

OPERA

4.12em

Small Business Switch and VoIP Gateway



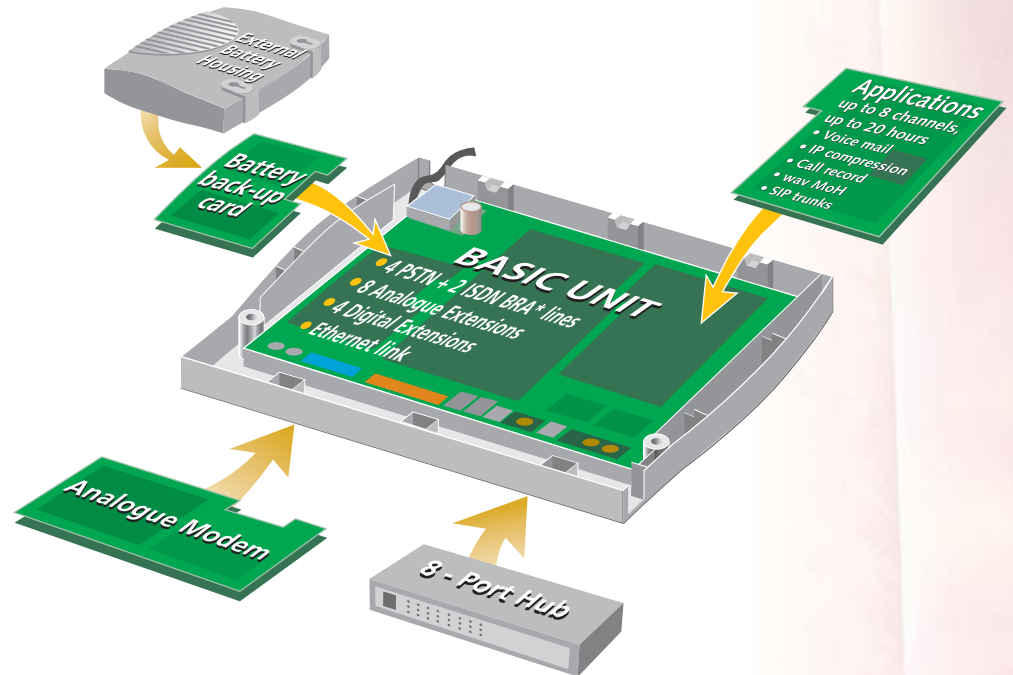
**THE FLEXIBLE COMMUNICATIONS
SOLUTION FOR SMALL BUSINESSES**

mds
gateways

THE COMPLETE SMALL BUSINESS COMMUNICATIONS SOLUTION

Opera 4.12em integrates all the communications needs of a small company into a single platform that can be configured for PSTN/ISDN and Internet access, Voice over IP, voice mail with email forwarding and computer telephony.

Opera 4.12em effectively combines the benefits and reliability of today's high quality voice infrastructure with access to low cost voice and data calls on the IP networks.



* One of the public ISDN interfaces may be customer configured as an internal S₀ bus. Each ISDN line is equivalent to two conventional lines or channels.

Flexible

Opera 4.12em is a modular voice and data switch with in-built Ethernet port. This Opera system is equipped with four PSTN line accesses, two ISDN basic accesses, eight analogue extensions and four digital extensions. An applications card with automated attendant, voice mail, call record and voice over IP may be added to turn your Opera 4.12em into a comprehensive communications gateway.



Traditional voice switch reliability in a gateway of the future

While Opera 4.12em can support remote IP key sets across the Internet, it can also interface calls from IP key sets, digital key sets and standard two-wire sets to each other and to the traditional public switched ISDN and analogue telephone network (PSTN).



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Download additional applications

The optional Applications card provides 2 channels of voice mail with email forwarding as wav attachments and 4 hours storage. It has a capacity of up to eight channels and twenty hours of storage that can be opened using software keys, to support the following features.

