Splicecom ***maximiser***

Free your Network

Modules Datasheet

Version 3.2

5100 Call Server
5315 Phone Module
5330 Phone Module
5108 Call Server

www.splicecom.com

Introduction

The **max**imiser business telephony system from SpliceCom provides a breakthrough in integrated voice communications. Developed from state of the art technology it delivers real life benefits associated with many traditionally separate components in one single, seamless system, currently supporting 4 to 10,000 extensions. When used in conjunction with SpliceCom's broad range of Proactive Communication Stations (PCS), the **max**imiser allows you to converge your telephone system with your core business applications, "pushing" the right information to the desktops of the right people at the right time.

Through the use of an innovative architecture, the **max**imiser eliminates the physical and geographical limitations of traditional telephone systems, allowing great savings to be made on administration, management and infrastructure costs, through the unification of networks. This approach allows all businesses, irrespective of size, to benefit from extended communications, and more importantly protects your initial investment by growing with you as your need for communication scales and becomes ever more demanding.

A single integrated business telephony solution

The **max**imiser system is completely modular and comprises of just two different, 19", 1U high, rack mountable components; Call Server and Phone Module.

5100 Call Server

At the very heart of the **max**imiser architecture lies the Call Server. PBX, voicemail/auto attendant, Voice over IP (VoIP) Gateway and Gatekeeper, SIP Proxy Server, Dynamic Host Configuration Protocol (DHCP) Server, Apache Web Server and Lightweight Directory Application Protocol (LDAP) database are all fully integrated and housed within the 5100 Call Server, which is supplied as a single, slim line unit. The 5100 Call Server also supports an extensive range of Trunks and Wide Area Network (WAN) services; two 30 channel Primary Rate ISDN (PRI) interfaces supporting Q.931 or DPNSS, Quad Basic Rate ISDN (BRI) (8 channels) and LAN connectivity to enable H.323 and SIP IP trunks to be provisioned. Up to 16 analogue extensions can be directly attached, whilst a four port 10/100 Mbps Ethernet switch provides Power over Ethernet (PoE) to IP Phones supporting the 802.3af standard. A single Ethernet Link port allows connectivity to external LAN switches, allowing a higher density of IP Phones to be attached and IP Trunks and WAN Services to be accessd via external routers. Two 3.5mm sockets allow door relays to be connected and controlled, whilst two trigger inputs accepting signals from fire/intruder alarms, panic buttons, etc. are also provided in a mini-DIN format. All user and trunk interfaces are terminated in RJ45 sockets and mounted on the front of the 5100 Call Server. This allows it to be installed in the same cabinet as your structured wiring and patched directly across. All power supply, relay and trigger connections are mounted at the rear of the 5100 Call Server.

PBX

As a business telephone system, the **max**imiser architecture supports both IP and analogue phones. Analogue phones are directly connected to the system via eight analogue extensions at the front of the 5100 Call Server. This capacity can be further expanded to 16 if required via a licence key. IP phones are attached to the four port, powered LAN Switch at the front of the 5100 Call Server. As such, a single 5100 Call Server provides all the functionality required to provide a small, yet sophisticated telephony solution. From basic call handling capabilities through to applications until now only found on high-end, PBX's (such as Extension Anywhere, 2-Way, Mobile Transfer, Simultaneous Ringing and Skills Based Routing), **max**imiser provides easy-to-use and consistent operation independent of the type of phone deployed. The system capacity of the **max**imiser system can be increased by adding LAN Switches to support a greater density of IP Phones and 5315/5330 Phone Modules to support more Analogue Phones. Each 5100 Call Server can support up to 500 users.

Voice Processing

A fully integrated 4 port, 1,500 hour Voice Processing system with 10 active voicemail boxes enabled, is supplied as standard with each 5100 Call Server. A total of 1,000 mail boxes on each 5100 Call Server can be activated as required via license keys. Expansion up to 16 ports, allowing a greater number of concurrent calls to be handled, is also provided. If a higher port density is required the **max**imiser Voice Processing application can be run off-switch on a Linux PC or Server. **max**imiser has the ability to support multiple voicemail systems which can be independent of both platform and geography allowing them to be sited in the most appropriate location - or locations. The multi-port registration architecture allows voicemail to be spread across many servers, increasing both the overall capacity and resilience of the **max**imiser system. Voicemail facilities can be further enhanced through the addition of SpliceCom's Enhanced Speech Processing (ESP), which provides multi-layer auto-attendant, dial through and voice forms via a VoiceXML based Interactive Voice Response (IVR) application.

