ARK1-xxx-x
ViaLiteAIR infonX 1U Chassis Handbook

User Guide

ARK1-HB-2

10/07/2025 CR6550

Pulse Power & Measurement Ltd, 65 Shrivenham Hundred Business Park, Watchfield, Swindon, Wiltshire SN6 8TY, UK
Tel.: +44 (0)1793 784389 Email: sales@vialite.com Web: www.vialite.com

Instrument Care and Safety Information

*Please read the whole of this section before using your **ViaLiteAIR infonX** product. It contains important safety information and will enable you to get the most from your Fibre Optic Link system.*

Electrical Safety

The ***ViaLiteAIR infonX*** chassis is a Safety Class 1 product (having a metal chassis directly connected to earth via the power cable). When operating it, note the following precautions:

- Hazardous voltages exist within the rack-mounted equipment.
- There are no user serviceable parts inside; the covers **MUST NOT** be removed.
- There are no user replaceable fuses in the chassis-mounted equipment or modules.
- The chassis earth stud **SHOULD** be connected to the safety earth.
- When using a 2-pin power supply cable the chassis earth stud **MUST** be connected to the safety earth.

ESD Precautions

Precautions for handling electro-static sensitive devices should be observed when handling all ***ViaLiteAIR infonX*** modules. Technicians should ensure that they use effective personal grounding (i.e. ESD wrist strap, etc.) when servicing the equipment. Any equipment or tools used should be grounded to prevent static charge build-up. Good practice should be observed at all times. For reference, see relevant standards: EN 61340-5-1, 'Protection of Electronic Devices from Electrostatic Phenomena – General Requirements'.

Optical Safety

The ***ViaLiteAIR infonX*** RFoF Transmitter and Transceiver modules contain laser diode sources operating at nominal wavelengths of 1270 nm to 1610 nm. These devices are rated as EN60825-1 CLASS 1M radiation emitting devices. This class is safe for exposure directly to the naked eye, but may be hazardous if exposed with the aid of optical instruments. When operating the equipment note the following precautions:

- Never look into the end of an optical fibre, directly or by reflection, either with the naked eye or through an optical instrument.
- Never leave equipment with radiating bare fibres – always cap the connectors.
- Do not remove external equipment covers when operating.

Hot Surface

The ***ViaLiteAIR infonX*** modules may have hot surfaces when operating under full load. The hot surfaces are not accessible when fitted in an approved chassis installation. Hot surfaces will be appropriately marked. Suitable precaution should be taken when handling this device:

- Allow to cool for 10 minutes.
- Do not touch metallic surfaces or printed circuit board when hot.
- When handling, hold front panel and handle only.

Caution

- The ***ViaLiteAIR infonX*** modules/rack cards are made with folded sheet metal and care should be taken when handling due to the potential for sharp edges.
- The front panel lever for retaining and removing the cards is a pinch hazard.
- This equipment is not suitable for use in locations where children are likely to be present.
- The equipment is to be installed below 2000m in altitude.
- The ***ViaLiteAIR infonX*** chassis must be installed in a 19" rack or level surface.
- Do not cover the vents at the sides of the unit and ensure there is sufficient room (> 8 cm) around the unit for air circulation.
- Do not use the chassis in a dusty environment.
- Handle the chassis with care and save the packaging materials for transport later.

TABLE OF CONTENTS

Acronyms

AC	Alternating Current
APIPA	Automatic Private IP Addressing
ATE	Automated Test Environment
AWG	American Wire Gauge
DC	Direct Current
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
E/O	Electrical to Optical
ESD	Electrostatic Discharge
GUI	Graphical User Interface
IP	Internet Protocol
IP3	Intercept Point 3
LCD	Liquid Crystal Display
LNA	Low Noise Amplifier
NF	Noise Figure
O/E	Optical to Electrical
PDU	Power Distribution Unit
RF	Radio Frequency
RFoF	Radio Frequency Over Fibre
RLL	Received Light Level
SFDR	Spurious Free Dynamic Range
SFP	Small Form-factor Pluggable
VSWR	Voltage Standing Wave Ratio

1 Initial Inspection

Unpack and inspect the equipment as soon as possible. If there is any sign of damage or any parts missing, do not install the equipment before seeking advice from ***ViaLite Communications*** or your local agent.

The equipment received should match the delivery note that is shipped with the equipment. If there are any discrepancies, contact ***ViaLite Communications*** or your local agent.

2 Introduction to the *ViaLiteAIR* Range

The ***ViaLiteAIR infonX*** product range has been developed to provide a modular solution to the transmission of a wide range of analogue microwave RF signals where traditional coaxial cable or waveguide systems cannot be used, for example, in electrically noisy environments or over long distances.

The range is ideal for permanent and semi-permanent installation in satellite communications, antenna remoting and other related applications.

A variety of link modules are available that cover operation to 40 GHz in either wideband or band specific variants. All modules can be controlled and monitored by the ***ViaLiteAIR infonX*** chassis which has an integrated site controller with Ethernet network interface.

All ***ViaLiteAIR infonX*** equipment operates over high quality glass fibre optic cable, which can be supplied by ***ViaLite*** in low-cost 3mm jacket, riser and outdoor specifications if needed (please contact your sales representative). The links can also be used with existing cable systems at customer premises.

A ***ViaLiteAIR infonX*** system can be added to at any time, enabling the system to evolve with the needs of the user.

ViaLiteAIR infonX is a product brand manufactured by Pulse Power and Measurement Ltd (PPM). ***ViaLite Communications*** is a division of Pulse Power and Measurement Ltd (PPM).

3 ViaLiteAIR infonX 19” 1U Chassis

The ***ViaLiteAIR infonX*** chassis is a 1U chassis suitable for 19” rack mounting that is factory configured for AC worldwide mains power covering 100 – 240 V AC 50/60Hz.

The chassis is factory configured to accept direct connect modules in a static configuration. Up to 2 RF over fibre (RFoF) modules can be installed within the chassis and must match the chassis connectivity configuration. Each module can support dual channel operation therefore allowing up to 4 RFoF links per chassis.