Voice mail with email forwarding of voicemails as wav attachments and basic auto attendant

Advanced Multi-layer Automated Attendant with 10 interactive messages

Music on Hold, downloadable wav capability up to 45 minutes

Recording and email forwarding of voice calls on a global or individual call basis

Voice over IP User Licences for VoIP compression and echo cancellation

Voice over IP

The optional Applications card accommodates up to six channels of voice over IP traffic with voice compression, for optimum use of available bandwidth and echo cancellation. These channels may be used to give home workers with Operafone IP Executive keys sets full system phone functionality over a broadband DSL line. IP key sets may also be connected to the system via Ethernet across the in-house company LAN, saving on wiring.

Up to four SIP trunks are also accommodated via these channels.

Voice mail with email forwarding and auto attendant

Individual and group voice mails may be forwarded to your email in-box. You can record and forward memos and Dictaphone messages to colleagues. When you are out of the office you can alter your settings and change your call forwarding destination from your mobile phone. When travelling, you can pick up your voice mail messages cost effectively at an Internet café.

Automated attendants can be programmed for day and night modes, ring groups and queuing.

Advanced Automated Attendant

The advanced Auto Attendant handles important customer calls professionally with up to 10 interactive voice messages and menus. This means that ten separate messages can be played to callers depending on the number dialled, the time of day, the language preference and the other options selected by the caller.

Advanced Auto Attendant can be used to construct a menu tree where, for example, one branch allows the caller to filter through group and extension name choices to a particular destination. An alternative branch could lead to more detailed levels of information on events or timetables.

IP Security against intrusion

Internet calls from the Opera IP Executive key sets are secure against eavesdropping. All Voice over IP connections, call set-up and voice streams, are encrypted using a highly secure encryption algorithm (AES, as used by the United States government) to give a virtually impenetrable VPN.

Embedded web server

A built-in web server with graphical user interfaces simplifies the installation of your system and phones using a standard PC browser. No CDs to insert; just follow the sequence of option selections on your screen with context sensitive help at every stage. Easy installation!

Digital and IP system phone options

The Executive digital and IP key sets have 4-line back-lit displays with context sensitive navigation keys and a Direct Station Select (DSS) module option. The Standard 2-wire digital key set is full hands-free and has a single line back-lit display.

Remote maintenance with firmware upload

New firmware and additional features may be uploaded remotely to the system and phones, safely and securely, without a service engineer visit. The system and phones may also be configured remotely.

Remote extensions for tele-workers

A remote tele-worker can be securely connected as a virtual extension to the Opera 4.12em over the Internet, using an Operafone IP Executive key set. After stepping through the wizard to configure the IP key set, a home-based worker can simply plug the phone into a power source, connect it to a home broadband router, and it's operational. This allows the home worker to make and receive internal or external calls and access the features of the system, via a highly secure tunnel, just like any other extension even though he or she may be located on a different continent. The only cost for the remote worker is the cost of the local Internet access connection. This option exploits the benefit of always-on DSL.

Call Record with email forwarding

Call record channels are available on the optional Applications card. An Operafone Executive extension may then record calls or portions of calls to their voice mailbox, using a single key press to activate/deactivate the recording. Alternatively, the system may be programmed so that all calls to particular extensions are recorded. As soon as recorded calls are terminated the recording is stored in the voice mailbox and a wav file containing the recorded conversation is forwarded to the email address associated with that particular extension, for storage on their PC.

Dial from your PC using CTI

The CTI allows dial-out from Microsoft Outlook using the desktop PC to set up your calls. An optional software module enables transfer and PC based busy lamp field; incoming customer calls can pop a screen on your PC providing access to the relevant customer data base information.

Call routing

Opera 4.12em can be programmed to provide an optimum routing for specific groups of calls, such as international or cell phone calls. This feature can be used to route calls via the lowest cost network or to accommodate a public network based VPN.

