



ApplianX AP Gateway

Installation Guide

Revision 1.3



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Document Revision

Rev	Date	By	Detail
1.0.d1	28 Sep 16	EBJ	New document for AP Gateway.
1.0.d2	11 Oct 16	EBJ	Declaration of conformity added
1.0.d3	13 Oct 16	EBJ	Minor changes
1.0.d4	11 Jan 17	PA	Mention Ethernet connections specific to VM
1.0.d5	12 Jan 17	PA	Update Servicing section.
1.0	27 Jan 17	MC	Release
1.1.d1	14 Mar 17	PA	System Power management.
1.2	04 May 17	PA	Updated D of C, and Minor changes to Sections D6 and E6.
1.3	17 May 17	EBJ	Reformatted.

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1 Getting started

1.1 Unpacking and assembly

1.1.1 Chassis packaging

The ApplianX box contains the following accessories:

- One IEC 60320 type C13 power cord
- Quick start reference
- Standard 19 inch rack locating brackets (fitted to chassis)
- Five low profile adhesive feet (fitted to chassis, removable)

The chassis packaging is made from material which can be recycled.

1.1.2 ApplianX location

The chassis must be installed in a restricted access location in accordance with IEC 60950-1: 2005 Clause 1.7.14.

1.1.3 Rack mounting 19 inch equipment

WARNING

THE CHASSIS WEIGHS UP TO 4KG. THE WEIGHT SHOULD BE TAKEN INTO CONSIDERATION WHEN EQUIPMENT CABINETS AND MOUNTING HARDWARE ARE PURCHASED AND INSTALLED. CONSULT YOUR COMPANY HEALTH & SAFETY PROCEDURES AND POLICIES FOR GUIDANCE ON LIFTING AND HANDLING.

Care must be taken to prevent a hazardous condition due to uneven mechanical loading.

The unit may also be located on a shelf in a 19 inch cabinet.

1.1.4 Free standing

The unit is also suitable for free standing operation, in which case the standard rack mounting brackets may be removed. In free standing installations care must be taken to provide adequate strain relief to all cables to prevent damage to the unit if accidentally moved.

1.1.5 Airflow and cooling

CAUTION

The chassis uses forced air cooling internally. It is imperative that ApplianX systems are operated with all covers fitted and that none of the ventilation holes/slots on the front, or rear of the chassis are obstructed. Installation in a rack should be such that the airflow required for safe operation is not compromised.

When rack mounted in a closed or multi-unit cabinet, the operating environment of the cabinet environment may be greater than the room ambient. In this case consideration should be given to maintaining an operating environment that does not exceed 40 °C.

Internal operating temperatures may be monitored via the System Administrator browser interface.

1.1.6 Power connection

The ApplianX is supplied as an AC powered system. The ApplianX will auto adjust to the supplied voltage in AC installations (100 to 240 volts AC \pm 10% at 50 to 60Hz \pm 3Hz). The internal power supply is rated at a maximum of 150W, however the unit is designed to consume no more than 30W during normal operation.

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be made when addressing this concern.

1.1.7 Earth connection

Reliable earthing of rack mounted equipment must be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit, such as mains distribution strips that are typically located inside equipment cabinets.

NOTE

Read the Safety Appendix before installing any equipment.

1.1.8 Electrostatic discharge precautions



During installation and maintenance, handle all cables by their plastic casing or connector shield. Do not touch metal parts within any socket as you plug cables into connectors.

Before plugging in any Ethernet or E1/T1 interface cables, ground yourself to dissipate any static charge you may be carrying.

These precautions will minimise the chance of any ESD damage to the ApplianX or unplanned interruption to system operation.

1.1.9 1U chassis physical details

The ApplianX chassis is designed to fit into 19 inch rack mounting cabinets commonly found in telecoms switch room environments.