The chassis is factory configured for the rear panel user optical connector type required. The default optical connection type is SC/APC, with FC/APC and LC/APC as alternative options.

The chassis has a built-in site controller and LCD display screen to manage the local system and provide Ethernet based remote management access via either electrical (RJ45) or optical (LC/APC) interfaces.

The chassis has integrated cooling fans that draw cooler air in from the left hand side (as viewed from the front) and exhausts the warmer air from the right hand side. These fans are thermally controlled by the site controller such that their operation and speed is optimised for temperature control and low acoustic noise.

3.1 ViaLiteAIR infonX RFoF Module Slots

The ***ViaLiteAIR infonX*** chassis has two front facing slots which accept modules. Each module can support dual channel operation, allowing up to 4 RFoF links per chassis. The available configurations and resultant chassis connectivity is shown below.

Configuration	RF1	RF2	FIB1	FIB2
Single E/O Transmitter	UNUSED	RF IN	UNUSED	OPTICAL OUT
Single O/E Receiver	RF OUT	UNUSED	OPTICAL IN	UNUSED
Dual E/O Transmitter	RF IN	RF IN	OPTICAL OUT	OPTICAL OUT
Dual O/E Receiver	RF OUT	RF OUT	OPTICAL IN	OPTICAL IN
Transceiver (E/O, O/E)	RF OUT	RF IN	OPTICAL IN	OPTICAL OUT

3.2 ViaLiteAIR infonX Chassis User Interfaces

3.2.1 Mains Power Inputs

115 V 60 Hz or 230 V 50 Hz AC single phase power is to be connected via suitable C13 cables to the two chassis C14 power inlet ports for dual redundant power protection. Operation with only a single power supply is possible and the unused port can be left disconnected. This port has 3-pins inclusive of earth which is the proper earthing method.

3.2.2 Optical Inputs / Outputs

Each RFoF module routes through to the rear panel where the operator can interface to the optical fibre transport. There are multiple chassis options for the optical connector type with the default being SC/APC. The port naming relates to the slot and module channel. This is crucial as RFoF modules can be one of five types, Single TX, Single RX, Dual TX, Dual RX or TRX and the port direction is thus module dependent.

Port	Function
Slot 1 FIB1	Module slot 1 (Front Left Hand Side), RFoF Channel 1
Slot 1 FIB2	Module slot 1 (Front Left Hand Side), RFoF Channel 2
Slot 2 FIB1	Module slot 2 (Front Right Hand Side), RFoF Channel 1
Slot 2 FIB2	Module slot 2 (Front Right Hand Side), RFoF Channel 2

These ports either transmit into or receive from connected optical fibres, Class 1M laser radiation in the 1310-1565 nm range which is invisible to the human eye. This class is safe for exposure directly to the naked eye, **but may be hazardous if exposed with the aid of optical instruments**.

If the optical ports are left without an optical fibre connected, it is important to refit the protective covers that were provided with the unit. These are shown fitted to the slot 2 connections in the above image.

3.2.3 RF Inputs / Outputs

The RF input and output ports are presented via 50 Ohm 2.92mm connectors which support up to 40 GHz. **It is crucial that the connection from this port to any user equipment is made with a high quality RF cable with low loss and low VSWR across the entire operating frequency range.** The port naming relates to the slot and module channel. This is crucial as RFoF modules can be one of five types, Single TX, Single RX, Dual TX, Dual RX or TRX and the port direction is thus module dependent.

Port	Function
Slot 1 RF1	Module slot 1 (Front Left Hand Side), RFoF Channel 1
Slot 1 RF2	Module slot 1 (Front Left Hand Side), RFoF Channel 2
Slot 2 RF1	Module slot 2 (Front Right Hand Side), RFoF Channel 1
Slot 2 RF2	Module slot 2 (Front Right Hand Side), RFoF Channel 2

The RF ports are sensitive to ESD and engineers should ensure that they use effective personal grounding (i.e. ESD wrist strap, etc.) when installing or servicing the equipment. Any equipment or tools used should be grounded to prevent static charge build-up. Good practice should be observed at all times.

If the RF ports are left without a coax cable connected, it is important to refit the protective covers that were provided with the unit. These are shown fitted to the slot 2 connections in the above image.

3.2.4 Management ports

The ***ViaLiteAIR infonX*** chassis can be managed via its Ethernet port. For connection into a local area network switch, there is a Gigabit Ethernet RJ45 copper port which is 10/100/1000M compatible. There is a factory option to have optical management fitted and the connection is via an LC/APC connector.

3.2.5 Front display

The ***ViaLiteAIR infonX*** 1U chassis contains an LCD screen with two control buttons.

The lower button allows the user to scroll between the following display screens.

System Summary
This screen shows the time and date of the system as well as a summary of any alarms in the system. Minor alarms are shown in orange and major alarms will show in red.

Left hand slot (Slot 1)
This screen shows the status of the module in the left hand chassis slot. The alarm count is shown at the top left along with the module temperature at the top right. The center text shows the 'Hero' value(s) for the module. In this example an O/E module reports the Received Light Level (RLL) and its unit of measure. Below this is the left slot indication, module type text whilst the colour of this bar indicates the current alarm status.

Right hand slot (Slot 2)
This screen shows the status of the module in the right hand chassis slot. The alarm count is shown at the top left along with the module temperature at the top right. The center text shows the 'Hero' value(s) for the module. In this example a TRx module reports the RLL (left) and Laser power (right) with their units of measure. Below this is the right slot indication, module type text whilst the colour of this bar indicates the current alarm status.

Management info
This screen indicates the IP address of the chassis and hostname. The chassis can then be accessed at this address for management and control. The chassis can also be accessed by hostname if the network uses a Domain Name Server (DNS).

The upper button is recessed and has two purposes.

Reset	Press and hold for 5 to 10 seconds	This will perform a system reset and reboot both module slots and the system controller
Factory Reset	Press and hold for > 15 seconds	This will perform a factory reset and return all configured parameters for the entire chassis back to the state at which the product left the factory

The LCD display will guide the use of the above functions with a visual indication.

