications Commission (FCC).....	28
Canadian Department of Communications (DOC).....	28
Trunk Interface Modules.....	29
ROW.....	29
USA/Canada.....	29
Further Information and Product Updates.....	29
Support Telephone Numbers.....	29
Regulatory Instructions for Use.....	30
Avaya IP Office - Small Office Edition Operation in Australia.....	30
Avaya IP Office - Small Office Edition Operation in Canada.....	30
Avaya IP Office - Small Office Edition Operation in EU.....	31
Avaya IP Office - Small Office Edition Operation in New Zealand.....	31
Avaya IP Office - Small Office Edition Operation in USA.....	31
Technical Data.....	32
Port Pinouts.....	32
Analog Trunk Ports (RJ45).....	32
Power Fail and POT Ports (RJ45).....	32
DS/DT Ports (RJ45).....	32
ISDN Port – BRI (RJ45).....	32
ISDN Port – PRI (RJ45).....	33
WAN/LAN Port – 10/100 BaseT.....	33
DTE Port (9 Way D-Type socket).....	33
Audio Port (3.5mm Stereo Jack Socket).....	33
External Control Port (3.5mm Stereo Jack Socket).....	34
WAN Port (37 Way D-Type Socket).....	34
Cables.....	35
DTE Cable.....	35
DT Line Cord for Structured Cabling.....	36
PRI/BRI ISDN Cable.....	37
LAN Interconnect Cable.....	38
LAN Cable.....	39
X.21 WAN Cable.....	40
V.35 WAN Cable.....	41
Telephone Converter Cables.....	42
Out of Building Installation.....	42
Port Safety Classification.....	43
Compliance with FCC Rules.....	43
Technical Specifications.....	44
General.....	44
Interfaces.....	44
Protocols.....	45
SNMP Functionality.....	46
SNMP Agent Configuration.....	46
MIBs Supported.....	46
Trap Generation.....	47
MIB Loading.....	47
CastleRock SNMPc 5.1.6c and earlier:.....	48
HP OpenView Network Node Manager 6.41 and earlier:.....	48
Index.....	49

Introduction

General

This manual covers the installation of Avaya IP Office - Small Office Edition equipped with release Level 2.0+ software. It is intended for use by installers and maintainers who have successfully completed the appropriate Avaya IP Office - Small Office Edition training courses.



Ensure that you have read and understood this manual before beginning installation.

Scope of Manual

This manual, for the Avaya IP Office - Small Office Edition systems, covers the following subjects and should be read in the sequence shown below:

- **Avaya IP Office - Small Office Edition Platforms :**
This section provides details of the various Avaya IP Office - Small Office Edition platforms available. Illustrations of the front and rear of the unit show what ports/sockets/etc are provided. Typical configuration examples are also provided in this section. A further section details the country variants of modules/trunks/integral modules/etc.
- **Preparing for and Installing a new system :**
These sections provide all the information required and the actions to be performed to physically install a IP Office - Small Office Edition, i.e. what tools are required, the environmental/power requirements, wall mounting, etc. The software installation is covered in the following section.
- **Basic System Programming :**
System programming is necessary for configuration and maintenance of the Avaya IP Office - Small Office Edition. This manual only covers the installation of the IP Office - Small Office Edition suite of programs (see page 19). For full details refer to the Installation Wizard Help files and/or to the Manuals contained on the documentation CD (supplied with every unit).
- **Terminal/Telephone Installation :**
This manual details the information required to install telephone but does not detail the usage and functionality of IP Office - Small Office Edition terminals/telephones. These details are to be found in the appropriate User Guides.
The terminals/telephones that are supported by the IP Office - Small Office Edition are (these are also used across a number of Avaya platforms):

Avaya 2000 Series	20AT, 20CC, 2010, 2030, 2050, 20DSS/BLF and 20DT
Avaya 2400 Series	2420
Avaya 3600 Series	3616, 3626
Avaya 4400 Series	4406D, 4412D, 4424D and 4450DSS*
Avaya 4600 Series	4602, 4602SW, 4620, 4606, 4612 and 4624
Avaya 6400 Series	6408D+, 6416D+M, 6424D+M and XM24(DSS)

***Caution:** See page 36 for wiring details on a 4450DSS module.

- **Safety and Homologation Statements :**
This provides all the necessary Safety, Homologation Statements and Regulatory Instructions for Use required. This section also detail where further information, including other Manuals and support telephone numbers, can be obtained.
- **Technical Data :**
This manual contains information on the Port Pinouts/Safety classifications, cables, and basic technical specifications only. Descriptions of the functionality, features and performance of the Avaya IP Office - Small Office Edition are covered by the Product Description (see page 29).

The IP Office - Small Office Edition Platform

General

The Avaya IP Office - Small Office Edition system platform is supplied in a number of variants as follows:

1. Two Analog Trunks + 4 POTs (analog telephones) + 3 VoIP compressors.
2. Two Analog Trunks + 8 POTs (analog telephones) + 3 VoIP compressors.
3. Four Analog Trunks + 4 POTs (analog telephones) + 8 DS/DT + 3 VoIP compressors.
4. Four Analog Trunks + 4 POTs (analog telephones) + 8 DS/DT + 16 VoIP compressors.

See Avaya IP Office - Small Office Edition (Front View) for details and page 11 for country specific variants.

The Avaya 4600 series telephones use the LAN ports

The analog trunks ports are designed for loop start trunks and do not support Plain Ordinary Telephones (POTs)

The POT Ports support analog telephone and **must not** be connected to trunks.

The DT ports support Avaya 2000 series telephones and the DS ports support Avaya 6400 and/or Avaya 4400 series telephones.

Both ports can be set for either μ -Law or A-Law PCM encoding. At default DT ports are set to A-Law and DS ports are set to μ -Law. However, these can be switched in software (refer to the Manager Manual for details).

All variants have a WAN port presented as 10/100 Ethernet port, and four LAN 10/100Mbps auto MD1/MD1X switch ports.

In addition the Avaya IP Office - Small Office Edition can be fitted with the following optional modules:

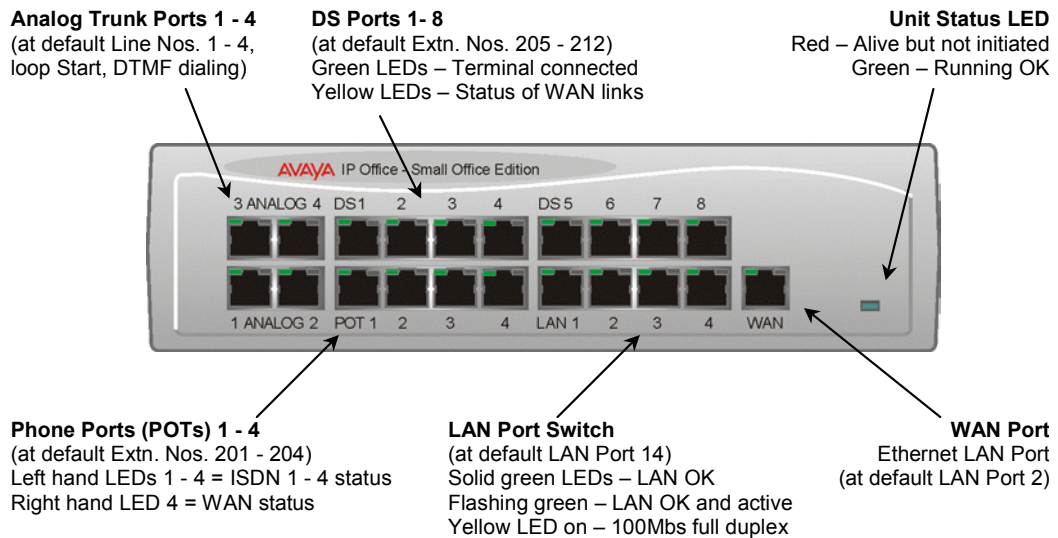
- **Trunk Interfaces**
These can be either a single PRI T1 (23B+1D or 24B trunks) or Quad BRI (8 trunks) and are supplied as trunk module kits.
- **WAN Port**
This port supports a single synchronous data connection for X.21/V.24/V.35. The WAN kit is supplied with the WAN module and a replacement rear panel.
- **Wireless LAN card**
This is a wireless network card with integrated radio modules and antennas (2.4GHz). The card supports IEEE 802.11b and WiFi standards.
- **Voice Memory card**
Provides memory capacity for embedded voice mail and auto attendant features.

See page 18 for expansion and page 11 for country specific variants.

Power Fail

If the mains power supply fails Analog Port 2 is automatically switched to POT Port 2.

Avaya IP Office - Small Office Edition (Front View)



Note: A fully equipped version of the Avaya IP Office - Small Office Edition is shown above. A DT port variant is also available. Two other variants are available; one with DS1-4 ports allocated to POT ports 5-8 and DS5-8 not fitted. The other variant does not have the top row of RJ45 ports fitted (see page 11 for country variants).

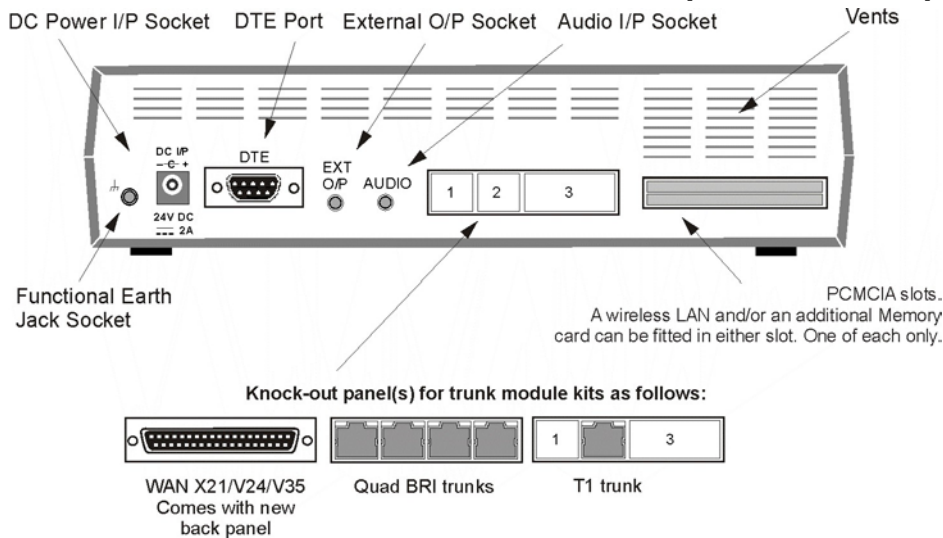
Port connections

- **DT/DS Ports:** DT ports are used for connection to Avaya 2000 series telephones (see page 4) DS ports support Avaya 6400 and/or Avaya 4400 series telephones. Both variants support either A-Law or μ -Law PCM encoding (default is country dependant and can be switched in software). Using DT Line Cords (see page 36) and standard structured wiring, these RJ45 ports can be extended to the required telephone location. When telephones are equipped with line cords that terminate in RJ11 plugs, then pin-to-pin RJ11/RJ45 adapters should be used.
- **Analog Trunk Ports:** These ports are used for connection to standard analog trunks (loop start). Using standard structured wiring, these RJ45 ports can be extended to the required trunk sockets. In the event of mains power supply failure Analog Port 2 is automatically switched to POT port 1.
- **Plain Ordinary Telephone (POT) Ports:** These ports are used for connection to standard analog telephones, fax machines and modems. Using standard structured wiring, these RJ45 ports can be extended to the required telephone location. When telephones are equipped with line cords that terminate in RJ11 plugs, then pin-to-pin RJ11/RJ45 adapters should be used.
- **LAN Ports:** These are LAN 10/100Mbps Layer 2 Ethernet switches and are used for PC and server connectivity. They have Auto MD1/MD1X capability and hence avoid the need for LAN crossover cables when connecting to a hub. They can also be used to connect to IP telephones (Avaya 4600 IP series). LAN ports allow information relating to incoming and outgoing telephone calls to be forwarded to PC based applications. They also provide access to the router functionality/configuration of the Avaya IP Office - Small Office Edition platform for both data and Voice over IP (VoIP) calls.
- **WAN Port:** This is a 10/100Mbps Ethernet LAN port for connection to a WAN (e.g. DSL).

Cables

Avaya IP Office - Small Office Edition is supplied with one red CAT 5E cable. For Port Pinouts and Cables, refer to pages 32 and 35 respectively.

Avaya IP Office - Small Office Edition (Rear View)



Port connections

- **External O/P Socket:** Allows externally powered circuits to be controlled via a single 3.5mm stereo jack socket.
- **DC Power I/P Socket:** Socket for the external 24V DC unregulated power supply (supplied with kit).
- **DTE Port:** A 9-way D-type socket. Used for applications Licence Key device (Dongle) and connection to PCs, Servers and EFTPOS terminals.
- **Trunk Ports:** These can be either a single PRI T1 (23B+1D or 24B trunks) or Quad BRI (8 trunks). See page 18 for expansion and page 11 for country specific variants.
- **WAN Port:** This port supports a single synchronous data connection, for X.21/V.24/V.35 interfaces. The selection of the required interface is automatically determined from the pin-out of the cable plugged into the 'WAN' port. This cable **must be** connected before power is applied for auto detection to work. Connection to a Digital Leased Circuit is made by connecting the WAN port on the rear of the unit to the existing Network Terminating Unit (NTU) via the appropriate X.21, V.35 or V.24 cable. See pages 40 and 41 for cable details and page 34 for port details.
- **PCMCIA slots:** Used for optional Avaya supplied wireless LAN and/or additional Voice Memory cards.
- **Audio I/P Socket:** A single 3.5mm stereo or mono jack socket that enables input from an external 'Music-on-Hold' source.
- **Functional Ground Socket:** For use in areas with high lightning and/or ESD.
CAUTION: This is not a protective ground point.

Port Pinouts and Cables

For Port Pinouts and Cables, refer to pages 32 and 35 respectively.

Typical Configurations

The following paragraphs illustrate three typical scenarios for Avaya IP Office - Small Office Edition. These are configuration examples only and are intended to demonstrate the flexibility of the Avaya IP Office - Small Office Edition.