ISDN Trunks

The 5100 Call Server provides two Basic Rate ISDN interfaces (four trunk lines) as standard. This can be expanded by a further two BRI interfaces and two Primary Rate ISDN interfaces. The two PRI interfaces also support DPNSS for connectivity to legacy PBXs. All ISDN interfaces can all be used in TE (connecting to ISDN services) or NT (connecting 3rd party equipment - PBXs, Routers, Fax Servers, etc.) modes. When connected to ISDN services, these trunks can be used for incoming and outgoing voice (standard and IP) and IP data calls. In situations where more ISDN trunks (or WAN links) are required, additional 5100 Call Servers can be seamlessly added to a single **max**imiser system.

Powered 10/100Mbps LAN Switch & LAN Link

This four port, Power over Ethernet (PoE), Layer 2 switch provides the means of connecting other IP Phones to the 5100 Call Server. If more than four ports are required, the single LAN Link port can be used to connect to the LAN network or other 3rd party switches. A **max**imiser system operates completely independent of LAN infrastructure. You can choose to keep voice calls totally separate from your data traffic by either running **max**imiser in a centralised, PBX replacement configuration, as in a traditional voice and data infrastructure, or over a distributed voice-only LAN. Alternatively you can choose to converge your voice and data network into one. If the decision is made to keep voice traffic separate LAN switches can be utilised to link to 5315/5330 Phone Modules and IP Phones

only. In a fully converged voice & data network, that is one where Quality of Service (QoS) is available throughout the network, the **max**imiser modules, and IP Phones can be overlaid as a "voice application" on top of your existing LAN infrastructure. DiffServ is supported to ensure QoS is maintained in converged networks. Where IP hardphones are utilised, the 5100 Call Server's support for Power over Ethernet (PoE), allows 802.3af compliant devices, such as SpliceCom's PCS 410 and PCS 100 to be powered over the LAN. This eliminates the need for every phone to be separately powered, thereby saving costs and increasing overall system resilience in the case of mains power failure.

H.323 Gatekeeper

All **max**imiser trunks and phones register with the H.323 Gatekeeper integrated within the 5100 Call Server architecture, utilising standards based, secure H.323 methodology. Although IP Phones, or in the case of analogue phones, 5315/5330 Phone Modules, pass speech directly between themselves using the Real Time Protocol (RTP) once the call has been set-up, the H.323 Gatekeeper is responsible for all Phone Registrations, Call Routing and Call Logging. Where integration into large IP networks is required, the **max**imiser's internal Gatekeeper has the ability to register with multiple external H.323 Gatekeepers, on behalf of all system components.

H.323 Gateways

H.323 Trunk Gateways register with the 5100 Call Servers in-built H.323 Gatekeeper and act as a resource for the Gatekeeper to route calls to and from the public telephone (PSTN) network. Multiple Call Servers are capable of operating as H.323 Gateways, allowing distribution across physically separate modules and geographic sites. 64 kbps, G.711 voice is supported as standard on **max**imiser, however up to 68, inbuilt, 8 kbps, voice compression channels, based on G.729a encoding and providing an excellent balance between voice quality and bandwidth efficiency, can be enabled per 5100 Call Server.

SIP Proxy Server

SIP Proxy Server (RFC 3261) support is fully integrated into to the 5100 Call Server architecture. This allows both SIP and H.323 devices (IP Phones and Trunks) to be deployed and utilised concurrently across a single **max**imiser system, with calls being passed seamlessly between both device types.