3.2.6 RFoF Module LED Indicators

During normal operation, the LED indicators will be glowing GREEN or unlit according to the product configuration. A Module LED indicator may glow ORANGE or RED if there is an alarm condition which is either a MINOR or MAJOR alarm respectively. An example alarm condition is insufficient light being received by a receiver module.

3.3 Power Supplies

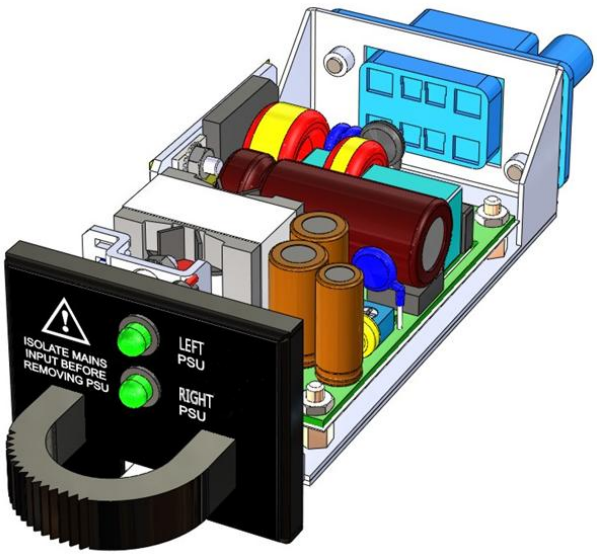
In many applications (for example SATCOM), link availability requirements are very stringent, requiring minimal downtime. Power supply units are often the weakest part of many electronic systems due to their interfacing with mains power distribution networks and use of electrolytic capacitors. To address this, the chassis employs dual redundant, user replaceable power supply units. Each module can be fault monitored, with the low probability of both failing simultaneously providing reassurance that operations will continue and a faulty PSU can be replaced at a convenient time. Furthermore, Each PSU can be independently powered from separately fused Power Distribution Units (PDUs) to protect against segmented power failures in the equipment room.

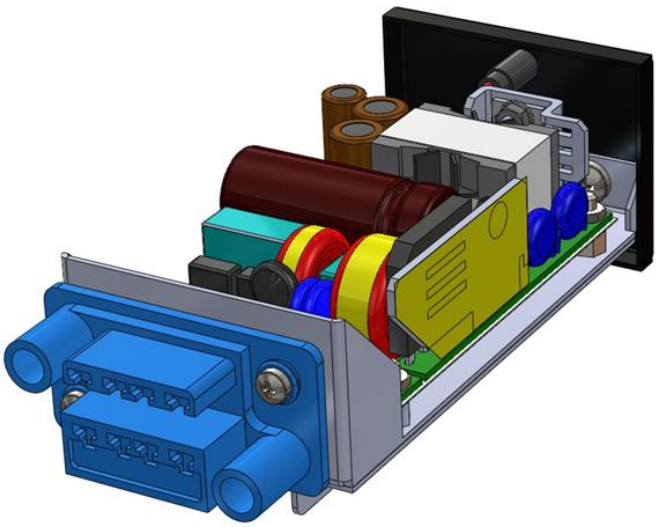
3.3.1 Mains AC Power

The HPS-1 power supply is a wide range alternating current (AC) input and can operate from 110V and 230V nominal mains supplies. The power supply is internally fused on both the live and neutral lines; these fuses will only fail under gross fault conditions. The fuse is not replaceable, the unit must be returned to ***ViaLite Communications*** for replacement.

On the front panel the PSU module has two LED indicators. These report the status of both the power supply modules. IF the LED is GREEN the module is operating in its normal non-alarm state. If the LED is OFF, the power supply is not supplying 12V and has failed.

These AC power supplies MUST ONLY be fitted in AC chassis types.

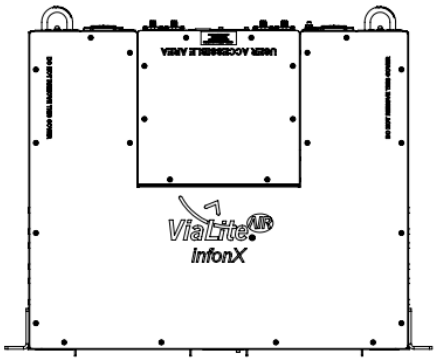


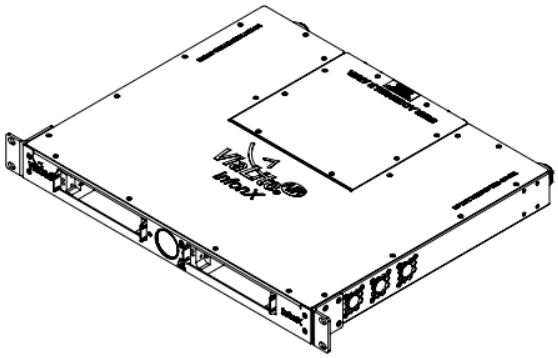


3.4 User Accessible Area

The ***ViaLiteAIR infonX*** chassis contains a user accessible area in which application specific components can be installed as required. The following table highlights a few of the potential options:

Application	User accessible additions
Wavelength division multiplexing	Optical multiplexers
Optical duplexing	Optical circulator or isolator
RF band limiting	RF Filter
RF duplexing	RF circulator or isolator
RF Limiting	RF Limiter
RF Powering of remote device	Bias-T (12V or 5V option) 350mA MAX
Optical chassis management	Media converter and SFP module



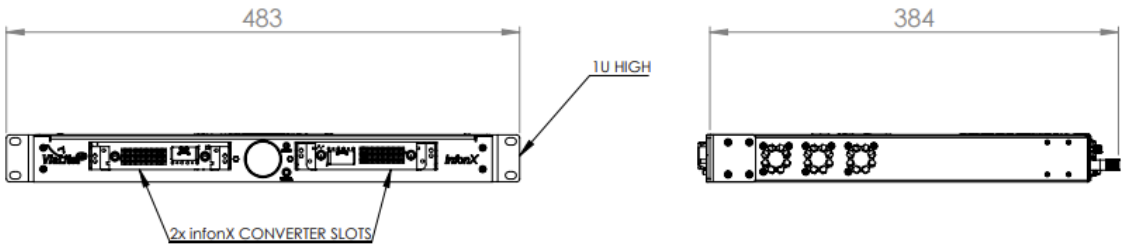


3.5 RFoF Module Integration

The ViaLiteAIR infonX RFoF modules are secured within the infonX chassis slots using a locking screw to retain any modules. The use of the locking screw prevents the removal of any installed RFoF modules and prevents any damage to the static cabling in the rear transition area of the chassis, should an attempt to remove the RFoF modules be made. The locking screw is shown circled in red in the following image.