Home Based Business

A small home based business that requires the following connectivity:

- One Exchange Line (ADSL enabled)
- One broadband Internet connection
- Up to four analogue telephones (POTs)
- PC based softphones
- One Fax
- One printer
- Enhanced onboard Voicemail
- One Laptop PC
- One PC

Avaya Kit List

Avaya IP Office - Small Office Edition 2T +4A (3 VoIP)

Country specific power lead (must be sourced separately)

Analogue telephones (can be sourced separately)

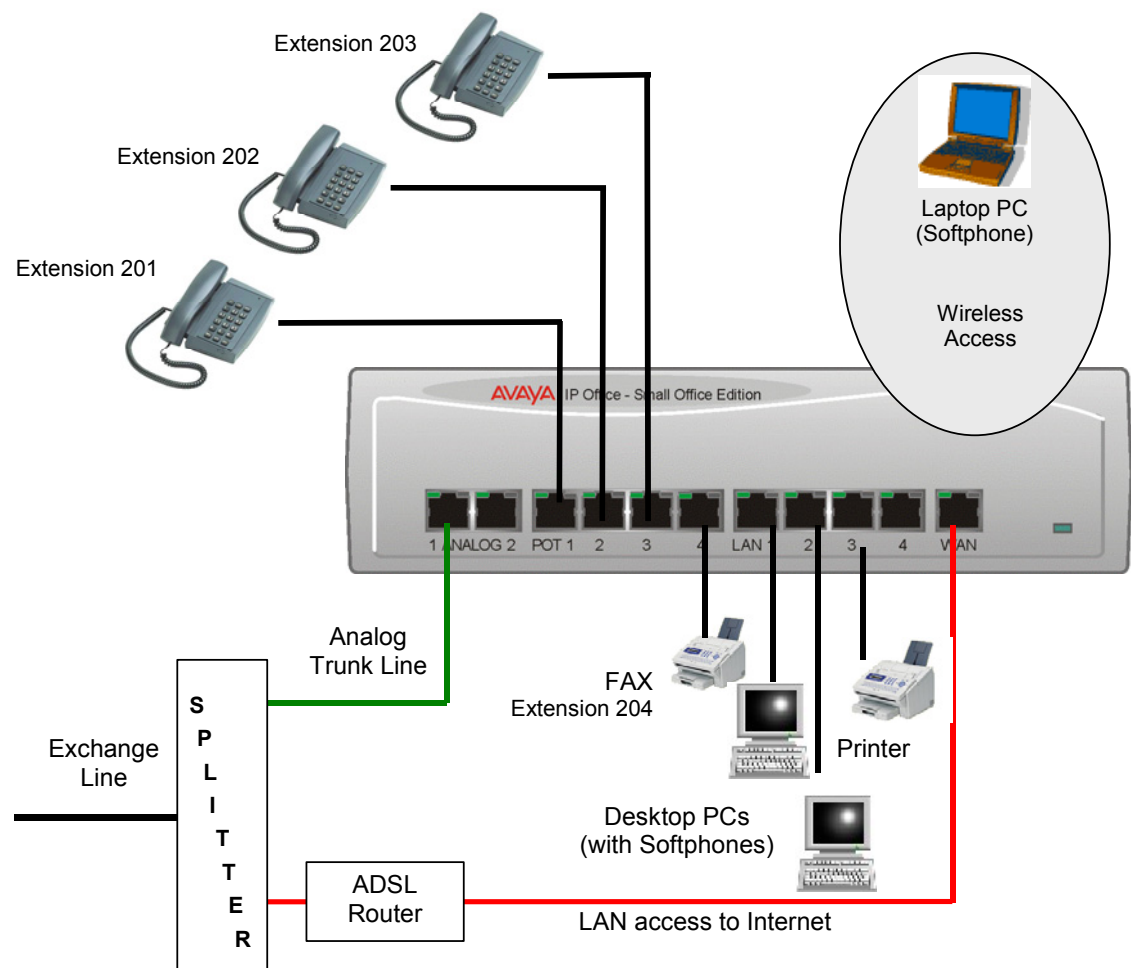
Phone Manager Lite (with an optional upgrade to Phone Manager Pro)

Serial Port Dongle (for Licence keys) fitted to rear of unit

Licences for Wireless Access Point, VPN and IP Softphone

On board Voicemail 64M Memory card (fitted to rear of unit)

Wireless LAN card (802.11b) fitted to rear of unit



Single Site Business

A single site small business that requires:

- Three Exchange Lines (one ADSL enabled)
- One broadband Internet connection
- Up to six analogue telephones (POTs)
- One Fax
- One printer
- Enhanced onboard Voicemail
- Three company PCs
- Door entry security

Kit List

Avaya IP Office - Small Office Edition 4T +8A (3 VoIP)

Country specific power lead (must be sourced separately)

Analogue telephones (can be sourced separately)

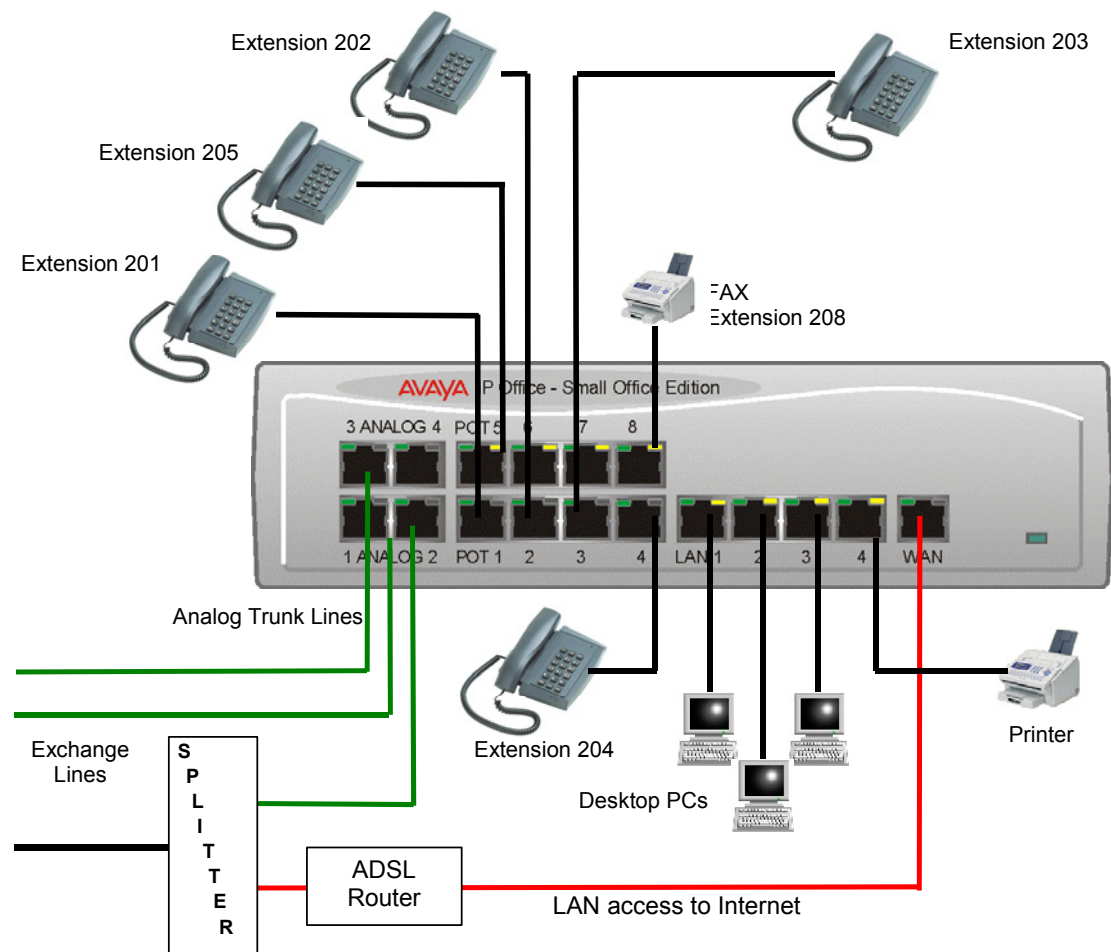
Phone Manager Lite x 5

Serial Port Licence Key device (Dongle) fitted to rear of unit

Licences for Wireless Access Point, VPN and IP Softphone

On board Voicemail 64M Memory card (fitted to rear of unit)

Connection from Ext O/P for door relay (fitted to rear of unit)



Multi-site Business

A multi-site business that requires:

- Two Exchange Lines (one ADSL enabled)
- Two Digital Exchange Lines (ISDN enabled)
- One broadband Internet connection
- Auto Answering
- PC based Softphones
- Up to eight digital telephones
- Two Faxes and two Printers
- Enhanced Voicemail
- Six company PCs with Softphone capabilities
- Door entry security

Kit List

Avaya IP Office - Small Office Edition 4T +8A +8DS (16 VoIP)

Country specific power lead (must be sourced separately)

Avaya digital telephones

Phone Manager Lite x 5

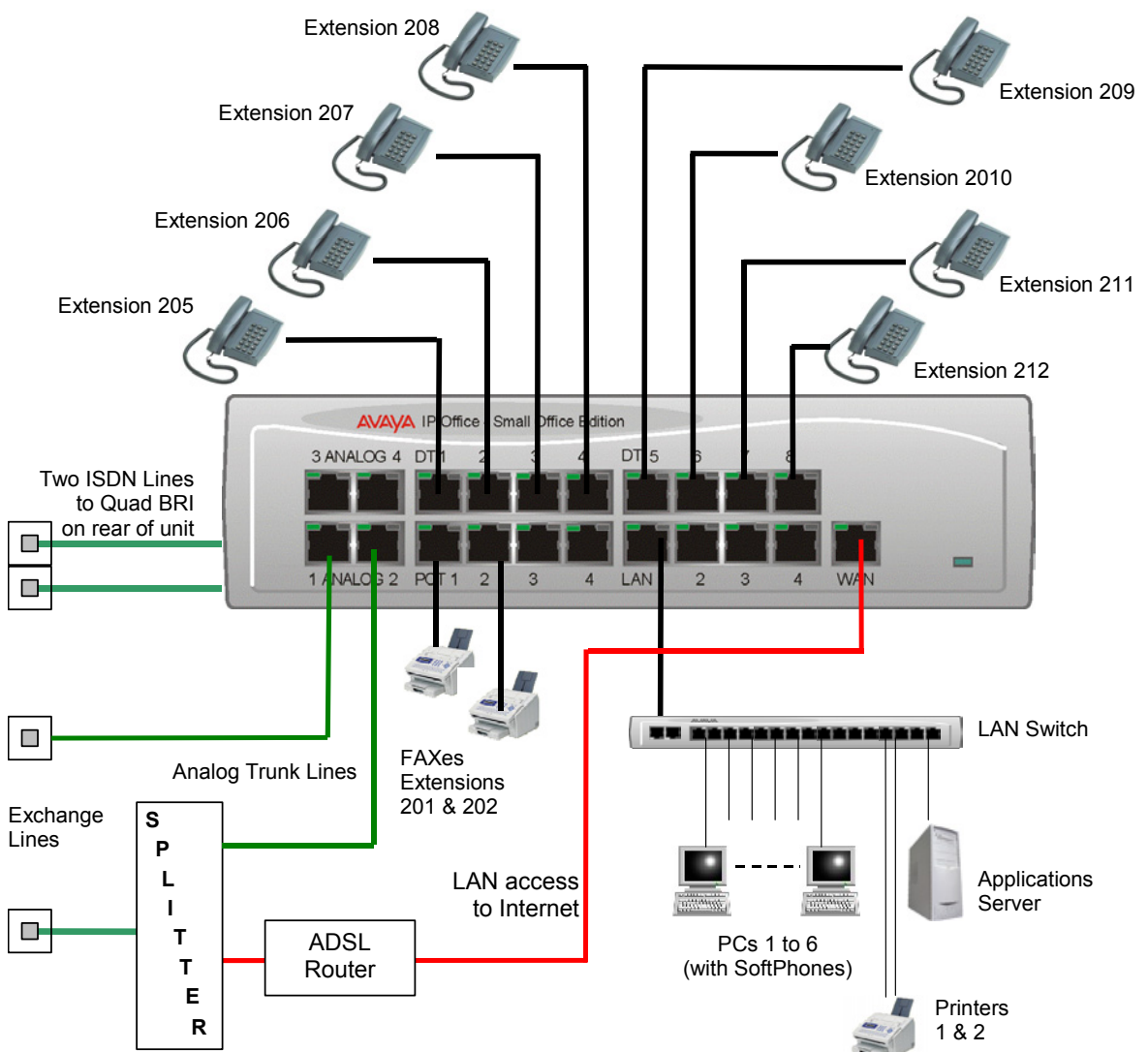
Serial Port Licence Key device (Dongle) fitted to rear of unit

Licences for VMPro with Auto Attendant and IP Softphone

On board Voicemail 64M Memory card (fitted to rear of unit)

Connection from Ext O/P for door relay (fitted to rear of unit)

Third party LAN switch



Country Variants

The following are lists of the country variants for each Avaya IP Office - Small Office Edition platform, trunk module kits, Integral module kits and expansion modules. The PCS level for each module can be found on a label that is stuck to the base of each module.

Avaya IP Office - Small Office Edition Systems

Throughout this section the following abbreviations are used:

ALL	=	Global
ROW	=	Rest of world (excluding USA, Canada)
NA	=	North America (USA and/or Canada)
CALA	=	Caribbean/Latin America
CH	=	China
EU	=	Europe
KR	=	Korea
NZ	=	New Zealand

For countries outside North America/ CALA, use ROW variant unless stated otherwise.

IP Office - Small Office Edition Variants

Variant	Country	SAP Code
IP Office - Small Office Edition 2T + 4A (3 VoIP)	US	700280167
IP Office - Small Office Edition 2T + 4A (3 VoIP)	ROW	700280175
IP Office - Small Office Edition 4T + 8A (3 VoIP)	US	700293053
IP Office - Small Office Edition 4T + 8A (3 VoIP)	ROW	700293061
IP Office - Small Office Edition 4T + 4A + 8DS (3 VoIP)	US	700280183
IP Office - Small Office Edition 4T + 4A + 8DS (16 VoIP)	US	700280191
IP Office - Small Office Edition 4T + 4A + 8DS (3 VoIP)	ROW	700280209
IP Office - Small Office Edition 4T + 4A + 8DS (16 VoIP)	ROW	700280217
IP Office - Small Office Edition 4T + 4A + 8DT (3 VoIP)	ROW	700280225
IP Office - Small Office Edition 4T + 4A + 8DT (16 VoIP)	ROW	700280233

Key: 2T or 4T etc. = number of analog trunks
 +4 or +8 = number of POT ports
 +8DT or +8DS = number of Digital Station or Digital Terminal ports
 (3VoIP) = number of VoIP CODECs (COder DECoder)

Trunk Module Kits

BRI Trunk Interface Module

Variant	Country	SAP Code
BRI 8 (UNI) expansion kit	ROW	700262017

PRI Module

Variant	Country	SAP Code
PRI 24 T1 Expansion Kit	NA	700185200

WAN Module

Variant	Country	SAP Code
WAN Expansion Kit	ALL	700289713

- Notes:**
1. For countries outside North America/CALA, use the ROW variant unless stated otherwise.
 2. PRI T1trunks support both ISDN and Analog emulation. The default setting is 23B+1D and is switchable in the installation software to become a 24B trunk.