	Width	Depth	Height	Weight #
With side brackets and front handles (Rear Earth Stud (9.00mm) not included).	481.40mm	300mm	43.50mm	max 4kg
Without side brackets and front handles	430mm	270mm	43.50mm	max 4kg

Subject to variation between different system capacities



Figure 1-1 1U chassis front layout (4 trunk shown)

The front of the chassis presents a panel with the following:

- A power button
- Up to four E1/T1 trunk connectors depending on system capacity
- One Ethernet connector for Administration
- One Ethernet connector for VoIP traffic
- Two Ethernet connectors for VM access: VMA and VMB
- Two USB connectors (type A) for system updates and/or backups



Figure 1-2 1U chassis rear layout

The rear of the chassis provides access to the following interfaces and information:

- AC power inlet fitted with an IEC 60320 type C14 socket
- Rating label
- Earth stud

1.2 Powering the ApplianX on

Connect a power cord to the ApplianX according to the following procedure:

- Connect E1/T1 and Ethernet network cables as required. The type of cables and connectors used depend upon the interface mix contained with the ApplianX
- Check that the electrical outlet is grounded and it is within the permitted range shown on the rating label
- Plug the power cord into the AC power inlet socket on the rear of the ApplianX
- Connect the other end of the power cord into a suitable electrical outlet

Power cord already attached to the ApplianX and power indicator is lit red:

- Ensure E1/T1 and Ethernet network cables as required are connected. The type of cables and connectors used depend upon the interface mix contained with the ApplianX.
- Momentarily press the power button, situated on the front panel.
- The power indicator will change from red to green.

NOTE

The system may take several minutes to initialise following power on, progress is indicated by orange initialising indicator.

1.3 Powering the ApplianX off

1.3.1 Graceful

To completely remove all power from the unit, momentarily press power button once.

When the ApplianX is located remotely, a graceful power down can be achieved via the web interface, as explained in the IP Gateway user guide.

1.3.2 Forced

In some circumstances the momentary press of the power button may not remove the power as expected. In such cases the power button maybe held down for a period of more than 4 seconds to forcefully remove the power. This method should only be used in extreme circumstances.

NOTE

For both graceful and forced. When power indicator is red the mains cord from the AC inlet can be disconnected. It is recommended to maintain a 30 second gap between each power off and power on cycle.

1.4 E1/T1 trunk numbering

Each ApplianX E1/T1 connector is assigned a unique number. These numbers are assigned sequentially beginning at one. The front panel labelling identifies the trunk numbering.

1.5 Ethernet connections

Each Ethernet connection has a unique MAC address and will be assigned an initial IP address when connected to the network. Please consult the specific application documentation for information on configuring IP addresses.

There is one VoIP Traffic interface. It is designed to connect to full duplex Ethernet switch equipment, which can sustain the required data throughput with little or no packet loss.

There are two Gigabit Ethernet interfaces, labelled VMA and VMB, which are dedicated for use by the Virtual Machine. Please consult the AP Gateway User Guide for instructions on configuring these.

1.6 Cabling

The ApplianX is connected to other network equipment via CAT 5, 5e, or 6 cables. There are two types of interface and they have different pin assignments.

The pin-outs of the RJ45/48 connectors for both E1/T1 and Ethernet connections are detailed below. For E1/T1 connections:

- The receive pair on the ApplianX should be connected to transmit on the network equipment
- The transmit pair on the ApplianX should be connected to receive on the network equipment

Cross-over cables will be required in instances where two connector sockets with the same signal pin-outs are connected together.

NOTE

E1/T1 crossover cables are wired differently to 10/100 Ethernet crossover cables.

NOTE

Shielded cables (STP) are recommended in all instances and may be required to meet EMC regulations.

NOTE

This product contains both E1/T1 and Ethernet interfaces that use the same type of connector. It is important to understand the different cabling requirements for E1/T1 and Ethernet circuits when installing cables that may look almost identical in appearance. It is good practice to use cable identification labelling or colour coding to differentiate between cable types.