The locking screw should not be tampered with. It prevents the static configuration of modules from being removed.

3.6 Dimensions



3.7 **Technical Specifications**

Parameter	Specification
Chassis	ARK1-XXX
RF Connections	ARK1: 2.92 mm (K-type)
Fibre Connections	ARK1-6: FC/APC Narrow key ARK1-8: SC/APC ARK1-9: LC/APC
Power Connections	IEC C13 mains socket to accept IEC C14 power cable 2 (dual redundant) per chassis
Supply Voltage	Mains 100 to 240 V AC, 50/60 Hz
Power Consumption	ARK1: 20 watts typical 0.4 PF
Start-up surge	ARK1: <15 A Typical
Weight	ARK1: 4 kg
Operating Temperature Range	0°C to 50°C
CE Standards	EN IEC 62368-1 Safety Requirements EN IEC 61000-6-4 EMC Emission EN IEC 61000-6-2 EMC Immunity EN IEC 60825-1 Safety of Laser Products EN IEC 63000 RoHS

4 System Management

The ***ViaLiteAIR infonX*** 18 GHz link system is managed remotely via Ethernet and either electrical or optical physical interfaces are supported.
When the ***ViaLiteAIR infonX*** chassis is connected to a network, the default operation is as follows:

1. The chassis will broadcast a DHCP client discovery packet
2. If a DHCP server is present on the network, the chassis will seek a network address
3. If a DHCP server is **NOT** present on the network or the request is denied, the chassis will revert to a link local address according the APIPA scheme in the range 169.254.0.1 to 169.254.255.254, with a subnet mask of 255.255.0.0. The first APIPA assigned address is 169.254.205.141.
4. If a link local address is assigned, DHCP requests will continue periodically
5. The current IP address in use, either link local or acquired from a DHCP server, will be shown on the display screen

If DHCP server based IP address allocation is unsuitable for the user network, a static IP address can be manually assigned to the chassis.

The chassis will ask the DHCP server to register its hostname with the DNS server. The hostname format is based on the chassis part number and serial number. E.g. ARK1-1234567.

4.1 Graphical User Interface

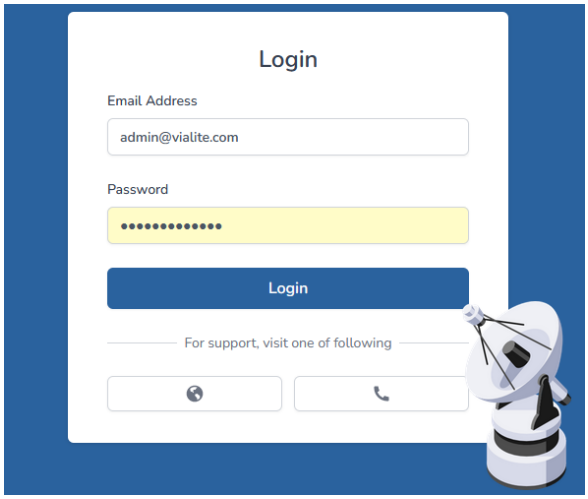
By entering the ***ViaLiteAIR infonX*** chassis IP address or hostname into a web browser on the same network, access can be obtained to the web GUI for manual system management. The first screen that the user is greeted with is the Login screen.

There are two default accounts to log into the system, each with a different level of access.
For basic RFoF control only there is:

Email: tech@vialite.co.uk
Password: technician

And for full control with access to the main site configuration including networking and NTP etc. there is:

Email: admin@vialite.co.uk
Password: vialite-admin

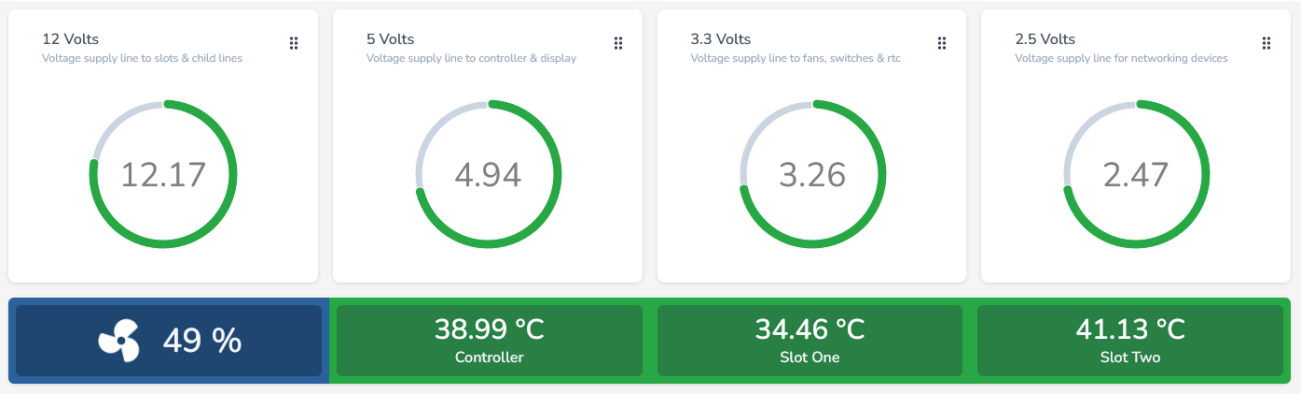


4.1.1 Rack Overview

The Rack Overview section shows the ***ViaLiteAIR infonX*** chassis part number and serial number as well as a graphical representation of the hardware and card slots. The operational firmware version is also shown.