Distributed LDAP Database

The 5100 Call Server forms the heart of any **max**imiser system as it runs the database that holds information relating to the rest of the components and is therefore core to the overall operation. In a multi-site network, or a high-availability single-site running standby/redundant Call Servers, this database information is replicated centrally and then distributed to all the other Call Servers. This allows sites that may reside on different continents to operate as if they were located in the same building.

Apache Web Server

maximiser provides unique functionality in its ability to converge voice with web-enabled IT applications to greatly improve desktop productivity - delivering the right information, to the right people, at the right time. This data is pushed to the desktop via the large touch screen displays of the PCS 410 IP Phones, or within the PCS 50 application running as either an IP Softphone or "partner" to an analogue phone on Windows, Mac OS X or Linux PCs. The

information pushed to these displays can reside on the internet, company intranet or be run on web-based application servers located anywhere on the LAN infrastructure. Web pages and applications can also be mounted on the Apache Web Server running within the 5100 Call Server, which is primarily used to control the images viewed on the PCS 410 or PCS 50, and to provide the interface for system configuration, via a standard browser.

5315 & 5330 Phone Modules

The Phone Module is available in two variants, providing connectivity for up to fifteen (5315) or thirty (5330) analogue devices. These can be traditional analogue (POTS) telephones, fax machines or modems. Typically used to connect SpliceCom's PCS 10 and PCS 5 system phones, the deployment of 5315/5330 Phone Modules provides un-paralleled investment protection where standard analogue phones are already utilised, whilst allowing the overall capital cost of a **max**imiser system to be minimised. These phones can then be further energised by using them in conjunction with the Proactive Communication Station (PCS) 50 application, which runs on a desktop or laptop PC as a partner to the analogue phone, independent of the operating system - Windows, Mac OS X and Linux are all supported. Connectivity between Phone Modules and their local 5100 Call Server is achieved over a private LAN network, for separate voice and data networking, or overlaid on the existing company LAN with Quality of Service (QoS) support, if full voice & data convergence is a requirement. This connectivity enables Phone Modules to be located anywhere where they can be linked to a 5100 Call Server - either locally via the LAN or remotely across an IP WAN infrastructure. A 10/100 Mbps LAN port is provided at the front of the 5315/5330 Phone Module to meet this need. All analogue extension interfaces are also positioned at the front of the 5315/5330 Phone Module. This architecture allows installation costs to be drastically reduced as a single Category 5 cable (or better) running from a 5100 Call Server to a 5330 Phone Module replaces up to 30 cables in a traditional PBX installation.

Analogue Extensions

In addition to SpliceCom's PCS 10 and PCS 5 system phones, deployment of **max**imiser Phone Modules allows existing, low-cost 2-wire, analogue telephones to be utilised, reducing the overall system cost. Modems and analogue fax machines can also be connected to this module, whilst analogue DECT devices can be utilised where mobility is required - in a factory environment or by a school secretary for example. DECT solutions provide great

flexibility, allowing your employees to always be in contact without needing to be desk or office bound. Where PCS 10s or standard Caller Display phones are used the Phone Module forwards information allowing your employees to see who is calling them before they answer. As well as the caller's number (CLI), their name (if it is known to you) is also displayed. This information is held within the distributed **max**imiser database. Finally, the name associated with the number dialled by the caller is also shown, this could be an employee's direct number (DDI), or it may be that they are participating in a hunt-group; sales, admin, support, etc. The combination of this information allows your employees to know who's calling and to answer the call accordingly based on the number rung. The result is improved client handling and therefore happier customers, the very essence of Customer Relationship Management. The Caller Display is also used to notify users of the number of new or outstanding voicemail messages they have.

IP Extensions

An integral four port, Layer 2 LAN switch provides the means of connecting local IP Phones to the 5315/5330 Phone Modules. Support for DiffServ ensures QoS is maintained where **max**imiser is deployed on a converged voice and data LAN infrastructure. Power over Ethernet (PoE), allows 802.3af compliant devices, such as SpliceCom's PCS 410 and PCS 100 to be powered directly over   the LAN.