Power Supplies

Common Lump-in-Line Power Supply units are supplied with each Avaya IP Office - Small Office Edition. However, the power leads are county specific and **must be** ordered separately. These power leads are 3-pined earthed and **can only be used** on Small Office Edition systems. The part numbers are as follows:-

Variant	Country	SAP Code
IP Office - Power Lead (earthed)	UK	700289747
IP Office - Power Lead (earthed)	EU CEE7/7	700289762
IP Office - Power Lead (earthed)	US	700289770
IP Office - Power (earthed) Lead Pack 10	UK	181567
IP Office - Power Lead (earthed) Pack 10	US	181568
IP Office - Power Lead (earthed) Pack 10	EU CEE7/7	181569
IP Office - Power Lead (earthed)	China	700261977
IP Office - Power Lead (earthed) Pack 10	China	182196

Avaya IP Office - Small Office Edition PCMCIA Cards

The slots on the rear of the product can accommodate one or both of the following options:

Variant	Country	SAP Code
64m Memory card (Voice Mail)	ALL	700289721
Wireless LAN card	ALL	700289739

Avaya IP Office - Small Office Edition Applications

As part of the IP Office Family, the Small Office Edition supports a broad range of optional feature enhancements and applications. The following list is a summary of options that are considered to be most relevant for use in the small business environment, as targeted by this product. For an exhaustive list of all supported options and license upgrades, please refer to the applications documentation for IP Office and the relevant regional price lists.

Description	Function	SAP Code
License Key Devices (Dongles)		
Feature Key - Serial Port (9-pin)	Device for direct attachment to Small Office Edition (required for Remote Feature Activation)	700293095
Feature Key - Parallel Port	Device for attachment to applications server (required for Remote Feature Activation)	700185234
Feature Key - USB Port	Device for attachment to applications server (required for Remote Feature Activation)	700261506
Client Software		
Phone Manager Lite	Standard CTI desktop application for client PCs (call history, directory, speed dials) - all users	included
Phone Manager Pro RFA 5	Enhanced CTI desktop application for client PCs (VM control, queuing, CRM screen pops) - 5 users	177469
IPPro RFA 5	Adds IP softphone functionality to Phone Manager Pro - 5 users	174463
IP Endpoint RFA 5	Enables support of 3rd party IP end-points (including wireless VoIP) - 5 users	174957
Personal Numbering RFA	Enables enhanced personal numbering	181572
CTI DECT RFA 8	Enables DECT feature integration (RoW only) - 8 handsets	171989
Messaging Software		
VoiceMail Lite	4-port standard voicemail PC application	included
Voice Memory Card	3-port on-board voicemail/auto-attendant application (no PC required)	700289721
VoiceMail Pro RFA	4-port advanced voicemail PC application (incl: GUI, AA, queuing, call recording)	171991
Audix RFA	Enables use of Intuity Audix as Centralised Voice Mail. (does not require VoiceMail Pro)	177467
VPIM RFA	Enables use of networked Audix/3rd party centralized voicemail	181570
Integrated Messaging Pro RFA	Enables synchronization to MS email systems. GUI to control voicemails within Outlook (requires VoiceMail Pro).	171990
Avaya Text-to-Speech RFA	Enables text to speech for messaging applications	181573
3rd party IVR RFA	Enables use of 3rd party Interactive Voice Response systems	181571
System Software		
SoftConsole RFA	Enables PC-based system console (including BLF)	171987
CBC RFA	Enables real-time & historical summary reports on system & departmental call handling	171993
Access Point RFA	Enables wireless access point functionality (requires Wireless LAN card 700289739 to be installed)	182197
IPSEC VPN RFA	Enables secure VPN tunnels with encryption	181575
MS-CRM RFA	Enables integration with Microsoft CRM Professional (phase 1 - incl: Screen Pop and Auto-Dial)	180588

N.B. Only DECT and MS-CRM are region specific. All other options are global

Preparing for Installation

Introduction

This section reviews the requirements for installing an Avaya IP Office - Small Office Edition system. You must meet these requirements for the system to operate safely and in the intended manner.

This section covers :

- Tools & Parts Required on page 14.
- Space requirements on page 14
- Environmental requirements on page 15.
- Power Supply Requirements on page 15.

Tools & Parts Required

General :

- Pozidrive No. 1 screwdriver for removal of unit covers.
- Cutter/knife for cable ties.
 - Cable ties
- Pozidrive No. 4 screwdriver for Analog Trunk 16 expansion module grounding post.

Note: In addition, ensure that you have sufficient cables that are **not supplied** with the modules, e.g. Line Cords for structured cabling (see page 35) and power supply cables (see page 12).

Programming :

These are the tools required for programming of a newly installed Avaya IP Office - Small Office Edition system.

- PC running Windows 98/2000/ME/XP or NT with the following specification:
Intel Pentium II 333Mhz or faster, 100MB HD space, CD-ROM drive, COM port, terminal emulation (e.g. HyperTerminal) and a super VGA Monitor (set to 1024 by 768).
- PC with a LAN card with either a fixed IP address (allocated by your system administrator) or be using DHCP to obtain an IP address.
- IP Cat. 5E patch cable (red – supplied with system see page 37).
- Small Office Edition Administration CD (1 of 3 - supplied with system).
- Small Office Edition User CD (2 of 3 - supplied with system).
- Small Office Edition Documentation CD (3 of 3 - supplied with system).
- Small Office Edition Manager Application Manual (supplied on CD1 with system).
- Small Office Edition Feature Key device (Dongle) that is required where software that requires a Licence Key is to be installed).

Space requirements

Check that the planned location meets the following requirements.

Height : 71mm (2.8 inches)

Width : 255mm (10 inches)

Depth : 235mm (9.3 inches)

- Where an Avaya Small offices is free standing, allow a minimum clearance of 50mm (20 inches) either side for cable trunking.
- Check there is suitable lighting for installation, system programming and future maintenance.
- Check that there is sufficient working space for installation and future maintenance.
- Ensure that likely activities near the system will not cause any problems, e.g. access to and maintenance of any other equipment in the area.

Environmental requirements

The planned location must meet the following requirements:

- Check that the area is a well ventilated area, having a temperature range of 0°C to +40°C and a humidity range of 10% to 95% non-condensing.
- Check there are no flammable materials in the area.
- Check there is no possibility of flooding.
- Check that no other machinery or equipment needs to be moved first.
- Check that it is not an excessively dusty atmosphere.
- Check that the area is unlikely to suffer rapid changes in temperature and humidity.
- Check for the proximity of strong magnetic fields, sources of radio frequency and other electrical interference.
- Check there are no corrosive chemicals or gasses.
- Check there is no excessive vibration or potential of excessive vibration, especially of the cabinet mounting surface.
- Check that, for the USA only, where telephones are installed in another building, that the appropriate IROB protectors are fitted (see page 42).

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. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

SAVE THESE INSTRUCTIONS.

Power Supply Requirements

Avaya IP Office - Small Office Edition should only be connected to a clean power supply or to a UPS with 3-pin connectors including earth.

CAUTION: The Lump-in-Line PSUs supplied with each Avaya IP Office - Small Office Edition module must only be connected to a 50/60Hz, 100-240V power source.

– **UPS Equipment :**

The use of UPSs to support the Avaya IP Office - Small Office Edition system during mains power failure is highly recommended. Such equipment also provides mains conditioning. Contact Avaya for details of preferred and tested suppliers and models.

Installing a New System

Unpacking

Before proceeding with installation, ensure that you have read the notes covered in Preparing for Installation on page 14.

Unpacking and checking :

1. Before unpacking check for any signs of damage that has occurred during transit.
If any damage exists bring it to the attention of the carrier.
2. Check all cartons against the packing slip (see page 11).
Report any errors or omissions to the equipment supplier.
3. While unpacking the equipment, retain all the packaging material.
Fault returns are accepted only if repackaged in the original packaging.
4. Visually inspect each item and check that all the necessary documentation and accessory items have been included. Report any errors or omissions to the dealer who supplied the equipment.
5. Ensure you read and understand any documentation included with any item.

Initial Assembly - Overview

Prior to initial assembly and mounting (rack or free standing) of your system, check that:

- The required Trunk Interface Modules have been installed (see page 18) and are of the correct country variant type (see page 11).
- Where structured cabling is to be used it has been installed, conforms to all local regulations and is clearly labeled.

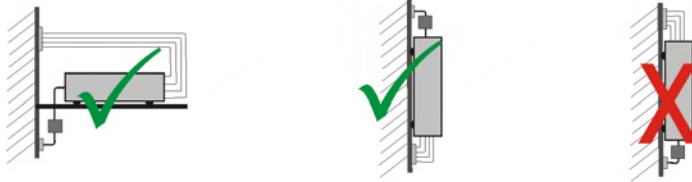
Perform the following:

1. Mount the Avaya IP Office - Small Office Edition module in its final location.
2. Run the Lump-in-Line PSU cable back to the switchable mains supply but **do not switch-on or connect** the PSU to the Avaya IP Office - Small Office Edition.
4. Connect the Trunks, using PRI/BRI ISDN Cables (see page 37), to your provider's trunk sockets.
5. Connect the DT/DS/POT Ports, using DT Line Cords (see page 36), to the structured cable sockets or directly to the appropriate telephone (see page 22). Note that in default, the lowest port number corresponds to the lowest extension number (201).
6. Install all telephones in their appropriate locations.
For wall mounting, see pages 24 and 25.
7. Connect your PC LAN Port to one of the LAN Ports on the front of an Avaya IP Office - Small Office Edition using a LAN Cable (see page 39).
8. Switch on the ac mains supply.
9. From the Administrator CD (see page 19), install on your PC the software required to configure and manage your Avaya IP Office - Small Office Edition (see page 19).

Avaya IP Office - Small Office Edition Shelf/Wall Mounting

All variants of the Avaya IP Office - Small Office Edition can be either shelf or wall mounted. Four retaining slots (item ❶ below) enable the IP Office - Small Office Edition unit to be mounted and secured either:

- Horizontally on a shelf - leaving sufficient space for the cabling at both front and rear of the unit.
- Vertically from a wall – with the front panel facing down **only**.

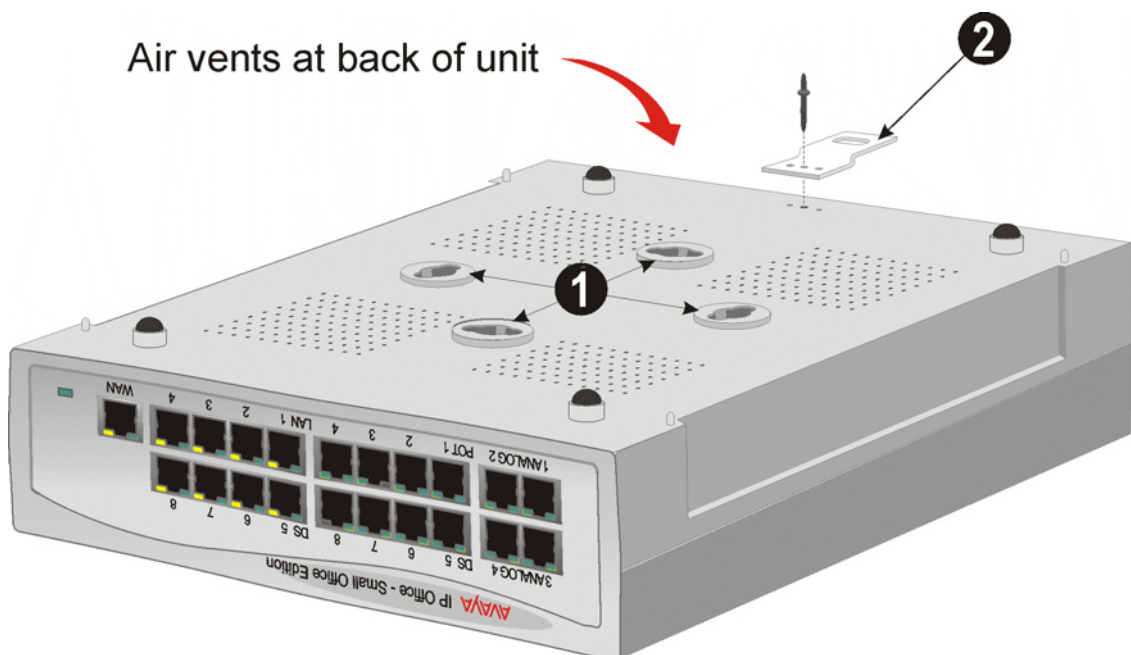


A Z-bracket (item ❷ below, supplied with unit) is used to retain the Small unit in position.

- Cautions:**
1. The Z-bracket **must not be used** as the sole mounting fixture.
 2. When mounting vertically, the weight of the Small unit **must be held** by the two No. 8 Panhead screws located into the retaining slots.
 3. When mounted vertically, the air vents (on the rear panel of the IP Office - Small Office Edition) **must be** on the top surface. E.g. item ❷ below **must be fitted above** the unit.

Procedure:

1. Drill two holes 16cm apart (horizontally or vertically – see Caution 3 above). Using suitable wall fixings (wall plugs), insert two No.8, Panhead screws (25mm long min. - not supplied) into wall leaving approximately 1cm proud of wall.
2. Fit the Z-bracket (item ❷ below) onto the base of the unit using the M3 Plastite self tapping screw supplied.
3. Slide the Avaya IP Office - Small Office Edition unit onto the two screws, locating them into the two retaining slots (item ❶ below).
4. Mark the position of the retaining screw (No. 8 Panhead or similar – not supplied) that is to be used through the slot of the Z-bracket.
5. Remove the unit from the wall and, using suitable wall fixings, drill a hole for the Z-bracket retaining screw.
6. Re-position the Small compact Office unit and secure with a No. 8 Panhead (or similar) through the slot of the Z-bracket.



Installation of Integral Modules

An Avaya IP Office - Small Office Edition can be fitted with a WAN module, a quad BRI module or a PRI/T1 module. In addition, either or both the optional PCMCIA cards (Memory and/or Wireless LAN) can be fitted.