4.1.2 Chassis Diagnostics

The Chassis Diagnostics section shows the status of the various internal power systems, component temperatures and chassis fan speed.

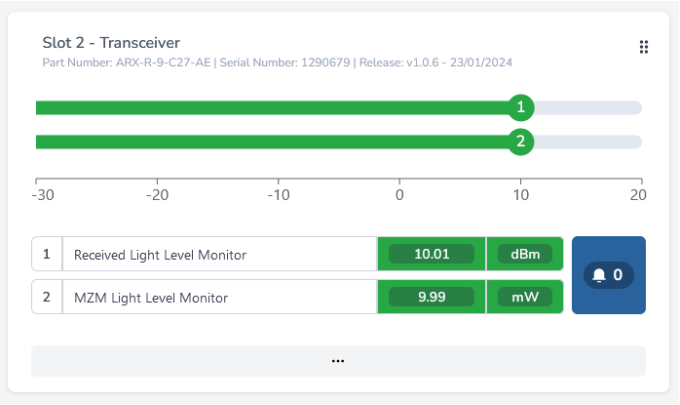


4.1.3 Slot Module Monitoring and Control

Each card slot has an observation panel with the hero values for the installed module clearly displayed.

The module part number and serial number is visible along with the operational firmware version. Also visible is the alarm count for the module.

The button at the bottom of the panel opens up the available controls for the module.



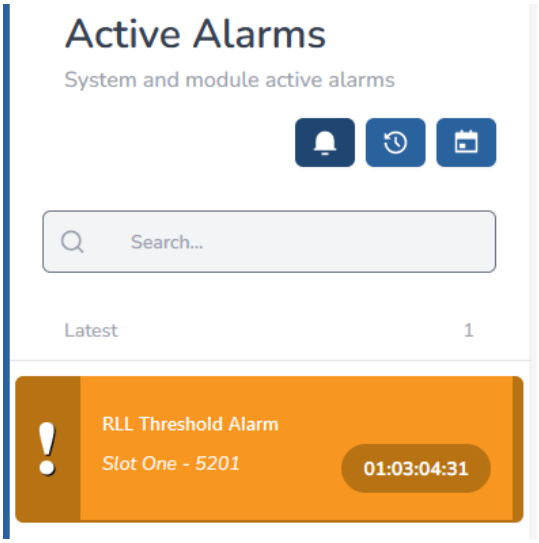
4.1.4 Active Alarms

The Active Alarm panel shows all current active alarms.

For each alarm indicator, the alarm code is shown as well as the slot number of the chassis it refers to and a text description.

The counter field specifies the duration that the alarm has been active. It is formatted to express this information in Days:Hours:Minutes:Seconds.

A Received Light Level threshold MINOR alarm is shown adjacent as an example.

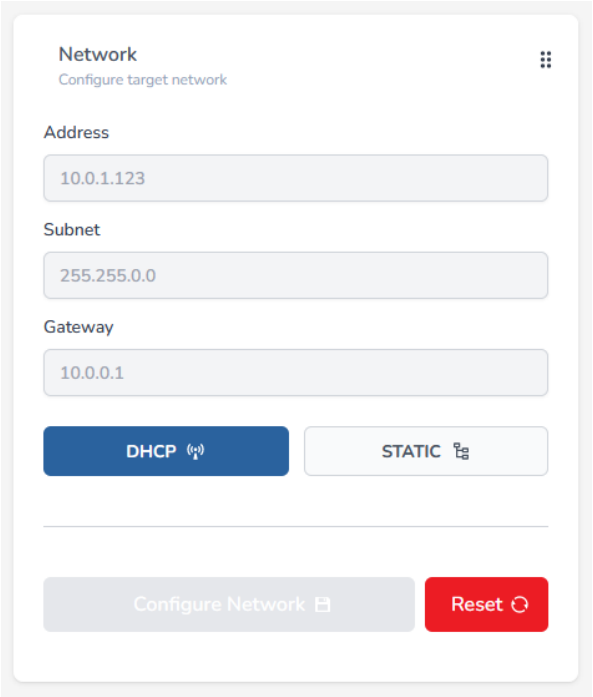


4.1.5 Network Configuration

The Network Configuration panel is used to switch operation between a static IP configuration and a dynamic one via DHCP. The initial default operation setting is DHCP.

When configuring a static IP, the desired address must be entered along with the subnet mask and Gateway. Basic syntax checks will be performed by the system to ensure valid data has been entered and a pop-up to confirm changes will appear before final application.

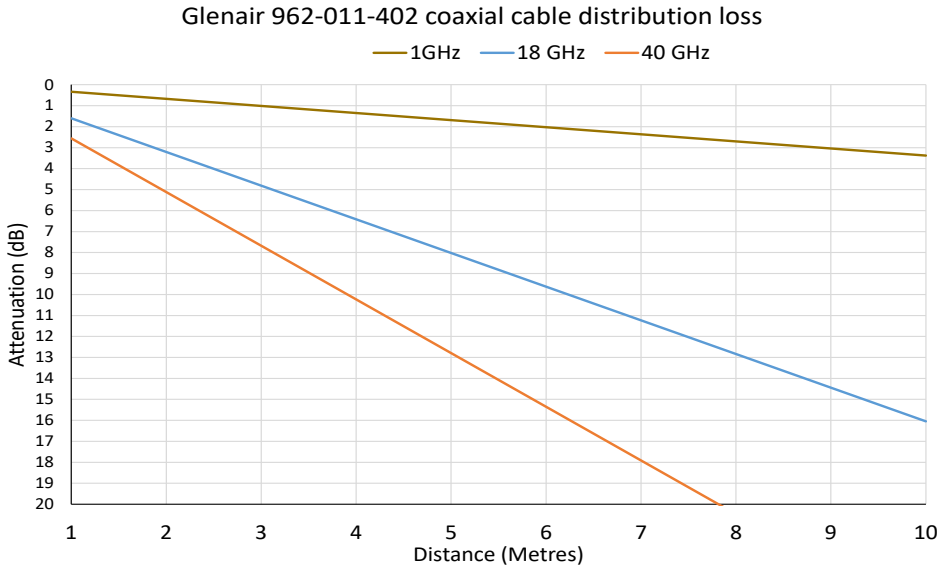
Changes will then apply instantly to the live system and the web GUI will only be available at the new defined static IP address. The configured static IP address will also appear on the chassis display screen.