Ample strain relief should be fitted when installing all cables, both signal and power. Any damage caused by inadequate strain relief to cards or power connectors will not be covered by your warranty.

Bear in mind that disconnecting an active E1/T1 trunk will cause an alarm condition both within the ApplianX unit and at the corresponding network end of the cable. You may wish to check with the network operator if there is a requirement for advance notification of E1/T1 trunk installation and maintenance.

CAUTION

When making a telephony network connection, to minimize the risk of fire, only telecommunications line cord of 26 AWG or larger may be used.

1.6.1 Cable pinouts

NOTE

The modular sockets provided for Ethernet and E1/T1 connections to network equipment are commonly referred to as "RJ45" types. This terminology is used in this document and refers to a non-keyed 8 position, 8 circuit (8P8C) modular socket. For T1, the connectors are compatible with RJ48C jacks.

120 Ohm E1 or 100 Ohm T1

The 8-contact RJ45 Plug on the cable between each E1/T1 trunk and the 100 or 120 Ohm network trunk must be wired as follows:

Pin	Signal	Direction
1	Rx+	input
2	Rx-	input
4	Tx+	output
5	Tx-	output

1000Base-T (VoIP Traffic and Admin)

The 8-contact RJ45 Plug on the cable between the card and a 1000Base-T network must be wired as follows:

RJ45 plug	Circuit
1	DA+
2	DA-
3	DB+
4	DC+
5	DC-
6	DB-
7	DD+
8	DD-
Shield	Shield

Figure 1-3 Ethernet pin numbering

Cat 5e cabling is recommended for 1000Base-T Ethernet connections. All eight wires are normally populated on off the shelf Ethernet patch cables. Note that the interface may continue to operate if one or more of the wires is open circuit, and in this case the connection will auto-negotiate a lower link speed with reduced bandwidth.

Connector orientation

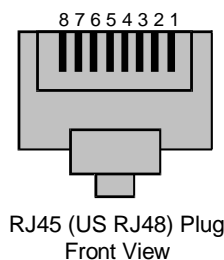


Figure 1-4 RJ45 pin numbering

Cat 5 cabling is recommended for 120 and 100 Ohm trunk connections.

1.6.2 75 Ohm E1 trunk connection

NOTE

Each E1 trunk in an ApplianX chassis has configurable impedance.

Some legacy E1 PSTN networks require 75 Ohm trunk connection. The default impedance for E1 trunks in the ApplianX is 120 Ohm. It is important to confirm with the network operator which impedance the PSTN is using during the installation process, as a mismatch can lead to signal degradation and erratic equipment behaviour that is difficult to diagnose later.

The following signalling services may be expected to be configured for 75 Ohm in legacy switching equipment which provides the following protocols:

- DASS2
- DPNSS
- All E1 CAS protocols

Each 75 Ohm trunk is normally connected via a pair of coaxial cables with BNC connectors. A Balun is available to convert between RJ45 and co-axial cabling. The Balun also converts between 120 and 75 Ohm interfaces, so the system does not need to be configured for 75 Ohm operation when this type of converter is used.



Figure 1-5 75 Ohm E1 Balun

1.6.3 Cable lengths

Cat 5 and 5e cabling is designed for an overall span length of 100 metres (100m). It is recommended that the length of either a single point to point cable or the cumulative length of multiple cables which may be connected via a patch panel does not exceed 100m. For span lengths approaching the 100m recommended limit it is important to specify and install high quality cables.

For E1 trunks converted to BNC cabling, it is recommended that overall span length is limited to 100m maximum and that 75 Ohm cabling and connectors are used. The 75 Ohm adapter may be installed at either end of the connection, and it may be convenient to minimise the length of the BNC cables.

Span lengths in excess of 100m may continue to operate; in this case the installer should check that there is adequate margin on signal levels to maintain expected service levels. For E1/T1 connections, layer 1 information is available that can indicate marginal signal integrity during operation.