Procedure:

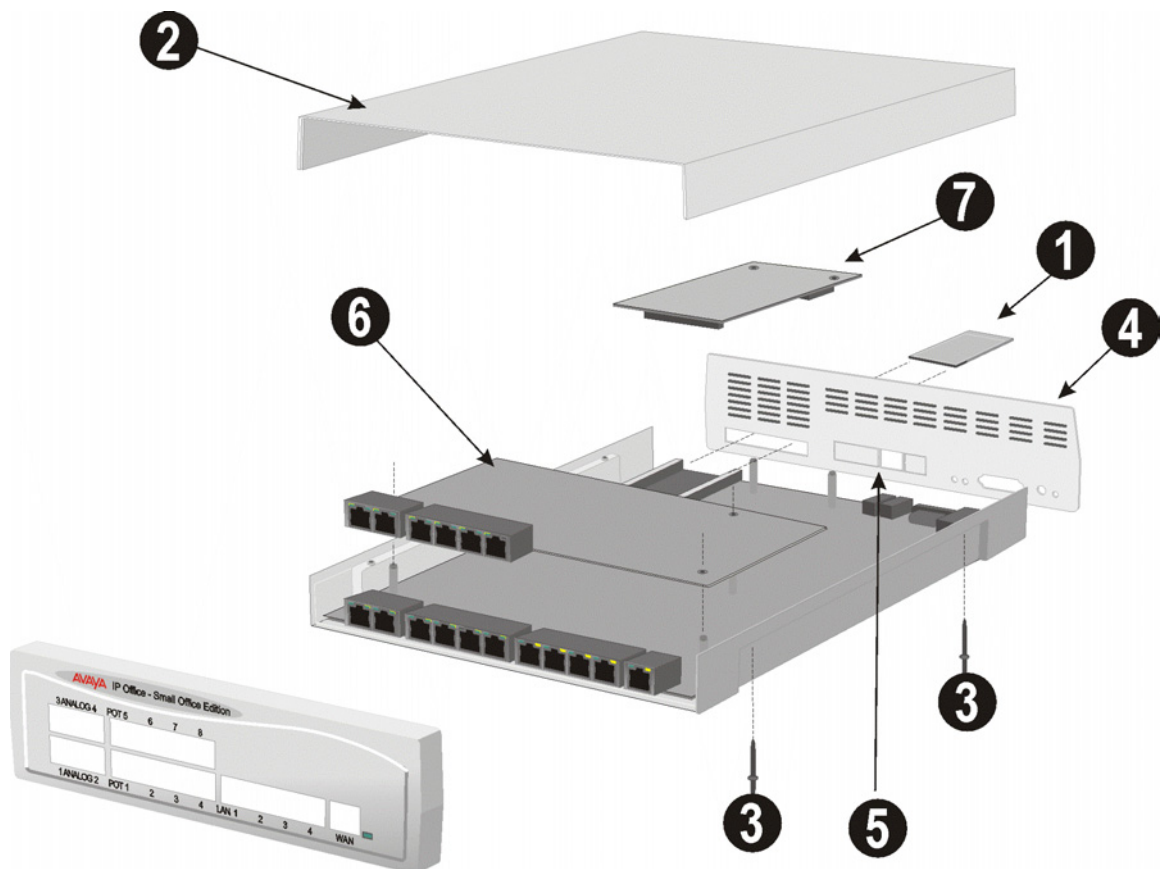
1. To add either a wireless LAN or additional Memory card you do not need to de-assemble a module, simply insert the card (item ❶) into either of the PCMCIA slots in the rear panel. These slots are universal, hence the location does not matter. Only one Memory or wireless LAN card can be fitted.
2. To add a WAN or BRI or PRI/T1 module:

Remove the top cover (item ❷) from the base cover by removing the four retaining screws (two either side - items ❸) and proceed as follows.
3. Remove the rear panel (item ❹).

Only discard if a WAN module is being fitted (see step 4 below).
 On the rear panel, press out all of the knock-out panels (item ❺) for a Quad BRI or just the middle one for a PRI/T1.

 - Plug the trunk board (item ❷) onto it's sockets and stand-off hex. pillars.
 - Ensure that the trunk module sockets slot into the hole in the rear panel (item ❺). Secure the trunk board in position and with the two snap-in spacers.
 - Mount the existing rear panels if a WAN module is not being fitted.

If a WAN module is being fitted, see the next step.
4. To add a WAN module:
 - Remove and discard the rear panel (item ❹).
 - Fit the new rear panel (supplied with the WAN module and has a slot for WAN port 27-way D-type, items ❹).
 - On the rear panel, press out all of the knock-out panels (item ❺)
 - Mount WAN module (item ❷) in position and secure with the two snap-in spacers.



Caution: While installing modules, ensure that you wear a ground wrist strap that is connected to a suitable grounding point.

Basic System Programming

Introduction

This sections covers only the most basic aspects of system programming required to install an Avaya IP Office - Small Office Edition system. When first powered up, all Avaya IP Office - Small Office Edition systems will operate as a simple PBX. However, full system programming is highly dependent on customer requirements. Hence, some basic Initial Programming must be performed before detailed configuration programming is possible. The Administration CD (supplied with each system) contains the suite of programs required to install and maintain the Avaya IP Office - Small Office Edition system. Once loaded, inter-active *Help* files provide all the instructions and details required to operate and administer the program suite.

Programming Tools

The Avaya IP Office - Small Office Edition supports programming through any one of its 10/100 Base-T switch port connections. The tools required for programming of a newly installed Avaya IP Office - Small Office Edition system are:

- PC running Windows 98, NT, 2000, XP or ME (see page 14).
- PC with a LAN (NIC) card with either a fixed IP address (allocated by your system administrator) or by using DHCP to obtain an IP address.
- Small Office Edition Cat. 5E patch cable (red – supplied with system see page 37).
- Small Office Edition Administration (supplied on CD1 with system – see page 20).
- Small Office Edition Manager Application Manual (supplied on CD3 with).
- Small Office Edition Feature Key (where software that requires a Licence Key is to be installed).

Note: Once installed, the software level of all software fitted to the Avaya IP Office - Small Office Edition system can be identified. With Manager running, use *File/Advanced/Upgrade* to display menu. Refer to the Manager Application Manual for details of system configuration, software upgrade, etc.

PC to Avaya IP Office - Small Office Edition LAN Port Connection

An Avaya IP Office - Small Office Edition system, when first powered up, will scan the LAN for a DHCP server that will allocate it with an IP address. If the Avaya IP Office - Small Office Edition system does not find a DHCP server then it will automatically become a DHCP server itself with an IP address of 192.168.42.1. The Avaya IP Office - Small Office Edition system will allocate an IP address to the PC if required. Initially, the Avaya IP Office - Small Office Edition system assumes that all addresses are on the local LAN and that the PC software supplied uses broadcast to establish communication with the Avaya IP Office - Small Office Edition system.

The Avaya IP Office - Small Office Edition can be connected in either one of two ways; either directly to a PC or as part of a LAN. Both methods use an Avaya IP Office - Small Office Edition Cat. 5E patch cable (see page 37) connected between one of the LAN ports on the front of the Avaya IP Office - Small Office Edition and the PC/LAN.

– **Direct Connection:**

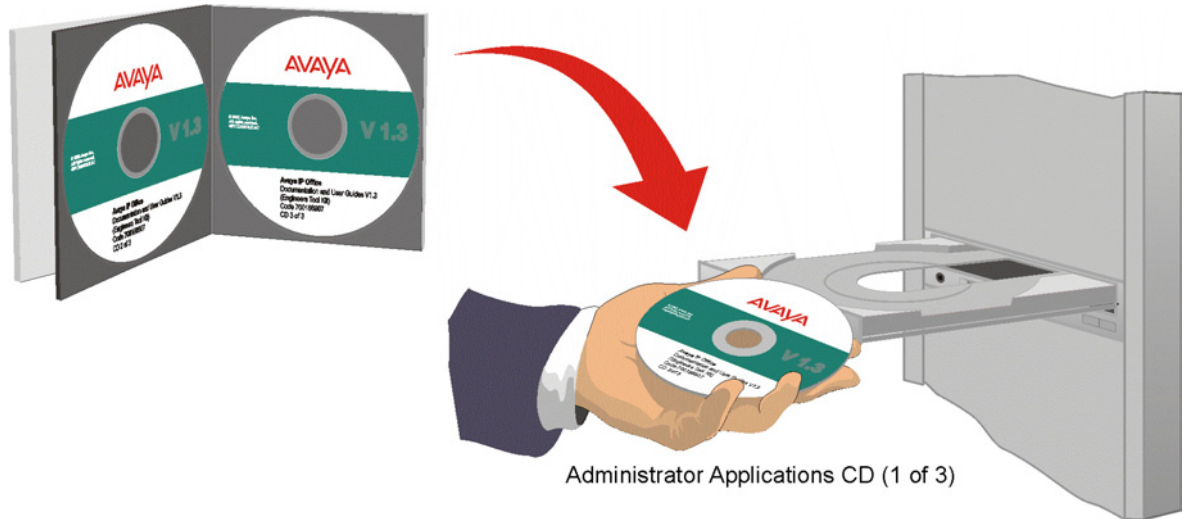
This method is used for local system programming directly from a PC.

– **LAN Network Connection:**

This is the option to use for remote programming access. It will require liaison with the LAN network manager to obtain the IP address details and to ensure that the IP traffic routing is allowed. When connected to an IP LAN network, you must consult with the Network Manager to obtain the required IP settings. For IP operation the Avaya IP Office - Small Office Edition requires a static IP address including a subnet mask and default gateway value.

Initial Programming

All the software used to configure and manage the Avaya IP Office - Small Office Edition system must be installed on your PC from the supplied Administrator CD. With the initial assembly completed (see page 16) and your PC connected to the Avaya IP Office - Small Office Edition system, insert and run the Administrator (CD 1 of 3).



1. The CD Autoruns. You are initially presented with the option to select which language you wish to use. Select the language from the pull down list and click **OK**.
2. If not already installed on your PC, you are then given the option to install the Microsoft Net 1.1 Framework application. This must be installed if you wish to use the IP Office Installation Wizard application. If you are going to install this application, then click **OK**, agree to the License and on completion click **OK**. The *Welcome* screen is then displayed; click **Next** to continue.
3. The *Destination* folder location option menu is displayed. Either accept the default location (click on **Next**) of where the Administration Suite is to be installed or change the location by clicking on **Browse** and entering a new location
4. Select which components you wish to install by selecting the appropriate boxes (*Manager* and *Voice Mail* are default minimums) and click **Next**.
5. Name the program folder or accept the default (**IP Office**), click **Next** and wait for the Administration Suite installation to be completed.
6. Installation runs and on completion select **Restart now** and click **Finish** twice.

The IP Office Administration suite of applications is now installed on your PC and you are now ready to configure your Avaya IP Office - Small Office Edition.

You have two choices:

1. Use the IP Office Installation Wizard:

This application is recommended for first time installers. From the **Program** file on your PC, select **IP Office** and **Wizard**. The application is intuitive and will guide you through the configuration process. Follow the instructions on each menu and use the *Help* files for detailed instructions.

OR

2. Use the IP Office Manager Application:

This application is recommended for experienced installers. From the **Program** file on your PC, select **IP Office** and **Manager**.

1. You will be requested to enter both the *Operator Name* and *Password*. This password gains access to the Configuration Tree facilities allocated to the named operator. At default, five options are available, but, for full access, select *Administrator*.

Name	Password
------	----------

For full facilities access:	<i>Administrator</i>	<i>Administrator</i>
-----------------------------	----------------------	----------------------

2. The *Configuration Tree* blank screen is displayed. To display the facilities available for this named operator's Configuration Tree, from **File** select **Open** and, when requested, enter the password for the Avaya IP Office - Small Office Edition unit. The default for the Avaya IP Office - Small Office Edition unit is *password*.

You must change the operator Names, their Passwords and the Password for the Avaya IP Office - Small Office Edition unit as soon as possible.

A combination of at least 8 alpha and numeric characters is recommended for passwords, avoiding the use of common words.

4. From the Configuration Tree, select **File** and **Change Password**. The operator *Name* is displayed, together with both the *Password* and *Confirm Password* as a series of xxxxx's. Enter the new *Password* and *Confirm Password*. Click **OK** and **Save As**.
5. From the Configuration Tree for the *Administrator*, double click on the **System** icon to display the *System Configuration* menu for the Avaya **IP Office - Small Office Edition** unit. The following items must be set/changed:

Name: A name to identify this system. Used to identify the configuration by its location or customer's company name.

Locale: This option sets country variations, e.g. US = enu, UK = eng, Netherlands = nld, Germany = deu. Locale defines the country dependent default ring sequences, display types/language, etc. This option is automatically set dependent on the Regional Settings of the PC on which the Manager is running. For instance, if this setting defaults to *eng* rather than *enu* this is because the Regional Settings of the PC are set to English (United Kingdom) therefore change the Regional Settings to English (United States).

Password: This is the password (default *password*) for controlling access to the Avaya IP Office - Small Office Edition unit and is required to upgrade, reboot and send or receive configurations from the unit.

Change this password as soon as possible.

Basic programming is completed and you can now add the relevant licenses and configure the system to the customer's requirements. Full details on configuration and administration are contained in the inter-active *Help* files and the Manager Application Manual. Press **F1** to access the Manager *Help* files.

Note: To use voice mail you must activate Voicemail Lite. From the **Program** file, select *IP Office* and *Voicemail* and click on **Run**.

Telephone Installation

Checking Telephones

It is preferable to leave connection of telephones until after installation of other Avaya IP Office - Small Office Edition equipment and full system programming has been completed (including the set-up of directory numbers and names). Note that by Avaya IP Office - Small Office Edition telephones we mean devices manufactured and supplied by Avaya and not third party telephone devices.

While installing and checking each telephone, it may also be required to do some basic telephone programming such as setting-up call forwarding, call pickup, group numbers, etc.

The detailed instructions for setting-up these feature are contained in the Manager Application Manual and within the Configuration Tree *Help* files. With the configuration tree for *Administrator* open, press **F1** to access the *Help* files.

The following instructions are the minimum required for testing and wall mounting of Avaya IP Office - Small Office Edition telephones. Detailed instructions for testing, wall mounting and using Avaya IP Office - Small Office Edition telephones are contained in the appropriate Installation and User Guides contained on the CD supplied with each system.