10/100Mbps LAN Link

A 10/100 Mbps Full Duplex Ethernet port provides the means of connecting the Phone Module to its local Call Server. This could be directly or via your existing LAN or WAN infrastructure. When installing a **max**imiser system, you have the choice to keep voice separate from your data traffic, as in a traditional voice and data infrastructure, or converge the voice and data network into one. If the decision is made to keep voice traffic separate Phone Modules will only be interconnected to other **max**imiser modules and components. In a fully converged voice & data network the **max**imiser modules and data LAN network traffic will coexist on a single LAN network with QoS ensuring that voice calls have priority over data traffic, so ensuring that speech quality is preserved.

WiFi Connectivity

A USB 2.0 connector on the front of both the 5315 and 5330 Phone Modules allows Wireless LAN connectivity to be provisioned through the use of a USB WiFi adapter. This wireless connection replaces the need for a fixed LAN link from the Phone Module to the backbone LAN network.

H.323 Client

To enable voice calls made from standard analogue phones connected to the 5315/5330 Phone Modules, to be converted into IP voice calls, the module acts as an H.323 Client. All **max**imiser trunks and phones register with the H.323 Gatekeeper integrated within the Call Server architecture, utilising standards based, secure H.323 methodology. Internal calls between analogue phones connected to Phone Modules, pass the voice traffic directly between themselves once the call is set-up. The integral H.323 Gatekeeper, which resides within the Call Server, is responsible for call set-up - Phone Registrations, Call Routing and Call Logging. Where integration into large IP networks is required, the **max**imiser's internal Gatekeeper has the ability to register with multiple external H.323 Gatekeepers, on behalf of all system components.

5108 Call Server

The 5108 Call Server extends the cost-effective reach of **max**imiser down to the branch offices of larger organisations and meets the standalone requirements of smaller businesses. Identical in features and functionality to the larger 5100 Call Server and housed within a half-size enclosure, the 5108 Call Server provides support for 4 analogue and 4 IP Phones, delivering the very same advantage and benefits as larger **max**imiser systems.

Interfaces

Supplied with 4 analogue extensions as standard, the 5108 Call Server can be expanded by connecting up to 4 IP Phones to its integral, four port, Layer 2 LAN switch with Power over Ethernet (PoE) support. A single Basic Rate ISDN (BRI) trunk is supplied as standard, whilst a second BRI can be enabled for higher density trunk requirements. Both of theses ISDN interfaces can be individually configured for TE or NT operation. H.323 and SIP trunks are also supported, with the 5108 being capable of supporting a maximum of 8 trunks in any combination; BRI, H.323 or SIP. A LAN Link connection provides connectivity to an external LAN Switch, existing LAN infrastructure, IP router, etc. A single trigger input for external alarms and an output for door relays completes the physical connections available on the 5108 Call Server.

Small and Medium Sized Businesses

For smaller businesses that require a telephone system, the 5108 Call Server provides all the familiar **max**imiser features and benefits within a single compact unit. From simple analogue PBX, through mobility, voice processing, IP Telephony and integration with web based IT applications - the 5108 Call Server can support all these applications as it runs exactly the same **max**imiser software as its big brother the 5100 Call Server. An integrated, 2 port voicemail system, which can be expanded to 8 ports, with 5 active voicemail boxes and 500 hours of recording time is supplied as standard, as is forwarding/copying of voicemail to email and the ability to generate SMS voicemail alerts (via an appropriate service provider).

The Branch Office

For larger organisations looking to utilise their existing IP infrastructure and bandwidth for voice communications, or roll out integrated desktop applications to even its smallest remote office, the 5108 Call Server provides the most cost-effective means of doing so. Through the provision of a single unit that supports a smaller number of extensions and trunks than the 5100 Call Server - but identical features and facilities - the 5108 Call Server provides the perfect "small of large" offering in extended **max**imiser networks.
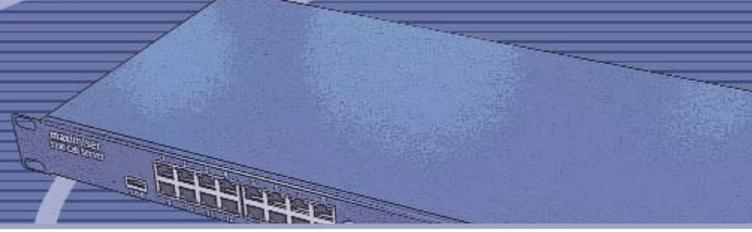
maximiser - Start Small, Think Large