1.7 Ethernet equipment legacy compatibility

The ApplianX Admin Ethernet interfaces are designed to operate at GbE (1000Base-T) data rates. If connected to network equipment that is not GbE capable, the interface will negotiate the highest data rate available to both ends.

The ApplianX VoIP traffic interface is designed to operate at GbE (1000Base-T) data rates. If connected to network equipment that is not GbE capable, the interface will attempt to negotiate a 100Base-T link speed. In some cases this will impose an artificially low channel count on VoIP connections that may limit the ApplianX system capacity.

CAUTION

The VoIP Traffic interface should not be connected directly to legacy “hub” (half duplex) network equipment.

Modern Ethernet switching equipment operates in a full duplex data mode. It is not recommended to route VoIP traffic via a network path containing a half duplex “hub” as this will reduce system performance.

1.8 System initialisation

The system start-up process will run automatically at power on, and will start the ApplianX application. Please refer to the User Guide for system configuration options.

1.9 Initial hardware checks

When the ApplianX is turned on, the “Initialising” indicator will turn on and the unit will go through the initialisation sequence. When complete, the READY indicator on the front panel will turn on.

1.10 Cabling checks when system is operational

You can check the continuity of the cabling by looking at the connection state of each interface using the ApplianX management interface.

Correctly cabled trunks will show good Layer 1 status. If a trunk is showing a Layer 1 error, check the network equipment (switch) connected to that trunk. There is additional Layer 1 information on the Alarms page.

An E1/T1 trunk with No Signal detected (NOS) means either open circuit on the receive path or the paths are crossed i.e. RX connected to RX and TX to TX.

An E/T1 trunk with Remote Alarm Indication Detected (RAI) normally means the receive path is good but the transmit path may be open circuit.

All connected trunks must show good Layer 1 status before you attempt to pass calls through the ApplianX.

The User Guide provides additional detail about trunk and Ethernet configuration and troubleshooting.

1.11 Common set-up problems

1.11.1 System TDM clock not configured

Where one or more E1 or T1 trunks are connected to network equipment, correct operation depends on TDM clock synchronisation.

A common set-up problem concerns the configuration of the system TDM clock which is required to synchronise the ApplianX to other E1/T1 equipment. This should be set to recover the clock from a network source or PSTN, where available. The recovered clock source will default to E1/T1 trunk 1 and may be re-configured to any other connected E1/T1 trunk via the System Administration browser interface.

It is not possible to synchronise one ApplianX to multiple network sources that are not synchronised to each other. An example of this scenario can be two or more E1/T1 trunks, each connected to a separate carrier network.

1.11.2 ISDN network/user conflict

Many E1/T1 ISDN signalling protocols have asymmetric user and network end configurations. By default, the ApplianX will be configured to user end where there is a configuration option. The ApplianX configuration for each E1/T1 ISDN interface can be changed via the System Administration browser interface.

1.11.3 CAS network conflict

Some E1/T1 CAS signalling protocols have configuration settings that may prevent correct operation if there is a mismatch between the ApplianX and the network. The ApplianX has default configurations that should work correctly in the majority of installations. Please consult the local E1/T1 network operator for CAS signalling requirements. The ApplianX configuration for each E1/T1 CAS interface can be changed via the System Administration browser interface.

1.11.4 Ethernet IP address conflict

All Ethernet end points in a network require a unique IP address. Consult the network administrator if there is an IP address conflict. This may occur if multiple ApplianX units are installed at the same time, so it is good practice to plan IP address configuration for each ApplianX at an early stage of installation.

1.11.5 Ethernet IP address out of range

All Ethernet end points in a network require a valid and unique IP address. Consult the network administrator for information on the available range of IP addresses.

2 Hardware maintenance

2.1 Servicing

There are no user serviceable parts inside the ApplianX chassis.