Connecting & Testing Avaya IP Office - Small Office Edition Telephones

Use the following process to connect and check Avaya IP Office - Small Office Edition telephones.

To check a Avaya IP Office - Small Office Edition telephone :

1. Unpack the telephone and check that all parts are present including labels and user guides.
2. Insert the handset cord into the base. Route the cord thorough the cable channels to come out at the side of the telephone.
3. Insert the line cord into the wall socket.
4. Insert the line cord into the telephone's base and route the cord thorough the cable channels to come out at the side/rear of the telephone.
5. Lift the handset, check that you hear dial tone and make a test call to another extension.
6. On a display telephone, ensure that the display shows the number called and that the display is in the correct language.

Note: On 44/4600 series telephones, the line cord is fitted with an RJ11 plug. In which case, when connecting directly to an Avaya IP Office - Small Office Edition module, an RJ11/RJ45 adapter should be used. Similarly, the structured wiring should terminate in RJ11 sockets.

Connecting & Checking Two-Wire Telephones

All two-wire devices (POTS) should be tested according to the manufacturer's instructions before connection to the Avaya IP Office - Small Office Edition system. Connect the two-wire device and make a test call.

Power Fail Telephones and Sockets

The power fail sockets (see page 5) must be tested.

To test a power fail socket :

1. Locate the socket and check that it is clearly labeled as a power fail socket.
2. Connect a telephone to the socket.
3. With power to the Avaya IP Office - Small Office Edition system switched on, make a test call.
4. Switch the power to the Avaya IP Office - Small Office Edition system off and again make a test call.
5. Switch the power to the Avaya IP Office - Small Office Edition system back on again.
6. Repeat the test for any other power fail sockets.

Note: Where E911 statutory requirements for discrete location identification of a power fail phone are required on the transmitted CLI, ensure that the relevant installation programming is completed.

Wall Mounting 2000 Series Telephones

Mounting brackets exist which clip onto the base on Avaya IP Office - Small Office Edition telephones. These brackets (two required per telephone) can be used to either raise the desk position of the telephone or for wall mounting. Before wall mounting a telephone, check that the surface is flat, vertical and not subject to movement or vibration.

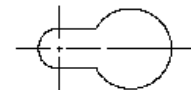
To wall mount an Avaya IP Office - Small Office Edition telephone :

1. Using the dimensions given below, mark the position for the screw holes. Ensure that adequate clearance above and below the telephone is allowed.
2. Drill the necessary holes and insert the wall plugs.
3. Insert the screws, leaving the heads approximately 3mm ($\frac{1}{8}$ ") proud of the surface (check by clipping a bracket over the screw head).
4. Attach the brackets to the telephone. Then slide the bracket key-slots over the screw-heads.
5. Reverse the position of the handset retainer tab (located below the hook switch on the telephone). This keeps the handset in place whilst the telephone is mounted on the wall.

Additional Items :

- Two No. 8 Pan head or Round head screws.
- Two wall plugs.
- Drill and drill bit.
- Screwdriver.

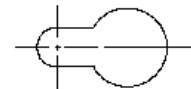
Avaya IP Office - Small Office Edition 2030/50 Telephones **(Not to scale)**



Wall Mounting Dimensions (not to scale)

Horizontal: 129mm between centres
Use No. 8 Pan Head or Screws
Clearance: Allow 170mm below, 70mm above and 40 mm either side

Avaya IP Office - Small Office Edition 2010 , Avaya IP Office - Small Office Edition 20AT Telephones (Not to scale)

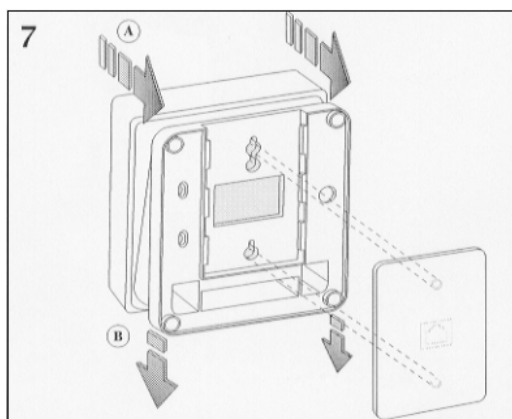
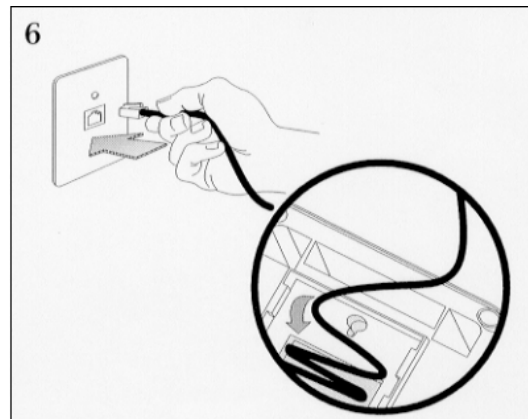
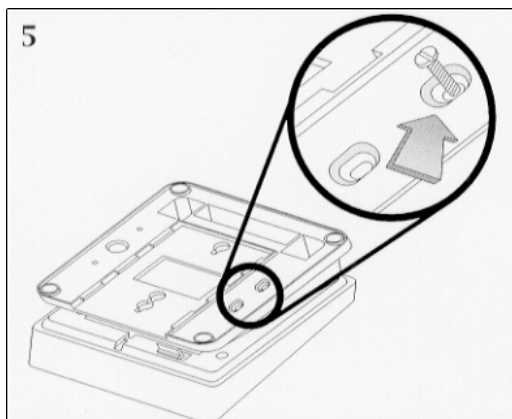
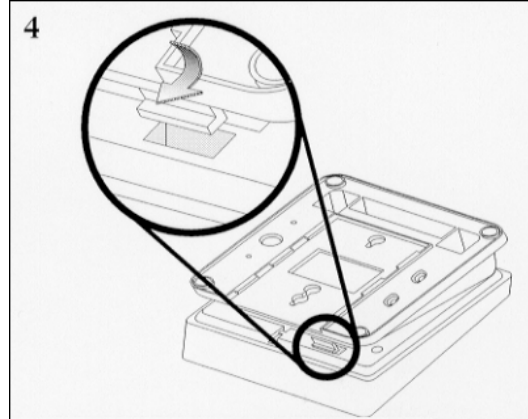
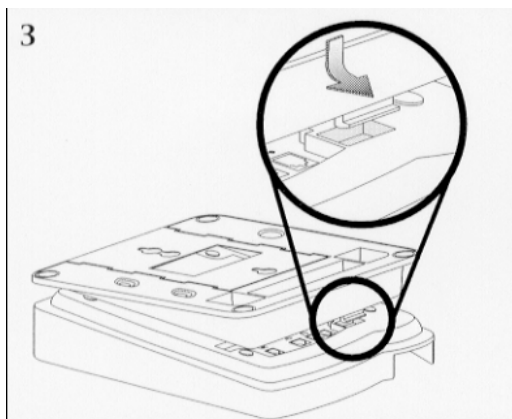
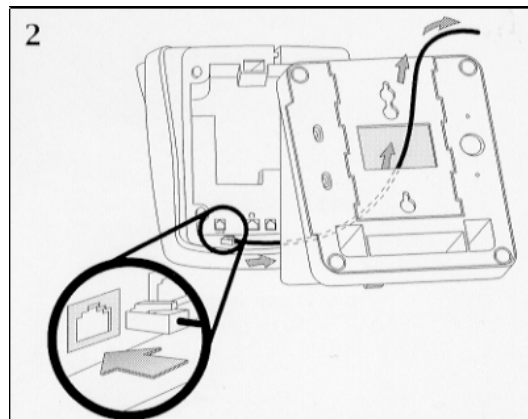
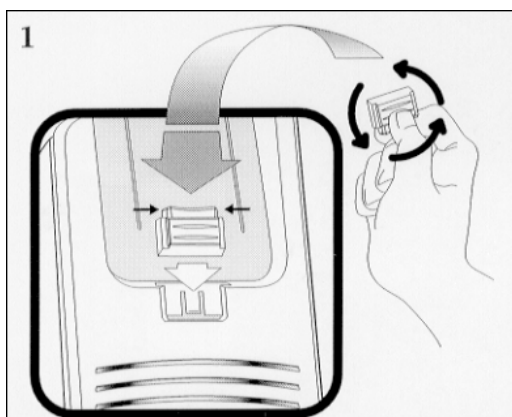


Wall Mounting Dimensions (not to scale)

Horizontal: 78mm between centres
Use No. 8 Pan Head or Screws
Clearance: Allow 170mm below, 70mm above and 40 mm either side

Wall Mounting 44/4600 & 6400 Series Telephones

The following pictorial instructions, although for a 4600 telephone, provide a general overview on how to wall mount both series of telephones. For safety instructions and details, refer to the specific instructions for each telephone type (supplied on the CD with the Avaya IP Office - Small Office Edition system).



System Handover

Checklist

Equipment :

- Have all extensions been tested?
- Have all exchange lines been tested??
- Is system programming in line with the customer specification?
E.g. all specified applications, CTI settings, etc.
- Has the customer been made aware of the drop back (power fail) locations?
Are these been clearly marked and have they been tested?
- Has the mains supply (and any UPS if fitted) been tested?
- Where VoIP is to be deployed have the appropriate network design criteria and QoS mechanisms been applied as per the Avaya planning guidelines.

Wiring :

- Has the Avaya IP Office - Small Office Edition, been fitted with the appropriate functional/protective grounds.
- Is the distribution wiring (structured cabling) satisfactory to the required national standards?
- Are all wires and cables clearly labeled.
- Is the site clean and tidy with all rubbish removed?

Information :

- Have the telephone user guides been issued to the user.
- Has the customer been made aware of the telephone number for maintenance/fault reports.

Feature Key :

- Where a Feature Key has been used (for software requiring a license), record it's physical location (location of the PC is it plugged into) and leave a record of such on site with the system.

Safety and Homologation Statements

CE Mark

The "CE" mark affixed to this equipment means that the unit complies with the 1999/5/EC (R&TTE), 89/336/EEC (EMC), and 72/23/EEC (LVD) Directives

Declaration of Conformity

The Declaration of Conformity (DoC) for the IP Office - Small Office Edition products is contained within the CD accompanying the products.



This warning symbol is found on the base of the Avaya IP Office - Small Office Edition. Refer to page 29 for information concerning which Trunk Interface module variants are fitted in which country

WARNING

The Avaya IP Office - Small Office Edition units are intended to be installed by 'Service Personnel' and it is the responsibility of the Service Personnel to ensure that all subsidiary interconnected equipment is wired correctly and also meet the safety requirements of IEC60950 or UL60950 where applicable.

Lithium Batteries

A lithium battery is fitted to the real time clock on the Avaya IP Office - Small Office Edition mother boards.

WARNING

The Lithium battery must only be replaced by Avaya personnel or authorized representatives. There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Lightning Protection/Hazard Symbols

The building's lightning protectors **must be verified** as follow:

1. Check the lightning protectors, at the trunk cable entry point to the building housing the Avaya IP Office - Small Office Edition, paying special attention to the lightning protection grounding. Report any problems, in writing, to the telephone company.
2. Equipment that is designed to be connected using internal wiring is typically **not** lightning protected. Hence, Avaya IP Office - Small Office Edition extension cabling **must not leave the building**.



The shock hazard symbol is intended to alert personnel to electrical hazard or equipment damage. The following precautions must also be observed when installing telephone equipment:

1. **Never install** telephone wiring during a lightning storm.
2. **Never install** telephone jacks in wet locations unless the jack is specifically designed for wet locations.
3. **Never Touch** uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
4. Always use caution when working with telephone lines.

Electromagnetic Interference Information

Federal Communications Commission (FCC)

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 installation.

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 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 receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Canadian Department of Communications (DOC)

NOTICE: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment."

Trunk Interface Modules

ROW

To ensure the validation of the approvals in ROW (i.e. EU, Hungary, Australia and New Zealand), only the following interface cards must be installed as detailed in the following IP Office - Small Office Edition products:

Product	Interface Modules		
	Uni Quad BRI	PRI-T1	WAN X21/V24/V35
IP Office - Small Office Edition	Yes	No	Yes

USA/Canada

To ensure the validation of the approvals in US and Canada, only the following interface cards must be installed in the following IP Office - Small Office Edition products:

Product	Interface Modules		
	Uni Quad BRI	PRI-T1	WAN X21/V24/V35
IP Office - Small Office Edition	No	Yes	Yes

See page 11 for country specific variant SAP codes.

Further Information and Product Updates

Further information, including Product and Reference Manual updates, can be obtained from Avaya's Dealers and Distributors, or from Avaya's web site: <http://www.avaya.com>.

This guide is also available from Avaya's support web site: <http://support.avaya.com>

Support Telephone Numbers

For initial help and support, contact your distributor/supplier. The following contact points are for Avaya authorized partners.

In the USA only, Avaya provides a toll-tree Customer Helpline 24 hours a day:

Name: Avaya Technical Support Organization (TSO)

Customer Helpline: 1 800 628-2888

Address: 8744 Lucent Blvd., Highlands Ranch, Colorado, 80129 USA

URL: <http://support.avaya.com/>

If you need assistance when installing, programming, or using your system, call the Helpline or your Avaya representative. Consultation charges may apply.

Outside the USA, if you need assistance when installing, programming, or using your system, contact your Avaya representative.

URL: <http://support.avaya.com/>

Regulatory Instructions for Use

Any changes or modifications not expressly approved by Avaya ECS Ltd could void the user's authority to operate the equipment.

Avaya IP Office - Small Office Edition Operation in Australia

Connection

Connection of IP Office - Small Office Edition products must be via a Line Isolation Unit with a telecommunications compliance label.

BRI Interface

During the configuration, ensure "000" emergency number is not barred, by performing the following:

Short Code: "000"
Telephone No.: "000;"
Function: "Dial Emergency"

Connections to TS013, the following Bearer Capabilities shall not be used:

7kHz Audio
Video
Restricted Digital Information

If unknown type of number is used in calling party number, the network will use the default CLI.

The system must be configured for Point to Multi point connection to comply with Austel requirements for connecting to TS013 circuits.

Avaya IP Office - Small Office Edition Operation in Canada

Industry Canada Notification (DoC)

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met.

It does not imply that Industry Canada approved the equipment.

"NOTICE: The Ringer Equivalence Number (REN) for this terminal equipment is 1. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five."