5 Application Information

5.1 Interfacing the ViaLiteAIR infonX System with Coaxial Cables

The coaxial cable distribution of extreme RF bandwidths (up to 40 GHz) needs care to avoid high losses and the introduction of significant slope over the band. Coaxial cables between the ***ViaLiteAIR infonX*** chassis and user equipment should be kept as short as possible and be of high quality. The following graph details signal attenuation at 1 GHz, 18 GHz and 40 GHz versus distance transported in a high quality 40 GHz capable coaxial cable.



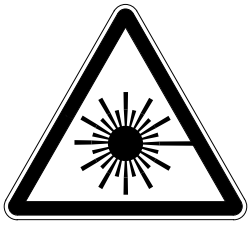
5.2 Constructing an Optical Fibre Communication System

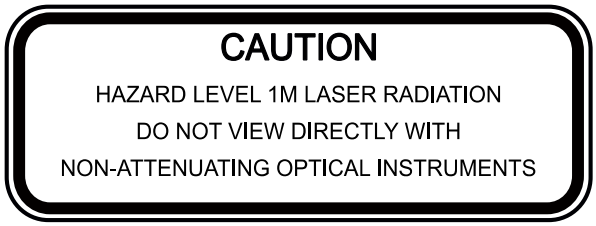
Assembling a communication system with ***ViaLiteAIR infonX*** equipment creates an Optical Fibre Communication system rated at hazard class 1M per IEC 60825-2. It must be installed in a location with restricted access (restricted location); an accessible location that is normally inaccessible by the general public by means of any administrative or engineering control measure but that is accessible to authorized personnel who may not have laser safety training.

5.2.1 Patch Panels

An optical fibre system will almost always require patch panels to segment various parts of the installation. It is important to maintain the use of compatible fibre and connection types throughout the system. The complete use of single mode fibre of compatible types with Angled Polished connectors at every panel is required to ensure optimal analogue operation of this system.

All optical fibre patch panels installed beyond any locally controlled 19” rack equipment and are accessible to users must be labelled or marked as hazard level 1. Groups of connectors may be marked as a group, with just a single clearly visible location hazard level marking, rather than having each connector individually marked. The marking required is shown in the following image.





5.3 Single Mode Optical Fibre

The optical fibres that connect the ***ViaLiteAIR infonX*** chassis' can be up to several km in length. Installing these fibres over very long distance may require groundworks and significant time and investment so is important to plan it accordingly. As the fibres themselves are very small, it is common to install a fibre bundle with excess cores for future expansion or redundancy. The costs are nearly always dominated by the installation and the cost delta of fibre for 8, 16 or even greater core counts are largely negligible.

Optical fibre is a microscopic core of flexible transparent glass or plastic used as a waveguide to transport suitable wavelengths of light. Optical Fibre has the inherent advantage of EMI immunity, reduced SWaP and longer transmission distances and reducing operating costs.
The core of a fibre optic cable is surrounded by a cladding material with a lower index of refraction which keeps the light in the core due to the phenomenon of total internal reflection. Single-mode fibres (SMF) have a small core typically 8.5 to 10 microns supporting only a single mode of propagation at wavelengths of 1300nm to 1600nm which facilitates a low loss long distance transport capability.
Optical fibres are characterized primarily on their dispersion curves and bend radius capability. The table below summarises the single-mode fibre standards as recommended by the ITU.

ITU-T Recommendation	Description
G.652	Single-mode optical fibre 30mm minimum bend radius. Zero chromatic dispersion slope in, the 1310nm region. G.652.A 1310 / 1550 nm G.652.B 1310 / 1550 / 1625nm, Low PMD G.652.C Reduced water peak. G.652.D Reduced water peak, Low PMD.
G.653	Dispersion-shifted single-mode optical fibre Zero chromatic dispersion slope in, the 1550nm region. G.653.A 1525 - 1575nm G.653.B 1460 - 1625nm
G.654	Cut-off shifted single-mode optical fibre 1550nm only G.654.A 10.5um mode field diameter G.654.B 13.0um mode field diameter, low PMD G.654.C 10.5um mode field diameter, low PMD G.654.D Low macrobending loss G.654.E Lower macrobending loss
G.655	Non-zero dispersion-shifted single-mode optical fibre Non-zero chromatic dispersion slope & 1550 & 1625nm G.655.C G.655.D Low macrobending loss G.655.E
G.656	Non-Zero Dispersion for Wideband Optical Transport Non-zero chromatic dispersion slope & 1460 & 1625nm
G.657	Bending loss insensitive single mode optical fibre. Compatible with G.652 but have better bend sensitivity performance G.657.A1 10mm minimum bend radius G.657.A2 7.5mm minimum bend radius G.657.B2 7.5mm minimum bend radius G.657.B3 5mm minimum bend radius

Any of these optical fibre types are compatible with the switching room system. For optimal performance, availability and cost reasons, G.652.D is recommended. If there is a need for tight bends in the installation then G.657.A1 is recommended.

5.4 Angled Polish Connectors

RF Over fibre is an analogue system and therefore requires greater attention to reduce potential impairments. **This RF over fibre system requires the use of Angled Polished connectors only**.

5.4.1 APC – Angle Physical Contact Connector

Angled physical contact connector

An APC connector has an end-face angle of 8° allowing tighter connections and smaller end-face radii. The angle also prevents light from being redirected to the source and alternatively reflected back towards the cladding. APC offers return losses of -65dB equating to 0.0001% of light being reflected back, enabling the connectors to cope with demands of complex and multi-play services.