2.2 Cooling fan failure

The unit relies on forced air cooling to maintain the internal electronics within rated operating temperatures. The unit has a single cooling fan visible at the rear. It is strongly recommended that the unit is scheduled for fan replacement in the event of fan failure. Fan operation can be checked by accessing the system status page via the application specific browser interface.

NOTE

Contact your supplier for advice on fan replacement if the unit is out of warranty.

2.3 Moving an installed ApplianX

An ApplianX should not be moved while operating. If an ApplianX has to be moved, the power must be disconnected to prevent equipment damage or risk to operator safety. Please follow the application specific system shutdown procedure prior to powering down an operating Applianx.

2.4 Backup and restore

An option may be provided with the ApplianX application software to enable the backup and restoration of important data and configuration files.

NOTE

Please consult the User Guide for backup and restore options and procedures.

2.5 Basic fault finding

The following list provides examples of possible reasons for the unit not operating correctly.

Symptom	Possible cause
Unit does not power up	Check power cabling and fuses.
Unit displays warning indicator on front panel	Unit not configured or E1/T1 cables not correctly connected
Unit displays Error indicator on front panel	Unit non-functional – may require software re-install
E1/T1 trunk non-operational	Check layer 1 information via browser interface. Possible cable disconnection, network/user protocol configuration or incorrect TDM clock recovery/synchronisation configuration.
System Administration interface non-operational	Check cabling and IP address.
No VoIP traffic	Check cabling and IP address.

2.6 **SNMP remote monitoring**

Each ApplianX application includes remote monitoring appropriate to the system operation. Please consult the User Guide for advice on the available monitoring information and suitable monitoring software.

Appendix A: Warranty and Support

A.1 Warranty

The standard warranty of 2 years applies to all ApplianX components. All cover is return to supplier.

NOTE

Please contact your supplier for warranty enquiries.

The standard warranty does not cover damage, deterioration or malfunction resulting from:

- Accident, misuse, neglect, fire, water, lighting, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
- Repair or attempted repair by anyone not authorized by your supplier.
- Causes external to the product such as electric power fluctuations or failure.
- Normal wear and tear.
- Any other causes which do not relate to a product defect.

A.2 Returns procedure

Under the standard warranty, a faulty ApplianX should be returned to your supplier by following their Returned Material Authorisation procedure.

A.3 Accessories

Please take a note of the serial number on the ApplianX when contacting your supplier for accessories, and ensure you mention the parts are for an ApplianX chassis.

The serial number is located at the front and rear of each unit.

Spare and replacement power cords are available from your supplier.

E1 75 Ohm BNC cable adapter kits are available from your supplier.

A.4 Contact information

Warranty and support information is provided with your ApplianX. Your warranty and support terms will include any specific contact details.

A.5 ApplianX technical support

ApplianX systems have application specific built-in technical help available via the System Administration browser interface. Please consult this before contacting first line technical support.

Always have the serial number available prior to contacting technical support. It will assist the support team if you can also quote the type of ApplianX that is printed to the left of the E1/T1 trunks.

NOTE

Please contact your supplier for first line technical support enquiries.

General ApplianX information: www.Aculab.com

Appendix B: USA/Canada approval details

This section applies only to E1/T1 trunk interfaces configured for T1 operation.

FCC connection requirements

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the exterior of the cabinet of this equipment is a label that contains, among other information, a product identifier in the format **US:AAAEQ##TXXXX**. If requested, this number must be provided to the telephone company.

ACTA Registration Number:	US:5TCXDNaNApplianXR2
Ringer Equivalence Number	(REN): NAN
Facility Interface Code (FIC):	04DU9.1SN, 04DU9.BN, 04DU9.DN & 04DU.1KN
Service Order Code (SOC):	6.0P
USOC Jack Type:	RJ48C

A FCC compliant telephone cord and modular plug is provided with this equipment. This equipment is designed for connection to the telephone network or premises wiring using a compatible modular jack that is Part 68 compliant. See Installation Instructions for details.