Avaya IP Office - Small Office Edition Operation in EU

The Avaya IP Office - Small Office Edition product is intended for operation in European Union countries. Where the wireless option has been installed, the product operates on the 2.4GHz frequency band for the above countries apart from France where the product utilizes the following frequencies : 2.455GHz 2.483.5MHz.

1. 999 and 112 calls must not be barred. Doing so will invalidate the approval.
2. All connections at the MDF shall be identifiable by suitable labeling.
3. The CE mark displayed on Avaya IP Office - Small Office Edition equipment indicates the systems compliance with the EMC, LVD, and R&TTE Directives and common technical regulations for Basic Rate ISDN and Analog Trunks.
4. All ports for the connection of other non-telecommunications apparatus have a Safety Extra Low Voltage (SELV) safety status.

Avaya IP Office - Small Office Edition Operation in New Zealand

The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.

Avaya IP Office - Small Office Edition Operation in USA

FCC Notification

This equipment is registered with the ACTA (Administrative Council for Terminal Attachments) in accordance with FCC Part 68 of its rules. In compliance with those rules, you are advised of the following:

- **Means of Connection.** Connection of this equipment to the telephone network shall be through a standard network interface jack. Connection to 1.544-MBps digital facilities must be through a USOC RJ48C. Connection to the Analog Trunk facilities must be through a USOC RJ45S.
- **Notification to the Telephone Companies.** Before connecting this equipment, you or your equipment supplier must notify your local telephone company's business office of the telephone number or numbers you will be using with this equipment.
- **The facility interface codes (FIC)** for 1.544-MBps digital connection (i.e. IP Office - Small Office Edition PRI-T1) are 04DU9.BN, 04DU9.DN, 04DU9.IKN, 04DU9.ISN.
- **The facility interface code (FIC)** for analog trunk connection are OL13A, OL13B, OL13C, 02AC2, 02LA2, 02LB2, 02LC2, 02LR2, 02LS2.
- **The Service Order Code (SOC)** for 1.544-MBps digital connection (i.e. IP Office - Small Office Edition PRI-T1) is 6.0Y.
- **The Service Order Code (SOC)** for analog trunk connection is 9.0Y.
- **Disconnection.** You must also notify your local telephone company if and when this equipment is permanently disconnected from the line or lines.
- **Hearing Aid Compatibility.** The custom telephone sets for this system are compatible with inductively coupled hearing aids as prescribed by the FCC.

Ringer Equivalence Number (REN). The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the line may result in the devices not ringing in response to an incoming call. In most, but not all, areas, the sum of the RENs should not exceed five. To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the local telephone company to determine the maximum REN for the calling area.

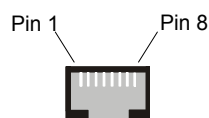
Technical Data

Port Pinouts

This section provides the technical specifications for the Avaya IP Office - Small Office Edition ports. All diagrams are viewed from the front.

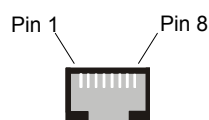
Note: Throughout the following, Tx = from Avaya IP Office - Small Office Edition and Rx = to Avaya IP Office - Small Office Edition.

Analog Trunk Ports (RJ45)



Pin No.	Description
1-3	Do not use
4	Ring
5	Tip
6-8	Do not use

Power Fail and POT Ports (RJ45)

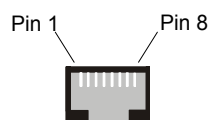


Pin No.	Description
1 & 3	Do not use
2	Connected to pin 6*
4	Ring
5	Tip
6	Connected to pin 2*
7-8	Do not use

* Pins 2 and 6 are shorted together and, via a 'ringer' capacitor, connected to in 5.

DS/DT Ports (RJ45)

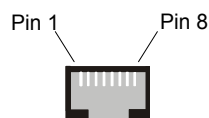
These ports are available on specific small office configurations only (see page 11).



Pin No.	Description
1-3	Do not use
4	Sig 1
5	Sig 2
6-8	Do not use

ISDN Port – BRI (RJ45)

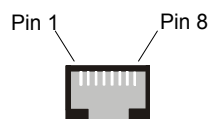
On Avaya small Office these are optional ports are available with the Quad BRI module (see page 11).



Pin No.	Description	Signal Direction
3	Transmit Data (Tx-A)	➔
4	Receive Data (Rx-A)	➔
5	Receive Data (Rx-B)	➔
6	Transmit Data (Tx-B)	➔

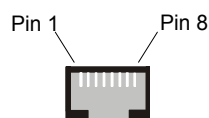
ISDN Port – PRI (RJ45)

On Avaya small Office these are optional ports are available with the PRI/T1 module:



Pin No.	Description	Signal Direction
1	Receive Data (Rx-A)	←
2	Receive Data (Rx-B)	←
4	Transmit Data (Tx-A)	→
5	Transmit Data (Tx-B)	→

WAN/LAN Port – 10/100 BaseT



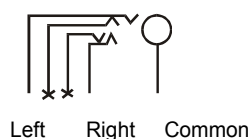
Pin No.	Description	Signal Direction
1	Receive Data (Rx-A)	←
2	Receive Data (Rx-B)	←
3	Transmit Data (Tx-A)	→
6	Transmit Data (Tx-B)	→

DTE Port (9 Way D-Type socket)



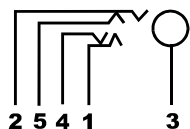
Pin No (9 Way).	Description	Signal Direction
3	Receive Data (Rx)	←
2	Transmit Data (Tx)	→
7	Request to Send (RTS)	←
8	Clear to Send (CTS)	→
6	Data Set Ready (DSR)	→
5	Signal Ground	
1	Data Carrier Detect (DCD)	→
4	Data Terminal Ready (DTR)	←
9	Ring Indicator (RI)	→

Audio Port (3.5mm Stereo Jack Socket)



Pin No.	Description	Signal Direction
Common	Common	
Left	Audio in – Left Channel	←
Right	Audio in – Right Channel	←

External Control Port (3.5mm Stereo Jack Socket)



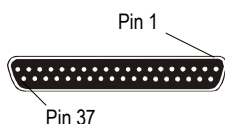
Pin No.	Description
1	Circuit 1
2	Circuit 2
3	0 Volts (Ground/Chassis)
4	Not Connected
5	Not Connected

Control Circuit	Information
Control Circuit 1	Pin 2 and Pin 3, ensure that Pin 2 is at a positive voltage with respect to Pin 3.
Control Circuit 2	Pin 1 and Pin 3, ensure that Pin 1 is at a positive voltage with respect to Pin 3.

Each circuit can be switched independently.

Switch Setting	Information
ON	Low resistance between Pins.
OFF	High resistance between Pins.

WAN Port (37 Way D-Type Socket)



Available with the WAN expansion kit only (see page 11).

Pin No.	Description	Signal Dir.	Pin No.	Description	Signal Dir.
1	V11 Rx-B	←	20	V11 Rx-A	←
2	V11 Ind-A	←	21	V11 Ind-B	←
3	V11 Clk-A	←	22	V11 Clk-B	←
4	V11 Tx-A	→	23	V11 Tx-B	→
5	V11 Ctl-B	→	24	V11 Ctl-A	→
6	V11 Gnd		25	WAN ID 0	←
7	WAN ID 1	←	26	V24 Tx	→
8	V24 DTR	→	27	V24 RTS	→
9	V24 Rx	←	28	V24 RxClk	←
10	V24 TxClk	←	29	V24 RI	←
11	V24 DCD	←	30	V24 DSR	←
12	V24 CTS	←	31	N/C	
13	N/C		32	V35 Tx-A	→
14	V35 Tx-B	→	33	V35 SCTE-A	→
15	V35 SCTE-B	→	34	V35 Gnd	
16	V35 Rx-B	→	35	V35 Rx-A	→
17	V35 TxClk-B	←	36	V35 TxClk-A	←
18	V35 RxClk-B	←	37	V35 RxClk-A	←
19	CHASSIS				

- Notes:**
- For the USA, only FCC Part 68 registered data circuit terminal equipment should be connected to the WAN Ports.
 - * For X21, V24/28 and V35 variants, pins 7 and 25 are connected as follows:
X21: Pin 7 is connected to pin 6
V24/28: Pin 25 is connected to pin 6
V35: Pins 7 and 25 are connected to pin 6

Cables

This section provides information about the cables that are used with Avaya IP Office - Small Office Edition.

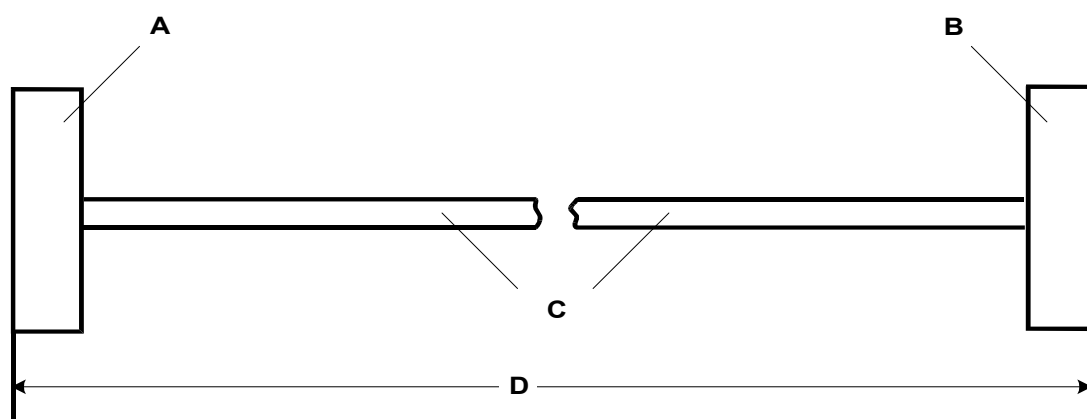
Refer to page 32 for port pin out details.

All of the following cables are for internal use only.

All structured cabling/site wiring **must** conform to all local regulations.

- Cautions:**
1. All ISDN and WAN cables should not be longer than 5 meters in length.
 2. For Analog Trunk cables, to reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.

DTE Cable



A 9 Way D-Type Plug with UNC 4-40 locking screws.

B 9 Way D-Type Socket with UNC 4-40 locking screws.

C 12 core screened cable - each core is 7/0.203mm (24 AWG) tinned copper stranded wire, nominal capacitance of 95pF/m, resistance of 92 Ω /km, screened with tinned copper braid, maximum working voltage of 440V rms and a Maximum current per core of 1A rms

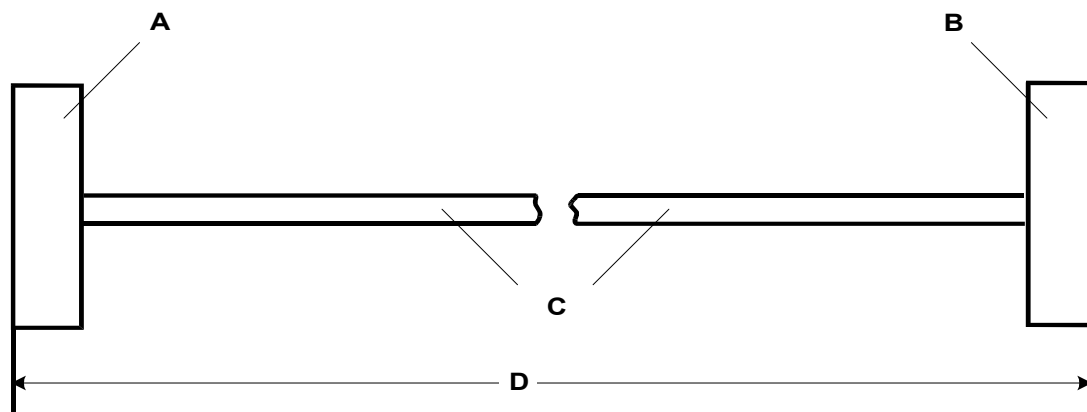
D 2 meters/6.57ft.

Pin Connections

End A (9 Way)	Name	End B
3	Receive data	3
2	Transmit Data	2
7	RTS (Request To Send)	7
8	CTS (Clear To Send)	8
6	DSR (Data Set Ready)	6
5	Ground	5
1	DCD (Data Carrier Detect)	1
4	DTR (Data Terminal Ready)	4
9	RI (Ring Indicator)	9

DT Line Cord for Structured Cabling

SAP Code:- 700047871



- A RJ11 Plug.
- B RJ45 Plug.
- C Cable.
- D 4 meters/13.2ft.

Pin Connections

RJ11 Pin Number	RJ45 Pin Number
3	5
4	4

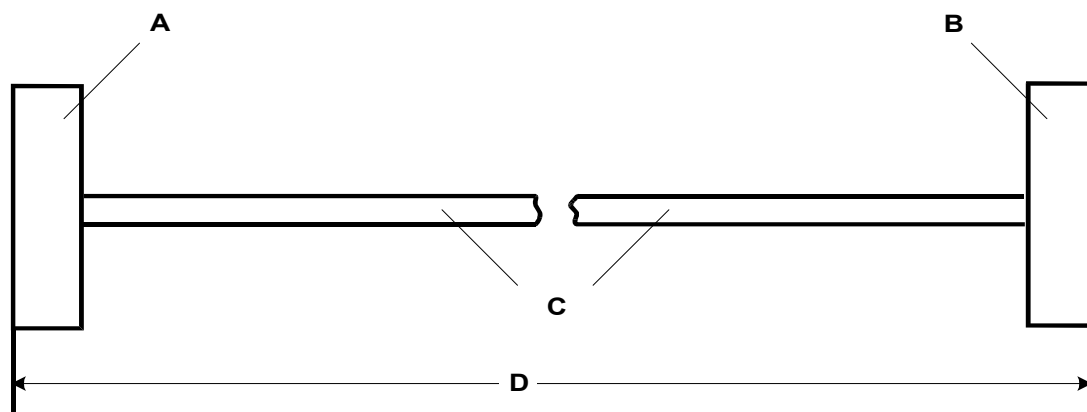
Caution: Other connections may be present in cables and or structured cabling. For 4450DS modules, this cable can be used to connect the module's PSU *Line* socket and the structured cabling. The PSU's *Te/* socket **must only be connected** to the *Line* socket of the associated 4424D telephone using the D4BU cable supplied with the PSU.

This cable can be used to replace the RJ11 to BT Newplan plug that is attached to the 20 series telephones to allow connection to structured cabling.

PRI/BRI ISDN Cable

SAP Code:- 700213440

Supply: As standard with Avaya IP Office - Small Office Edition systems. Can be used for either PC to Avaya IP Office - Small Office Edition LAN connection or as an ISDN trunk connection as illustrated below.