The following non-APC connector types are detailed below to allow the reader to spot the improper options that could be selected accidentally.

5.4.2 For Reference Only (DO NOT USE): FC – Flat Fibre Connector

Flat fibre connectors are typically used in DIGITAL telecommunications, their primary drawback is a small air gap is present between the two ferules, allowing numerous small but significant imperfections to gather on the surface, primarily due to large end-face of the connector.

Flat fibre connector

5.4.3 For Reference Only (DO NOT USE): PC – Physical Contact Connector

The PC connector has a slight spherical cone design to reduce the size of end face, decreasing the air gap; resulting in lower Optical Return Loss (ORL).

Physical contact connector

5.4.4 For Reference Only (DO NOT USE): UPC – Ultra Physical Contact Connector

The UPC builds on the convex end-face attributes of PC, but utilises an extended polishing method creating an even finer fibre surface finish. This finish results in a further reduction in ORL. ORL depends on the quality of fibre surface and thus deteriorates after repeat mating/un-mating.

Ultra physical contact connector

6 Fibre Optic Interface care

6.1 Connector and Cable Types

All ***ViaLiteAIR infonX*** optical ports use single-mode (9 µm / 125 µm) cable terminated in a range of supported optical connectors detailed below.

Warning!

Angle polished (APC) and standard (PC) connectors must not be confused. The two connector types are not interchangeable and mating one with the other may damage both the cable and the module connectors.

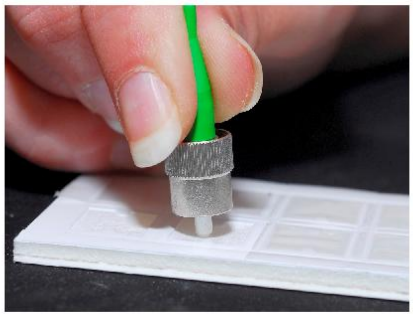
The specification of optical connector is critical to the performance of the complete Fibre Optic Link. System performance can only be guaranteed with fibre optic cables and connectors supplied by ***ViaLite Communications***. When FC/APC connectors are specified they must be 'narrow key width'.

6.2 Connecting and Disconnecting

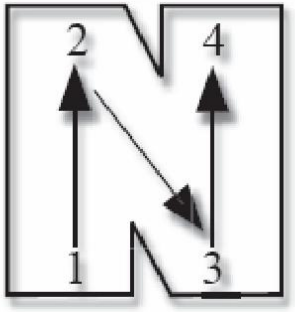
Before connecting optical fibres to the module or to each other, ensure that the mating connectors are clean (see below).

6.3 Cleaning Optical Connectors – Cleaning before Every Use

Optical connectors MUST be cleaned before use, even where they have been protected with dust caps. A large percentage of performance issues can be attributed to dirty fibres.



- Peel the plastic cover from an unused 'N' cleaning pad.
- Hold the connector between your thumb and forefinger.
- Clean the connector using firm pressure by swiping in a pendulum motion through each segment of the 'N' shape, following the diagram.
- Do not swipe over the same space twice.



For more details, please read the cleaning instruction that accompanies the connector cleaning kit.

6.4 Cleaning Optical Connectors – High Levels of Contamination

If there are performance issues that are not resolved by basic cleaning in Section 6.3, then the following procedure should be used. If the level of contamination is high it will be necessary to repeat this procedure.

Cleaning items required:

- Lint-free fibre cleaning tissues and/or cleaning sticks (normal cosmetic tissues produce dust and are not suitable).
- Reagent grade isopropyl alcohol (IPA).
- Air duster or filtered, compressed air line.

Cable connector cleaning:

- Dampen a patch of cleaning tissue with IPA and clean all surfaces of the plug ferrule.
- Using a dry cleaning tissue, dry the ferrule and clean the end face.
- Using the air duster, blow away any residue from the end of the connector.

Module female receptacle cleaning (only recommended if problems are being experienced):

- Either use an optical cleaning stick or twist a cleaning tissue to form a stiff probe and moisten with IPA. Gently push the probe into the receptacle and twist around several times to dislodge any dirt.
- Repeat the above process with a dry tissue.
- Using the air duster, blow away any residue from the receptacle.

Important notes:

- IPA is flammable. Follow appropriate precautions / local guidelines when handling and storing.
- IPA can be harmful if spilt on skin. Use appropriate protection when handling.
- It should only be necessary to clean the female receptacles on the modules if problems are being experienced.

Never inspect an optical fibre or connector with the naked eye or an instrument unless you are certain that there is no optical radiation being emitted by the fibre. Remove all power sources to all modules and completely disconnect the optical fibres.

6.5 FC/APC Connectors

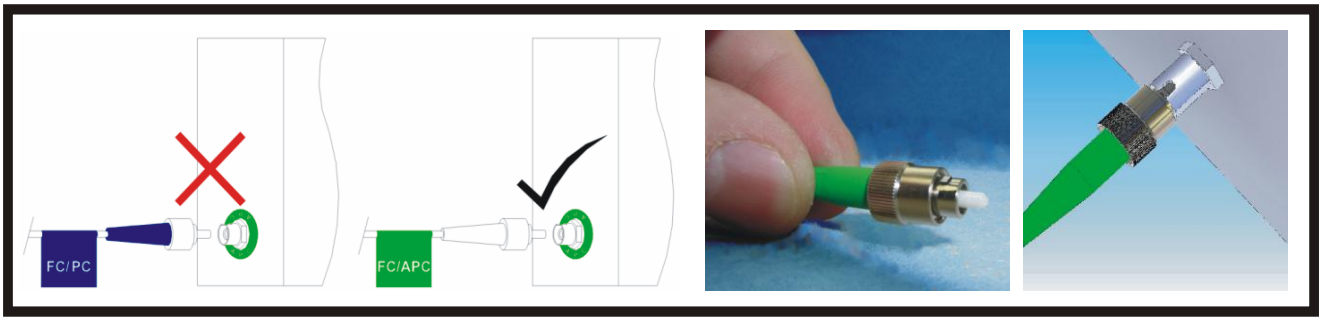
To connect FC/APC optical connectors:

- Remove the dust caps and align the white ceramic centre ferrule on the cable connector with the mating receptacle.
- There is a key (lug) on the side of the ferrule, which must match the keyway (gap) in the receptacle shroud.
- When they are aligned, gently push the plug home.
- Finger tighten the knurled collet nut onto the threaded receptacle.