The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. Typically, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line (as determined by the total RENs) contact the local telephone company.

If this equipment, ApplianX, causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes to its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice so you can make the necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact:

Aculab Inc,
 Customer Service,
 100 River Ridge Drive, Suite 101,
 Norwood, MA 02062,
 Tel: +1 781 352 3551 / Fax: +1 781 850 4464

There are no user serviceable components inside the chassis. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Connection to party line service is subject to state tariffs. (Contact the state public utility commission, public service commission or corporation commission for information.)

Systems

Facility Interface Codes (FIC), Service Order Codes (SOC), USOC Jack Codes and Ringer Equivalence Numbers (REN) are shown in the table below for each trunk where applicable:

Trunk	FIC	SOC	USOC Jack	REN
Trunk 1 – 4 T1	04DU9.1SN	6.0P	RJ48C	NAN
Trunk 1 – 4 T1	04DU9.BN	6.0P	RJ48C	NAN
Trunk 1 – 4 T1	04DU9.DN	6.0P	RJ48C	NAN
Trunk 1 – 4 T1	04DU9.1KN	6.0P	RJ48C	NAN

UL requirements

This product has been assessed against UL60950-1 and is a listed accessory component under UL file number E178354.

Approval number USA

Approval type FCC part 68 XD component registration

Approval number US: 5TCXDNaNApplianXR2

Approval holder Aculab plc, Lakeside, Bramley Road, Mount Farm,
Milton Keynes. MK1 1PT, UK

FCC approves the apparatus for connection to public T1 services as specified in the approval certificate, this appendix, and the 'Installation guide' subject to the conditions set out in these documents.

Appendix C: EU compliance information



Declaration of Conformity

We

Aculab PLC

of


**Lakeside
Bramley Road
Mount Farm
Milton Keynes MK1 1PT
United Kingdom.**

Declare under our sole responsibility that the product
Aculab applianX AP Gateway

To which this declaration relates, is in conformity with the following
directives

- EMC Directive- 2014/30/EU
- Low Voltage Directive (LVD)- 2014/35/EU
- Restriction of the use of certain hazardous substances in electrical and electronic equipment (ROHS recast) Directive 2011/65/EU

Signed:
Position: Director
Location: Milton Keynes
Date: 22nd March 2017



Alan Pound

LVD/EMC/ROHS/ QMS-31

March 2017

Disposal of equipment at end of service life

Please contact Aculab plc for instructions on how to dispose of this WEEE equipment.



Appendix D: Safety information

D.1 AC Power requirements

The rating plate details the permitted voltage and frequency range for that particular unit.

CAUTION

Under no circumstance connect the ApplianX to a power source with voltage or frequency different to that stated. Contact your local supplier for advice if your power input is different to that shown on the rating label.

The ApplianX can operate with the following AC power inputs:

Power input type	AC chassis (Amps)
North America – 115VAC 60Hz	1.0 max, 0.6 continuous
UK and Europe – 230VAC 50Hz	0.5 max, 0.3 continuous

WARNING

THIS EQUIPMENT IS NOT DESIGNED FOR USE WITH AN I.T. POWER SUPPLY (A POWER DISTRIBUTION SYSTEM THAT HAS NO DIRECT CONNECTION TO GROUND, AND WHERE THE EXPOSED CONDUCTIVE PARTS OF THE ELECTRICAL INSTALLATION ARE GROUNDED).

D.2 AC Power cords

The ApplianX is supplied with a moulded IEC60320 input power cord. Within the United Kingdom these will be ASTA (Association of Short Circuit Testing Authorities) approved power cords with moulded 13A 3 Pin plugs. These should be fused at 5A.

Within Europe these will have moulded 3 Pin plugs with suitable European agency approval marks. Additionally the cords will be <HAR> marked.

Within North America these will have moulded 3 Pin plugs with UL and CSA type approval.