A RJ45 Plug.

B RJ45 Plug.

C Cat 5 UTP cable - **RED**.

D 3 meters/9.84ft.

Pin Connections

End A	BRI	PRI	Color	Cable Notes	End B
4	*Rx-A	*Tx-A	Blue/White	Twisted pair	4
5	*Rx-B	*Tx-B	White/Blue	Twisted pair	5
3	*Tx-A	---	White/Green	Twisted pair	3
6	*Tx-B	---	Green/White	Twisted pair	6
1	---	*Rx-A	White/Orange	Twisted pair	1
2	---	*Rx-B	Orange/White	Twisted pair	2
7	---	---	White/Brown	Twisted pair	7
8	---	---	Brown/White	Twisted pair	8

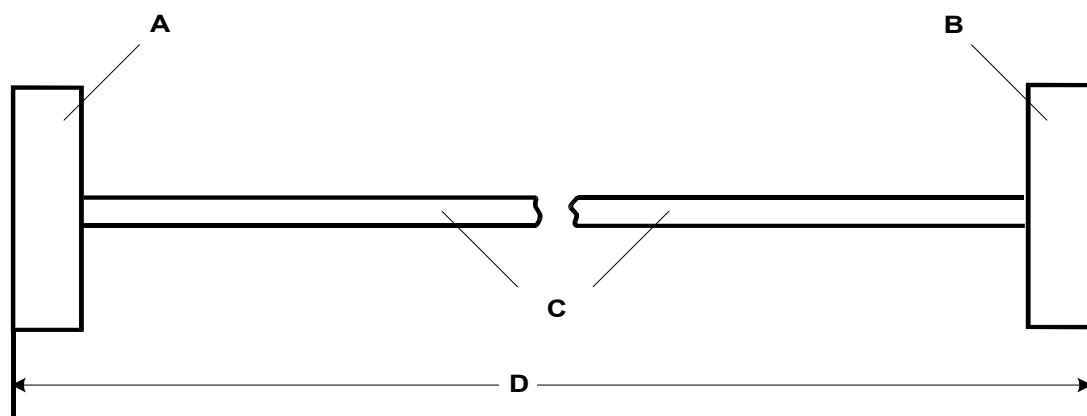
* With reference to the TE.

► Pins 7 and 8 are through connected for ease of construction. They are not actually used.

LAN Interconnect Cable

SAP Code:- 700213465

Supply: The cable is supplied with the WAN3 Expansion Module.



A RJ45 Plug.

B RJ45 Plug.

C Cat 5 UTP cable - **GREEN**.

D 1 meter/3.28ft.

Pin Connections

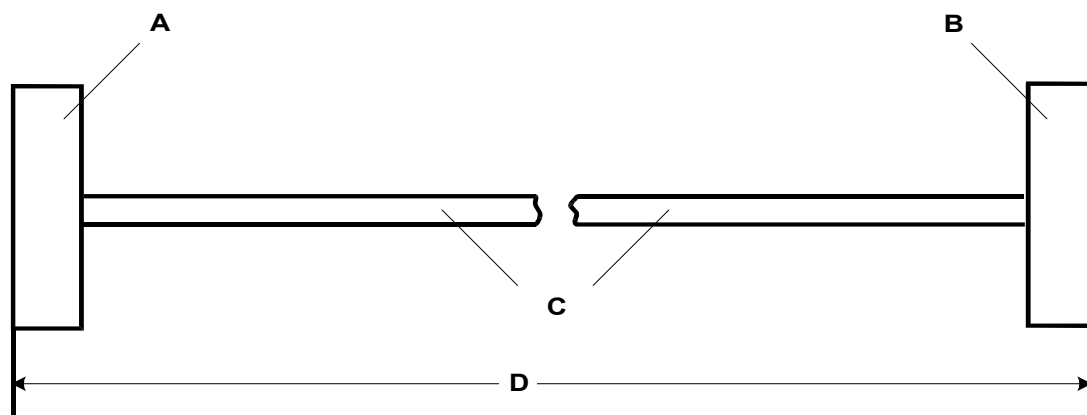
End A	Color	Cable Notes	End B
1	White/Orange	Twisted Pair	1
2	Orange/White		2
3	White/Green	Twisted Pair	3
6	Green/White		4
4	Blue/White	Twisted Pair	5
5	White/Blue		6
7	White/Brown	Twisted Pair	7
8	Brown/White		8

- This cable is used:
When connecting Avaya IP Office - Small Office Edition LAN switch ports directly to a PC.

Pins 4,5,7 and 8 are through connected for ease of construction. They are not actually used.

LAN Cable

SAP Code:- 700213481



A RJ45 Plug.

B RJ45 Plug.

C Cat 5 UTP cable - **GREY**.

D 3 meters/9.84ft.

Pin Connections

End A	Color	Cable Notes	End B
1	White/Orange	Twisted Pair	1
2	Orange/White		2
3	White/Green	Twisted Pair	3
6	Green/White		6
4	Blue/White	Twisted Pair	4
5	White/Blue		5
7	White/Brown	Twisted Pair	7
8	Brown/White		8

► This cable is used:

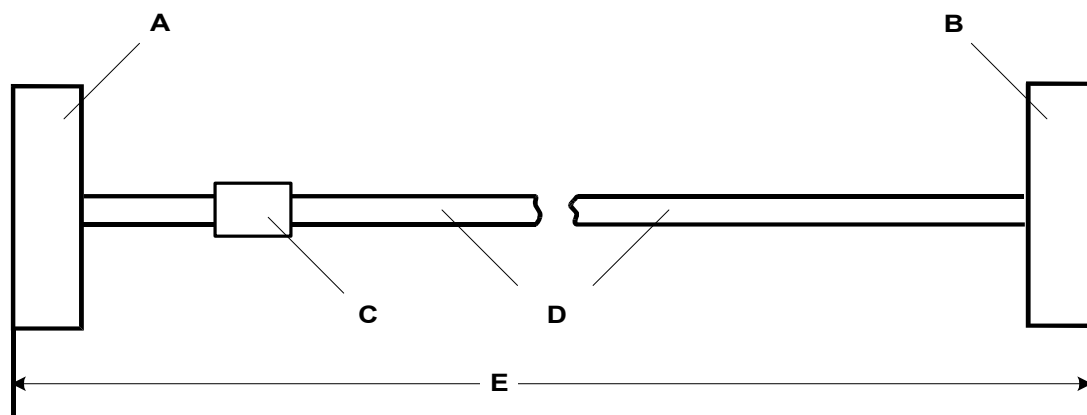
When connecting Avaya IP Office - Small Office Edition hub ports 1 - 7 directly to a PC.

When connecting a WAN3 port to an IP403/406 hub port which is not located in the same cabinet as the Avaya IP Office - Small Office Edition.

Pins 4, 5, 7 and 8 are through connected for ease of construction. They are not actually used.

X.21 WAN Cable

SAP Code:- 700213408



A 37 Way D-Type Plug with UNC 4-40 locking screws.

B 15 Way D-Type Plug with M3 locking screws.

C Label

D 6 twisted pair screened cable - each core is 7/0.203mm (24 AWG) tinned copper stranded wire, nominal capacitance of 98pF/m, impedance of 77 Ω at 1MHz, screened with aluminized tape and a tinned copper wire drain.

E 3 meters/9.84ft.

Pin Connections

End A	Name	Cable Notes	End B
1	Receive (Rx-B)	Twisted Pair	11
20	Receive (Rx-A)		4
4	Transmit (Tx-A)	Twisted Pair	2
23	Transmit (Tx-B)		9
24	Control (Ctl-A)	Twisted Pair	3
5	Control (Ctl-B)		10
2	Indicate (Ind-A)	Twisted Pair	5
21	Indicate (Ind-B)		12
3	SE-Timing (S-A)	Twisted Pair	6
22	SE-Timing (S-B)		13
6	Ground	-----	8

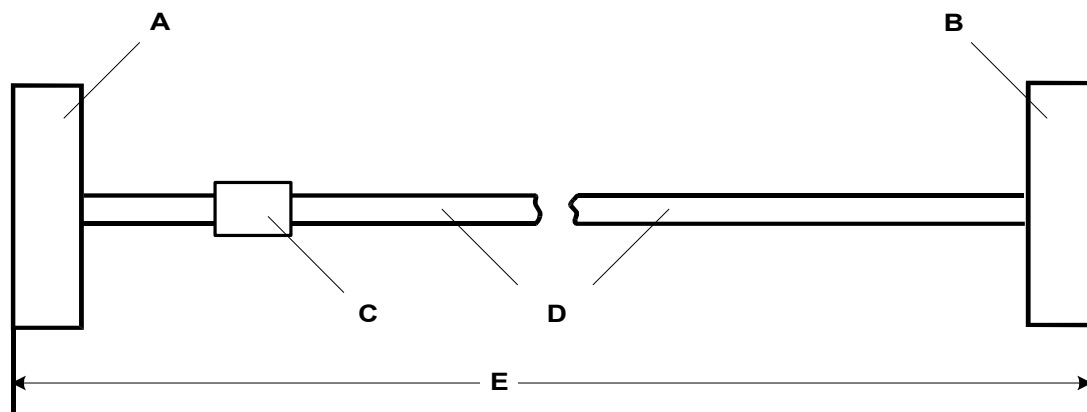
► Connect pin 7 to pin 6 at End A **only**.

Pin 19 at end A is connected to the Screened Cable Drain Wire.

This cable is used to connect a WAN port to a Digital leased Line.

V.35 WAN Cable

SAP Code:- 700213424



A 37 Way D-Type Plug with UNC 4-40 locking screws.

B 34 Way MRAC Plug.

C Label

D 10 twisted pair screened cable - each core is 7/0.203mm (24 AWG) tinned copper stranded wire, nominal capacitance of 98pF/m, impedance of $80 \Omega \pm 10\%$ at 1MHz, screened with aluminized tape and a tinned copper wire drain.

E 3 meters/9.84ft.

Pin Connections

End A	Name	Cable Notes	End B
8	DTR (Data Terminal Ready)	-----	H
11	DCD (Data Carrier Detect)	-----	F
12	CTS (Clear To Send)	-----	D
27	RTS (Request To Send)	-----	C
29	RI (Ring Indicator)	-----	J
30	DSR (Data Set Ready)	-----	E
32	Transmit Data - A	Twisted Pair	P
14	Transmit Data - B		S
35	Receive Data - A	Twisted Pair	R
16	Receive Data - B		T
36	Transmit Clock - A	Twisted Pair	Y
17	Transmit Clock - B		AA
37	Receive Clock - A	Twisted Pair	V
18	Receive Clock - B		X
33	External Clock - A	Twisted Pair	U
15	External Clock - B		W
34	Ground	-----	B

► Connect pins 7 and 25 to pin 6 at End A **only**.

Pin 19 at end A is connected to the Screened Cable Drain Wire.

The maximum core to core capacitance **must not** exceed 800pF.

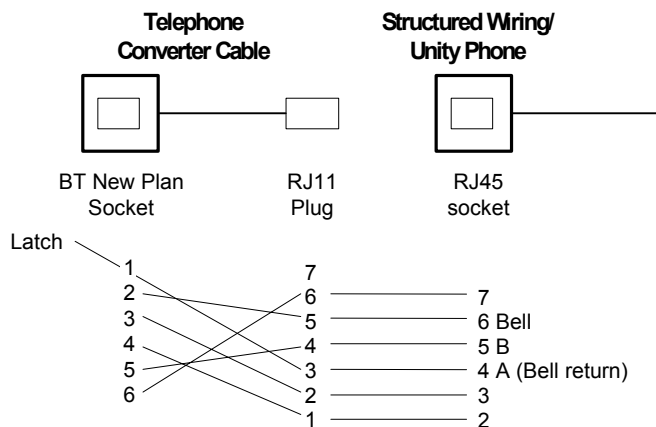
This cable is used to connect a WAN port to a Digital leased Line.

Telephone Converter Cables

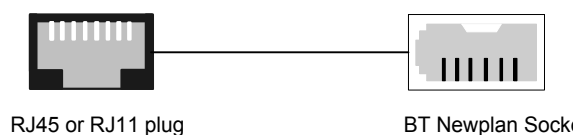
The following diagrams show the pin-outs of various Structured Cabling Telephone Converters. The first two telephone converters shown provide the required conversion allowing correct operation of the attached telephone.

Each telephone port on the **Phone** modules acts as a Master socket, thus only Slave Telephone Converters are required.

RJ45 - Compatible Converter



RJ11/45 Adapter



RJ11 Pin Number	RJ45 Pin Number	BT Newplan Socket Pin Number
3	4	3
4	5	4

Other connections are not relevant.

BT Newplan socket connections may be reversed as polarity is not important.

This adapter may be used with DT telephones fitted with BT Newplan plugs.

Out of Building Installation

In the USA only, installation of telephone and/or other standard (tip/ring) devices in another building requires the following:

- In-Range-Out-Of-Building (IROB) protectors, to protect the control unit and device from electrical surges, must be fitted as follows:
 - System telephone : two IROB protectors
 - Standard telephone : two IROB protectors plus one carbon block protector.

Install the IROBs as per the instructions supplied with the IROB. Three versions are available as follows :

- 146C - Trunks - SAP code 407228923
 - 146D - Two-wire - SAP code 407568146
 - 146E - TDL - SAP code 407568161
- Installation of a Contact Closure Adjunct controlled device outside the building requires a 146G Surge Protector – SCL/8 to protect the control unit from electrical surges.

Port Safety Classification

The Avaya IP Office - Small Office Edition systems have the following ports:

- Analog extension ports (with one Power Fail port)
- 10/100 BaseT LAN ports
- 10/100 WAN port
- Digital telephone ports: either DT (A-Law encoding) or DS (μ -Law encoding)
- ISDN ports (optional)
- Analog trunk ports (with one Power Fail port)
- WAN port (optional V.24/V.35/X.21)
- DTE port
- Audio I/P port
- DC Power Input port
- External Control port

These Ports are classified as follows:

Port Name	Port Description	Port Classification
PRI port	PRI ISDN connection (NET)	TNV (Operating within the limits of SELV)
BRI ports	BRI ISDN connection (NET)	TNV (Operating within the limits of SELV)
Analog ports	Two wire analog trunk	TNV3
Power fail port	Two wire analog trunk	TNV3
DTE port	Async Data connection.	SELV
Analog Telephone Ports	Telephone Extension ports	TNV2
Digital Telephone Ports	Telephone Extension ports	SELV
WAN port	WAN connection (NET).	SELV
LAN ports	10/100 BaseT attachment to LAN.	SELV
Audio port	Connector for Music on Hold.	SELV
External Control port	Connector for Controlling Ancillary circuits.	SELV
DC Input port	Connector for DC input power.	SELV

Interconnection circuits shall be selected to provide continued conformance with the requirements of EN 609050:1992/A3:1995 clause 2.3 for SELV circuits and with the requirements of clause 6 for TNV circuits, after connections between equipment.