A single 5108 Call Server provides all you need to deploy a simple, yet sophisticated business telephone system with four extensions and two trunk lines, scaling up to eight extensions and eight trunks. The 5100 Call Server allows your system to scale up to 500 extensions, which can again be any mix of analogue or IP, by simply adding 5315/5330 Phone Modules and LAN Switches any where on your LAN network. Multiple 5100 Call Servers can be "clustered" to form a single system, meeting higher density telephony requirements and/or eliminate any single point of failure in business critical environments. In fact, the **max**imiser architecture supports up to 10,000 extensions, 5,000 trunks and 200 Call Servers distributed across LAN and/or WAN networks within a single system. Yet from a customer, employee and network manager's viewpoint, no matter how many Call Servers are deployed, or where they may be located, the system appears, and just as importantly, is configured and managed, as one, from anywhere, via a simple, platform independent browser interface.

SpliceCom - Understanding Your Business

In the world of Business Telephony, SpliceCom are unique. A privately funded British company formed in 2001, our founders headed up the two most successful UK voice and data convergence companies of the 1990's - SDX Business Systems and Network Alchemy. SpliceCom's **max**imiser "Pure IP PBX" product family converges voice, video and web enabled IT applications at the desktop within a single system, providing tangible business benefits for all types of companies, irrespective of their size.

Having commenced shipments in early 2003, **max**imiser was voted the "Most Innovative Product" at one of the UK's premier communications trade events, Comms Channel Expo 2004, whilst SpliceCom's PCS 50 for Mac OS X IP Softphone/Phone Partner application picked up the award in 2005. You can find out more about SpliceCom by visiting our web site; www.splicecom.com

maximiser Module Connectors & LEDS

5100 Call Server

5315 Phone

5330 Phone

Back (for all 3 units)

5108 Call Server

Back
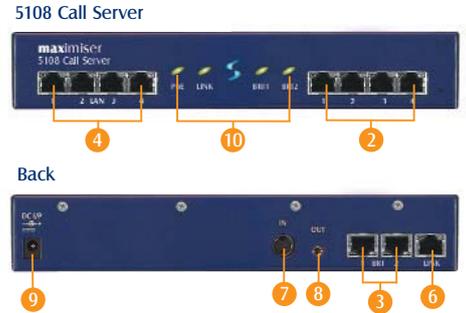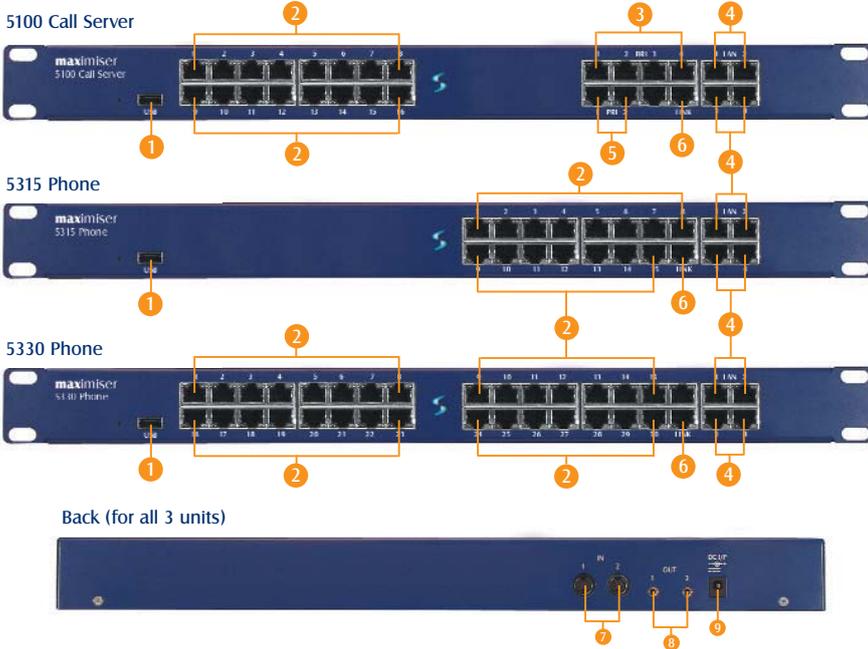
1 USB Socket

USB Socket. Allows Wireless LAN connectivity to be provisioned through the use of a USB 2.0 WiFi adapter. Not used on the 5100 Call Server.