The power cord supplied will be terminated suitable for your local requirements. In cases where no plug is fitted or if a plug needs to be changed, the plug may only be fitted by a person competent to fit a plug of the type suitable for the required power outlet. If a power cord needs to be replaced, an appropriately approved power cord must be used.

D.3 Circuit definition

The Ethernet (VoIP Traffic and System Administration) and USB interfaces are Safety Extra Low Voltage (SELV) circuits. SELV circuits are so designed and protected that under normal conditions the maximum voltage between any two accessible circuit parts, one of which may be body or ground, does not exceed 42.4 volts (peak AC) or 60VDC, even in the presence of a single fault.

E1/T1 interfaces are Telecommunication Network Voltage (TNV) circuits operating within the limits of SELV. The E1/T1 interfaces have transient voltage protection circuits built in.

NOTE

Where equipment is intended to be electrically connected to other equipment, interconnection circuits shall be selected to provide continued conformance with the requirements of Clause 2.3 of IEC60950-1 for SELV circuits, and with the requirements of clause 6 for TNV circuits, after making connections between equipment.

NOTE

Make sure that the integrity of the SELV system is maintained when connection is made through any other interface within the system. If in any doubt seek competent advice.

D.4 Grounding the ApplianX

The ApplianX must be grounded as detailed below:

- Use a grounded 3 connection IEC60320 AC power cable.

D.5 Serviceable parts

The ApplianX has no user serviceable parts inside.

D.6 Regulatory marking**WARNING**

THIS EQUIPMENT IS COMPLIANT WITH CLASS A OF EN55032. IN A RESIDENTIAL ENVIRONMENT THIS EQUIPMENT MAY CAUSE RADIO INTERFERENCE.

The CE Marking has been applied to the ApplianX to demonstrate compliance with the following European standards:

- EN55032 and EN55024 for electromagnetic compatibility.
- EN60950 for electrical safety.

D.7 USA/Canada federal communication commission warnings

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses and can radiate radio frequency energy, and if not installed in accordance with the instruction manual may cause harmful interference to radio communications.

- The device complies with part 15 of the rules. Operation is subject to the following two conditions:
- This device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

No changes or modifications to the ApplianX are allowed without explicit written permission from Aculab. Any changes or modifications could void the end users authority to operate the device and invalidate the warranty.

Appendix E: Sicherheitshinweise

E.1 Wechselspannungsanforderungen (AC)

Das Typenschild gibt die erlaubte Stromstärke und den Frequenzbereich für dieses System wieder.

VORSICHT

Schliessen Sie ApplianX unter keinen Umständen an eine andere als die angegebene Stromquelle mit dem vorgegebenen Frequenzbereich an. Setzen Sie sich mit einem für ihre Region zuständigen Lieferanten in Verbindung, wenn Ihre Spannungsversorgung vor Ort nicht der auf dem Typenschild angegebenen entspricht.

ApplianX kann mit folgenden Eingangsspannungen (AC) betrieben werden:

Power input type	AC chassis (Amps)
North America – 115VAC 60Hz	1.0 max, 0.6 continuous
UK and Europe – 230VAC 50Hz	0.5 max, 0.3 continuous

WARNUNG

DIESES GERÄT IST NICHT FÜR DEN EINSATZ MIT EINEM KALTGERÄTESTECKER VORGESEHEN (EIN SPANNUNGSVERSORGUNGSSYSTEM, DAS NICHT DIREKT GEERDET IST und WO DIE EXPONIERTE, LEITENDEN TEILE DER ELEKTRISCHEN INSTALLATION GEERDET SIND)

E.2 Wechselspannung Anschluss

ApplianX wird mit IEC60320 eingeformten Netzkabel geliefert. Innerhalb Europas handelt es sich um dreipolige Stecker mit den passenden European Agency Prüfzeichen. Zusätzlich sind die Kabel mit <HAR> anerkannten Markierungen versehen.