Compliance with FCC Rules

Transmit and Receive Gain Settings for PRI/T1 and Analog Ports

The Gain settings are password controlled for use by qualified installation personnel only and must not be made available to the end user. The default gain settings of 0dB ensures compliance with FCC part 68 section 68.308(b)(5) and TIA/EIA-IS-968 Section 4.5.2.5. "Through transmission amplification from ports for the connection of separately registered equipment or from other network connection ports". Gain setting adjustment by unqualified personnel may result in violation of the FCC rules. Qualified personnel may adjust gain settings above these levels only where:

1. Measurement is made to ensure that the power levels sent to line at each network interface connected does not exceed the maximum levels specified in FCC part 68 section 68.308(b) and TIA/EIA-IS-968 Section 4.5 for that specific interface type.
2. Where gain adjustment away from the default values are made, precautions should be taken to ensure that the connection of terminal equipment is controlled by qualified installation personnel.

Technical Specifications

General

Dimensions (unboxed)	Width: 255mm. (10 inches) Height: 71mm (2.8inches) Depth: 235mm (9.3inches)
Dimensions (boxed)	Width: 340mm. (13.4inches) Height: 105mm (4.2 inches) Depth: 305mm (12inches)
Environmental	0 to +40°C. 95% relative humidity, non-condensing.
Weight (unboxed)	1.2Kgs 2.64lbs
Weight (boxed)	2.17Kgs 4.77lbs
Power Supply Consumption (nominal Watts)	2.5mm DC inlet socket. 24Vdc Power input. Rating 24Vd.c., 1.8A max. - 45W
Lump-in-Line PSU Model PSA4524- 26E13	Power Requirements: I/P 100-240Vac, 50/60Hz, 81-115VA, Input current 1.5A max Standard PSUs: O/P 24Vdc, 1.875A, output power 45W max.

Interfaces

Interface	Information
DTE	9-way D-Type female connector, V.24/V.28.
Analog ports	RJ45 sockets: Loop start
Power Fail ports	RJ45 sockets: telephone ports act as master sockets (Analog port 2 switches to POT port 2)
Telephone	RJ45 sockets. EU - Telephone ports act as master sockets. CLI Schemes: DTMFA, DTMFC, DTMFD, FSK and UK20. REN = 2 Off Hook current = 25mA. Ring Voltage = 40V (nominal) RMS. External Bell (via analog port); REN = 1
LAN 1-4	RJ45 sockets. Four Port switch. Auto-negotiating 10/100BaseT Ethernet ports.
ISDN (optional)	ROW Interfaces: BRI : RJ45 sockets. ETSI S/T Interface to CTR3 for Pan European Connection. PRI T1: RJ45 socket: FCC Part 68. USA Interfaces: PRI T1 Service: Ground Start (GS) – Default, E&M, 56k data for 5ESS, 56/64/64 restricted for 4ESS PRI ISDN Switch support: 4ESS, 5ESS, DMS-100, DMS-250 (includes conformance to ANSI T1.607 & Bellcore Special Report SR4287, 1992 PRI ISDN Services: AT&T Megacom 800, AT&T WATS (4ESS), AT&T SDS Accunet 56kB/s & 64kB/s (4ESS), AT&T Multiquest (4ESS).
ISDN Data Rates	BRI: B-channel 64kbps or 56kbps, D-channel 16kbps (2B+D). PRI: B-channel 64kbps or 56kbps, D-channel 64kbps (23B+D).
WAN (standard)	RJ45 Socket. Ethernet LAN port
WAN (optional)	37 way D-Type female sockets. X.21 interface to 2048k bps, V.35 interface to 2048k bps and V.24 Interface to 19.2k bps.
Audio	3.5mm Stereo Jack socket. Input impedance - 10Ωk /channel. Maximum AC signal – 200mV rms.
External Control	3.5mm Stereo Jack socket. Switching Capacity - 0.7A. Maximum Voltage - 55V DC On state resistance - 0.7Ω. Short circuit current - 1A. Reverse circuit current capacity - 1.4A.
Wireless module (optional)	16 bit type II PCMCIA format PC Card IEEE 802.11b WiFi
Voice Memory (optional)	16 bit type II PCMCIA format PC Card 64M flash memory

Protocols

Protocol		Information
A-Law	- - -	PCM encoding (mainly used outside N.America)
μ-Law	- - -	PCM encoding (mainly used in N.America and Japan)
V.120	- - -	A standard Rate Adaption mechanism.
V.110	- - -	A standard Rate Adaption mechanism.
PPP	RFC 1661	Point to Point Protocol.
LCP	RFC 1570	Link Control Protocol.
MP	RFC 1990	Multi-Link (Point to Point) Protocol.
PAP	RFC 1334	Password Authentication Protocol.
CHAP	RFC 1994	Challenge Handshake Authentication Protocol.
CCP	RFC 1962	Compression Control Protocol.
STAC	RFC 1974	Stac LZS Compression Protocol.
MPPC	RFC 2118	Microsoft Point to Point Compression (Protocol).
BACP	RFC 2125	Bandwidth Allocation Control Protocol.
IPCP	RFC 1332	Internet protocol Control Protocol.
TCP/IP	RFC 793	Transmission Control Protocol/Internet Protocol.
DHCP	RFC 1533	Dynamic Host Control Protocol.
NAT	RFC 1631	Network Address Translation.
BOOTP	RFC 951	Bootstrap Protocol.
SNMPv1	RFC1157 (STD15) RFC1155 (STD16) RFC1212 (STD16) RFC1215	Simple Network Management Protocol Structure and Identification of Management Information for TCP/IP-based internets Concise MIB Definitions A Convention for Defining Traps for use with the SNMP
MIB-II	RFC1213 (STD17)	Management Information Base for Network Management of TCP/IP-based internets:MIB-II
RIP	RFC1058 RFC2453 RFC1722 (STD57)	Routing Information Protocol (STD56) RIP Version 2 RIP Version 2 Protocol Applicability Statement
IPSEC	RFC2401 RFC2402 RFC2403 RFC2404 RFC2405 RFC2406 RFC2407 RFC2408 RFC2409 RFC2410 RFC2411	Security Architecture for the Internet Protocol IP Authentication Header The Use of HMAC-MD5-96 within ESP and AH The Use of HMAC-SHA-1-96 within ESP and AH The ESP DES-CBC Cipher Algorithm With Explicit IV IP Encapsulating Security Payload (ESP) The Internet IP Security Domain of Interpretation for ISAKMP. Internet Security Association and Key Management Protocol The Internet Key Exchange (IKE). The NULL Encryption Algorithm and Its Use With IPsec. IP Security Document Roadmap.
L2TP	RFC2661 RFC3193	Layer Two Tunneling Protocol "L2TP" Securing L2TP using IPsec
ENTITY MIB	RFC2737	Entity MIB (Version 2)
TFTP	RFC 1350	Trivial File Transfer Protocol

SNMP Functionality

The IP Office SNMP Agent implements SNMPv1 on a read-only basis for security reasons.

SNMP Agent Configuration

The following operational items may be configured for the IP Office SNMP Agent using the IP Office Manager:

SNMP Server:

- Enable/disable
Enabled: the device to respond to SNMP requests and send traps for any associated events that occur if so configured.
Disabled: the SNMP agent on the device does not respond to SNMP requests or send traps.
- UDP Port (default 161)
Changes the default port value of the SNMP Agent.
- Read-only community
Community string of up to 32 alphanumeric characters for read-only access.

Two trap destinations:

- IP Address
- UDP Port (default 162)
- Community string of up to 32 alphanumeric characters.
- Event mask specifying the events the trap destination is interested in receiving
 - generic (coldStart, warmStart, linkDown, linkUp, authenticationFailure)
 - licence – License Key Server access fault notifications
 - phone change – connected phone change notification

MIBs Supported

The following MIBs are supported by the IP Office SNMP Agent:

- IETF RFC1213 mib-2 (RFC1213-MIB)
 - Provides statistics for LAN, WLAN and WAN interfaces
 - Groups supported: system, interfaces, at, ip, icmp, tcp, udp and snmp
- IETF RFC1215
 - Provides definitions of generic SNMP traps
 - Traps supported: warmStart, coldStart, linkDown, LinkUp and authenticationFailure
- IETF RFC2737 ENTITY-MIB
 - Provides architectural representation
 - Groups supported: entityPhysical and entityGeneral
- Avaya IPO-PROD-MIB
 - Provides device/entity identification OIDs
- Avaya IPO-MIB
 - Provides root OIDs for functional MIBs
 - Provides system wide notifications for events relating to functional entities.
 - ipoGenLKSCommsFailureEvent
 - ipoGenLKSCommsOperationalEvent for License Key Server communication events
- Avaya IPO-PHONES-MIB
 - Provides extension/user/phone-port map.
 - Phone-port mapping via cross-reference to entPhysicalEntry for port with entPhysicalIndex value
 - Provides notifications of phone change event.
 - ipoPhonesChangeEvent

Trap Generation

RFC1215 Generic SNMP Traps:

Trap type	Generated
warmStart	Upon soft reboot.
coldStart	Upon unexpected reboot such as a power outage.
linkDown	Upon transition of an interface (PPP or Frame-Relay) from the up operational state into the down operational state.
linkUp	Upon transition of an interface (PPP or Frame-Relay) from the down operational state into the up operational state.
authenticationFailure	Upon attempted SNMP request with mismatched community for the type of operation.

IPO-MIB:

Trap type	Generated
ipoGenLKSCommsFailureEvent	Upon loss of communication with a configured License Key Server.
ipoGenLKSCommsOperationalEvent	Upon re-gaining communication with a configured License Key Server.

IPO-PHONES-MIB:

Trap type	Generated
ipoPhonesChangeEvent	Upon change of a DT, DS or IP extension phone type after normal start-up. No traps are issued for POT extensions as the presence or absence of such phones cannot be established hence the ipoPhonesType for such extensions is always potPhone.

MIB Loading

In order to SNMP manage an IP Office system, that is browse its MIBs and fully interpret the traps it sends out, the MIBs supported by IP Office must be loaded and compiled for use with your Network Management System. The supported standard and proprietary MIBs together with the MIB files relied upon for definitions are provided on the IP Office Admin CD off the directory snmp_mibs. Detailed below are details of how to install the appropriate MIBs with a number of Network Management Systems.

CastleRock SNMPc 5.1.6c and earlier:

For MIBs to be used with SNMPc they must first be copied into its mibfiles directory, which is normally C:\Program Files\SNMPc Network Manager\mibfiles. MIBs are installed by selecting *Config* and *MIB Database* from the SNMPc menu and then using the *Add* option and selecting the MIB file from the list presented to load and compile it. The following MIBs must be installed in the order listed to fully SNMP manage an IP Office system:

MIB file	Source
ENTITY-MIB	snmp_mibs\Standard on IP Office Admin CD
AVAYAGEN-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD
IPO-PROD-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD
IPO-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD
INET-ADDRESS-MIB.mib	snmp_mibs\Standard on IP Office Admin CD
INTEGRATED-SERVICES-MIB	snmp_mibs\Standard on IP Office Admin CD
DIFFSERV-DSCP-TC.mib	snmp_mibs\Standard on IP Office Admin CD
DIFFSERV-MIB.mib	snmp_mibs\Standard on IP Office Admin CD
IPO-PHONES-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD

HP OpenView Network Node Manager 6.41 and earlier:

MIBs are installed in Network Node Manager by selecting *Options* and *Load/Unload MIBs: SNMP* from the menu and then using the *Load...* option and browsing for MIB files to load and compile. The following MIBs must be installed in the order listed to fully SNMP manage an IP Office system:

MIB file	Source
RFC2737-ENTITY-MIB	snmp_mibs\standard on OpenView install CD
AVAYAGEN-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD
IPO-PROD-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD
IPO-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD
INET-ADDRESS-MIB.mib	snmp_mibs\Standard on IP Office Admin CD
RFC2213-INTEGRATED-SERVICES-MIB	snmp_mibs\standard on OpenView install CD
DIFFSERV-DSCP-TC.mib	snmp_mibs\Standard on IP Office Admin CD
DIFFSERV-MIB-HPOV.mib	snmp_mibs\Standard on IP Office Admin CD
IPO-PHONES-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD

Index

Analogue Ports.....	6
BRI	5 , 7 , 11 , 16 , 30 , 32 , 37 , 43 , 44
Cable ties	14
Digital leased circuit	7
Dimensions	14 , 44
Dust.....	15
Environmental requirements	15
Fault returns	16
Feature Key.....	14 , 19 , 26
Flooding	15
Humidity	15
IROB	42
Licence Key.....	14 , 19
Lithium battery.....	27
NTU.....	7
Packaging	16
Parts required.....	14
PCM encoding.....	5
μ-Law	6
PCS level	11
Power	
Consumption.....	44
Power fail	23
PRI T1	5 , 7 , 11 , 44
Product description	4
Sales feature	7
Software Level	4
Space requirements	14
Clearance.....	14
Height	14
Width.....	14
Temperature.....	15
Terminal installation	22
Testing terminals.....	22
Tools required	14
Unpacking	16
UPS Equipment.....	15
Ventilation	15
Voice over IP	6
Weight.....	44

Performance figures and data quoted in this document are typical, and must be specifically confirmed in writing by Avaya before they become applicable to any particular order or contract. The company reserves the right to make alterations or amendments to the detailed specifications at its discretion. The publication of information in this document does not imply freedom from patent or other protective rights of Avaya, or others.

Intellectual property related to this product (including trademarks) and registered to Lucent Technologies has been transferred or licensed to Avaya.

All trademarks identified by ® or TM are registered marks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners.

This document contains propriety information of Avaya and is not to be disclosed or used except in accordance with applicable agreements.

Any comments or suggestions regarding this document should be sent to "wgctechpubs@avaya.com".

© Copyright 2003 Avaya

All rights reserved.

Avaya
Sterling Court
15 - 21 Mundells
Welwyn Garden City
Hertfordshire
AL7 1LZ
England

Tel: +44 (0) 1707 392200

Fax: +44 (0) 1707 376933

Email: contact@avaya.com

Web: <http://www.avaya.com>.