To disconnect FC/APC optical connectors:

- Using fingers, fully unscrew the knurled collet nut and gently withdraw the connector.
- Replace the dust caps on both the receptacle and the cable plug.

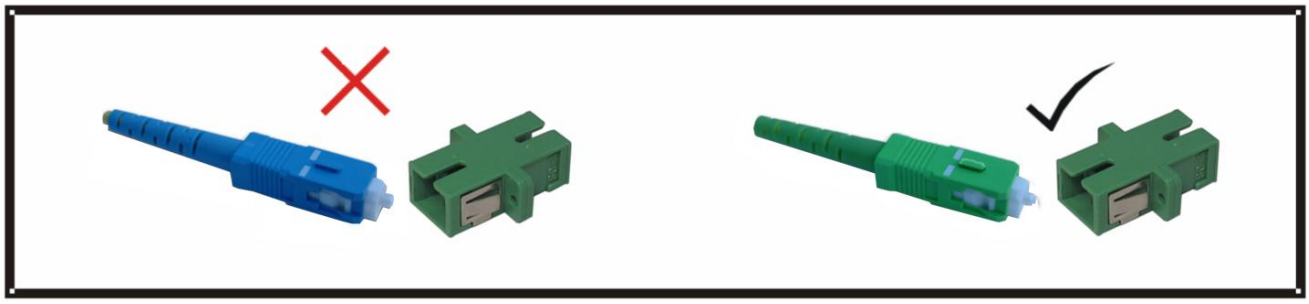
Warning! **It is possible to tighten the knurled collet without aligning the lug and gap. This will result in poor light transmission. Check that the lug and gap are aligned before tightening the knurled collet.**



6.6 SC/APC Connectors

To connect SC/APC optical connectors:
- Remove the protective plug cover.
- Align the connector keyway slot in the adaptor to the key of the plug.
- Gently push the plug into the adapter until a click is heard and the connector locks.

To disconnect SC/APC optical connectors:
- Grip the body of the plug and gently pull the plug from the adaptor, then replace the protective cover.

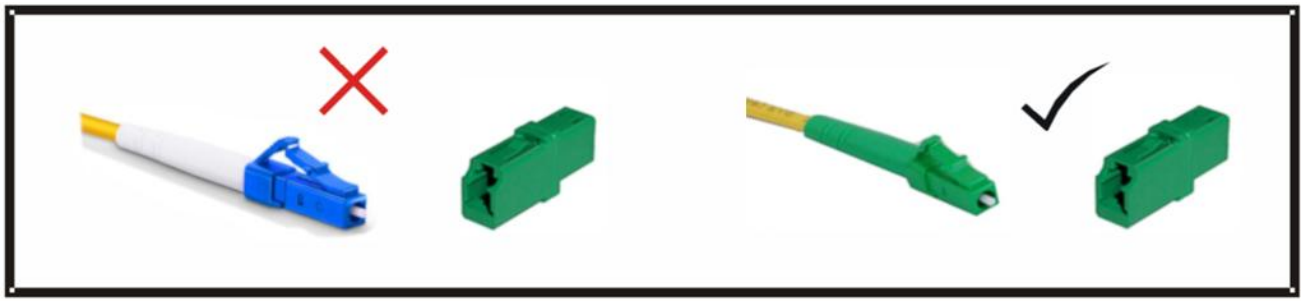


Only connect SC/APC cable to SC/APC. Do not mix green and blue connections.

6.7 LC/APC Connectors

To connect LC/APC optical connectors:
- Remove the protective plug cover.
- Align the connector keyway slot in the adaptor to the key of the plug.
- Gently push the plug into the adapter until a click is heard and the latch engages.

To disconnect LC/APC optical connectors:
- Depress the latch of the plug and gently pull the plug from the socket, then replace the protective cover.



Only connect LC/APC cable to LC/APC. Do not mix green and blue connections.

6.8 Minimum Bend Radius

Because optical fibre is made of glass, it is important not to subject it to excessive stress. For this reason, each type of cable has a minimum bend radius specification, beyond which the cable cannot be bent without permanent damage occurring.

The minimum bend radius of fibre optic cable fitted to ***ViaLiteAIR infonX*** modules is 50 mm.

7 RF Interface Care

7.1 2.92 Connections

The ***ViaLiteAIR infonX*** chassis is fitted with 2.92 mm connectors to support operation up to 40 GHz. These connectors offer excellent performance but must be clean, free of dust/contaminants and tightened to the correct torque. Please ensure that a torque spanner set to 1.0 Nm is used to make the connections. An example torque wrench is shown below (Huber Suhner 74_Z-0-0-21) 1 Nm, 8 mm / 0.315 inch.

Over tightening an SMA or 2.92 mm connector with a standard 8 mm spanner will risk twisting of the connection behind the bulkhead and may result in damage that impacts the performance of the link. Always use a 1 Nm torque wrench.

Connect and tighten RF connectors to present the correct termination impedance before applying power to the modules.

8 Product Warranty

The guarantee / warranty period, unless otherwise agreed in writing, shall be as stated in document 'F292 - PPM Manufactured Product – Warranty', which is available at: https://ppm.co.uk/warranty-periods/. Extended warranty options are available at the time of purchase.

Prior to returning any goods for warranty or non-warranty repairs, please contact PPM / ***ViaLite Communications*** for a returns reference.

PULSE POWER & MEASUREMENT LTD, 65 SHRIVENHAM HUNDRED BUSINESS PARK, SWINDON, SN6 8TY, UK.
TEL: +44 (0)1793 784389 FAX: +44 (0)1793 784391
EMAIL: SALES@VIALITE.COM WEBSITE: WWW.VIALITE.COM