Innerhalb Nordamerikas handelt es sich um dreipolige Stecker mit UL und CSA Typenzulassung.

Die mitgelieferten Netzkabel entsprechen Ihren Bedürfnissen vor Ort. Falls noch kein Stecker vorhanden ist oder ein Stecker ausgetauscht werden muss, darf der Stecker nur von jemandem angebracht werden, der dazu autorisiert ist. Wenn ein Spannungsversorgungs-kabel ausgetauscht werden muss, muss ein dementsprechend zugelassenes Spannungs-versorgungskabel verwendet werden.

E.3 Definition des Stromkreises.

Die Ethernet-(VoIP-Traffic und Systemadministration) und USB-Anschlüsse sind Safety Extra Low Voltage (SELV) Schaltungen. SELV-Schaltungen sind so konzipiert und geschützt, dass unter normalen Bedingungen die maximale Stromstärke zwischen zwei beliebigen zugänglichen Teilen des Stromkreises, von denen jeweils einer Masse oder Erde sein kann, 42.4 Volt (Spitzenwert Wechselstrom) oder 60V DC nicht überschritten wird, auch im Falle eines Fehlers.

E1/T1 Schnittstellen sind Telecommunication Network Voltage (TNV) Schaltungen, die den Bedingungen von SELV entsprechen. Die E1/T1 Schnittstellen verfügen über eingebaute Transient-Spannungs-Schutz-Schaltungen.

HINWEIS

Wenn Sie eine elektrische Verbindung zwischen den Geräten erstellen möchten, sollten Sie gekoppelte Schaltungen wählen, um die kontinuierliche Konformität mit den Anforderungen der Klausel 2.3 des IEC60950-1 für SELV-Schaltungen, und mit den Anforderungen der Klausel 6 für TNV-Schaltung, die nach Verbindungen zwischen Geräten dauerhaft eingehalten werden, erfüllen.

HINWEIS

Stellen Sie sicher, dass die Integrität des SELV-Systems erhalten bleibt, wenn eine Verbindung durch irgendeinen anderen 'Interface Port' innerhalb des Systems hergestellt wird. Bei Unklarheiten wenden Sie sich bitte an unsere qualifizierten Mitarbeiter.

E.4 **ApplianX - Erdung**

ApplianX muss wie folgt geerdet werden:

- Verwenden Sie ein geerdetes 3-poliges Wechselstromkabel des Typs IEC60320.

E.5 **Wartungsteile**

ApplianX beinhaltet keine Teile, die vom Benutzer gewartet werden müssen.

E.6 **Regulierungszeichen**

Das CE-Prüfzeichen gewährleistet, dass ApplianX den folgenden europäischen Standards entspricht.

- EN55032 und EN55024 für elektromagnetische Kompatibilität.
- EN60950 für elektrische Sicherheit.

Appendix F: Earthing requirements for Scandinavia

Finland “Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan”

Norway “Apparatet må tilkoples jordet stikkontakt”

Sweden “Apparaten skall anslutas till jordat uttag”

Denmark “For tilslutning af de øvrige ledere, se medfølgende installationsvejledning”

Appendix G: Technical Specifications

Operating temperature: 0 to 40 °C

Minimum storage Temperature: -20 °C

Operating humidity: 20% to 80% non condensing

Storage humidity: 10% to 90% non condensing

AC power input voltage: 90 to 264 VAC

AC power input frequency: 47 to 63Hz

Maximum rated power consumption: 150W (see 1.1.6)

Typical steady state power consumption: 30W

Standby power consumption: 2W

E1 Trunks meet ITU G.703/G.704 recommendations

- Default 120 Ohm termination (75 Ohm configuration option)

T1 Trunks meet ATIS 0600403 (ANSI T1.403) recommendations

- Fixed 100 Ohm termination

Appendix H: ApplianX documentation references

General ApplianX documentation: www.aculab.com