2 Analogue Extension Sockets

16 x RJ45 sockets on 5100 Call Server, 15 on 5315 Phone Module, 30 on 5330 Phone Module and 4 on 5108 Call Server with integrated LEDs for ringing and off-hook, supporting the connection of standard analogue (POTS) telephones, fax machines and modems.

3 Basic Rate ISDN S/T

5100 Call Server provides four Basic Rate ISDN (BRI) interfaces, (8 trunk lines) via 4 x RJ45 ETSI S/T interfaces. CTR3 compliant for Pan European Connection. The 5108 Call Server provides 2 BRIs.

4 Integral QoS LAN switch

Direct connectivity for up to 4 IP Phones via 4 x RJ45 ports, dual speed, 10/100 Mbps Ethernet interface with integral LEDs reflecting connectivity (Link) and activity (Data). All ports auto-sense for MDI/MDIX connectivity. QoS (DiffServ) and 802.3af Power over Ethernet (PoE) are both supported.

5 Primary Rate ISDN S/T

The 5100 Call Server provides two Primary Rate ISDN circuit (30 trunk lines) via 2 x RJ45 ETSI S/T interface. CTR4 compliant for Pan European Connection.

6 LAN LINK

1 x RJ45 port, dual speed, 10/100 Mbps Full Duplex Ethernet interface with integral LEDs reflecting connectivity (Link) and activity (Data). Provides connectivity to existing LAN infrastructure, or dedicated LAN switches.

7 Trigger Inputs

Two trigger inputs to accept signals from fire or intruder alarms, provided in a mini-DIN format. 1 on 5108 Call Server. Not currently used on 5315 & 5330 Phone Modules.

8 Relay Sockets

2 x 3.5mm jack sockets to drive two external door release relays. 1 on 5108 Call Server. Not currently used on 5315 & 5330 Phone Modules.

9 Power

Primary 48Vdc. Power Supply Unit (PSU), CE Safety Approved. Supplied as standard.

10 LED Status Lights (5108 Call Server only)

LED 1 - PoE
Indicates that power is being provided to Ethernet devices connected via the 4 port 10/100 Mbps LAN Switch.
LED 2 - LINK
The 10/100 Mbps Ethernet socket is connected and active.
LED 3 - BRI1
The first Basic Rate ISDN socket is connected and active.
LED 4 - BRI2
The second Basic Rate ISDN socket is connected and active.

Technical Specifications

5100 Call Server
Interfaces
Analogue:
16 x RJ45 extensions. Supports standard analogue (POTS) telephones, fax machines and modems. Integral LEDs for Off-Hook and Ringing. BT SIN 227/242 support for Caller Display. 44V rms nominal Ringing Voltage. 48V nominal On-Hook voltage. 0-24V Off-Hook voltage. 25mA Off-Hook current. 8 x RJ45 extensions enabled by licence.

Quad Basic Rate ISDN S/T:
4 x RJ45 ETSI S/T interfaces CTR3 for Pan European Connection. Supports TE and NT modes. 2 x Basic Rate ISDN interfaces enabled by license.

Primary Rate ISDN S/T (30 Channels):
2 x RJ45 ETSI interface CTR4 for Pan European Connection. Supports DPNSS, TE and NT modes. Enabled by license.

LAN Link:
1 x RJ45 port, dual speed, 10/100 Mbps FDX Ethernet interface with integral LEDs for Link and Data.

Powered LAN Switch:**
Layer 2 Ethernet switch. 4 x RJ45 ports, dual speed, 10/100 Mbps FDX Ethernet interface with integral LEDs for Link and Data. Supports 802.3af for power over Ethernet. (All ports auto-sense for MDI/MDIX connectivity).