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TECHNICAL OVERVIEW

Capacity

Four PSTN analogue trunk lines
Two ISDN BRIs (one may be used as an internal S-bus)
Four 2-wire digital extensions
Eight analogue a/b extensions
One Ethernet port
Up to four SIP trunks
Up to six IP extensions (on the LAN or remotely over Internet)

Plug-in Cards

Analogue modem (14.4 kbits/sec)
Applications card
Battery charger

External Modules

Battery back-up
Eight port Ethernet switched hub

SIP trunks

Four SIP trunks

Built-in ISDN Router

Bandwidth management of ISDN B channels based on traffic analysis
Browser based configuration and programming
Dial-in support for remote access to LAN or to Router
DNS relay
IP address negotiation and login to ISP
IP packet routing from LAN to ISDN
Multilink PPP
Multiple ALG support on broadband
NAT/ PAT
Port filtering firewall
Remote configuration over the internet or dialup

Security

AES encryption for VoIP
Dial-in usernames and passwords (PAP and CHAP)
Firewall on ISDN router
ISP access log

System Management

Browser based local or remote programming using built-in http server
Local or remote configuration backup
Local or remote software upgrade
Remote diagnostics

Computer Telephony Integration

Proprietary CTI application integrated with Outlook
Screen popping option for incoming calls
Click to dial

Voice over IP

Voice compression codecs: G711, G.723.1, G729a
Quality of Service (QoS): 802.1p/q
Echo and silence suppression
Echo cancellation G.165/G.168 including NLP 16ms tail length
AES encryption algorithm for all call set-up and voice streams

Physical Interfaces

a/b POTS extensions (x 8) cage clamp
Battery back-up 2-pole screw
Central bell cage clamp
Digital extensions (x 4) cage clamp
Doorphone (1xa/b extn, 2 x relays)
External Ethernet hub 8 x RJ45 plus uplink
External MoH 5mm audio jack
External relays (x2) cage clamp
ISDN T (x2) RJ45
LAN RJ45
PSTN lines (x 4) IDC

Power

110V / 220V / 240V ac (market dependent)
Consumption: typical 17VA, maximum 28VA
12V optional battery back-up

Voice Functionality

Alarm clock calls
Analogue CLI (on lines and extensions)
Auto attendant
Call queuing
Interactive Voice response
Out-of-hours mailbox
Barge-In
Browser based system programming
Browser based user programming
Call-back
Call Barring, up to 7 levels
Call Brokerage
Call Diversion
Divert all
Divert no answer
Divert on busy
External or internal divert
Reprogram diversions remotely
Call Hold
Call Lists
Missed
Dialed
Received
Callback
delete
store to address book
timestamp
Call Logging buffer 100 kB (1,000 events)
Call Logging output to IP
Call Park
Call Pick-up/ Call Pick-off
Call Protection
Call Record
Call Transfer
Call Waiting (internal and external)
CLIP, CLIR
Conference Call (Internal and External)
CTI
Digital key sets (2-wire)
Do not disturb
Dynamic DNS
Enquiry Call
Fallback to operator
Flexible numbering

Groups

Cyclical start hunting
Dedicated mailboxes
Fixed start hunting
Group diversion
Group mailbox
Missed call list per group
Opt in / opt out of group
Up to 10 groups
Headset ready
Hotline
Installation wizard
IP key sets
Least cost routing
MSN ringing assignment
MSN restriction
Music on hold
Night service
Paging
via system phones
Phone Book
2,600 entries system wide
200 common entries
50 entries per extension
import / export of directories
Internal extension list
Programmable keys, 16
Re-dial (last 10 numbers)
Ringing Modes, 5
Roaming PIN
SIP trunks
User PIN codes
Voicemail
2, 4 or multiples of 4 channels
2 to 20 hours storage time
Busy message
Call-back
Caller ID
Change diversions remotely
Change welcome message remotely
Dictaphone message
Forwarding
Greeting message
Time and date stamp
Unified messaging
Voice VPN



MDS Gateways

Clonsaugh Business & Technology Park,
Dublin 17,
Ireland
Tel: +353-1-816 0000
Fax: +353-1-848 8825
Email: info@mdsgateways.com
www.mdsgateways.com

Specifications subject to change without notice.
Facilities described may or may not be supported by your network.