External Output:
2 x 3.5mm jack sockets to drive two external door release relays.

External Input:
2 x Mini-DIN sockets to accept inputs from external alarm systems.

Power:
1 x 48Vdc power jack.

Protocols
PPP, Multi-Link PPP, MLCP, PAP, CHAP, DHCP, IP, TCP, IPCP, RTP, RTCP LDAP, H.323, H.450, SIP, G.711, G.729*, HTML, PHP, DNS, TAPI 2.2 (3.0), 802.3af, DiffServ and DPNSS
* - Enabled by licence

5108 Call Server
Interface
Analogue:
4 x RJ45 extensions. Supports standard analogue (POTS) telephones, fax machines and modems. Integral LEDs for Off-Hook and Ringing. BT SIN 227/242 support for Caller Display. 44V rms nominal Ringing Voltage. 48V nominal On-Hook voltage. 0-24V Off-Hook voltage. 25mA Off-Hook current.

Dual Basic Rate ISDN S/T:
2 x RJ45 ETSI S/T interfaces CTR3 for Pan European Connection. Supports TE and NT modes. 1 x Basic Rate ISDN interfaces enabled by license.

LAN Link:
1 x RJ45 port, dual speed, 10/100 Mbps FDX Ethernet interface with integral LEDs for Link and Data.

Powered LAN Switch:**
Layer 2 Ethernet switch. 4 x RJ45 ports, dual speed, 10/100 Mbps FDX Ethernet interface with integral LEDs for Link and Data. Supports 802.3af for power over Ethernet. (All ports auto-sense for MDI/MDIX connectivity).

External Output:
1 x 3.5mm jack sockets to drive two external door release relays.

External Input:
1 x Mini-DIN sockets to accept inputs from external alarm systems.

Power:
1 x 48Vdc power jack. See below.

Protocols
PPP, Multi-Link PPP, MLCP, PAP, CHAP, DHCP, IP, TCP, IPCP, RTP, RTCP, LDAP, H.323, H.450, SIP, G.711, G.729a*, HTML, PHP, DNS, TAPI 2.2 (3.0), 802.3af, DiffServ and DPNSS
* - Enabled by Licence

5315/5330 Phone Modules
Interfaces
Analogue:
15 (5315) or 30 (5330) x RJ45 extensions. Supports standard analogue (POTS) telephones, fax machines and modems. Integral LEDs for Off-Hook and Ringing. BT SIN 227/242 support for Caller Display. 44V rms nominal Ringing Voltage. 48V nominal On-Hook voltage. 0-24V Off-Hook voltage. 25mA Off-Hook current.

LAN Link:
1 x RJ45 port, dual speed, 10/100 Mbps FDX Ethernet interface with integral LEDs for Link and Data.

Powered LAN Switch:**
Layer 2 Ethernet switch. 4 x RJ45 ports, dual speed, 10/100 Mbps FDX Ethernet interface with integral LEDs for Link and Data. Supports 802.3af for power over Ethernet. (All ports auto-sense for MDI/MDIX connectivity).

USB:
1 x USB 2.0 interface. Provides connectivity for USB 2.0 WiFi adapters.

Power:
1 x 48Vdc Power jack. See below.

Protocols
IP, IPCP, TCP, RTP, RTCP, H.323 (Client), H.450, TAPI 2.2 (3.0) and DiffServ

Power
48Vdc, 65 watt, Lump-in-Line PSU, CE Safety Approved. Pan-European variant.

Dimensions (mm)
5100, 5315 & 5330: 486.80 (w) x 224.00 (d) x 42.23 (h)
5108: 243.40 (w) x 224.00 (d) x 42.23 (h)

Weight
5100 Call Server: 3.55 Kg
5108 Call Server: TBA Kg
5315 Phone Module: 3.42 Kg
5330 Phone Module: 3.48 Kg

**The standard PSU allows 4 x PCS 100s OR 1 x PCS 400 to be powered from the 4 port LAN Switch.