PPM *ViaLite* Quick Start Guide

This quick start guide is intended as an information summary, the relevant equipment handbook should always be treated as the master document.

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

Electrical Safety

ViaLite LPS-M and LPS-R Power Supply Units are Safety Class 1 products (having metal case directly connected to earth via the power supply cable).
When operating the equipment note the following precautions:

- Hazardous voltages exist within the equipment. There are no user serviceable parts inside, and the covers should only be removed by qualified technician.
- The equipment does not have a mains isolating switch. Equipment must be installed within easy reach of a clearly labeled dual pole mains isolation switch.
- Ensure that fuses of the required rated current and of the specified type are used. Fuse information is shown on the rear of the module and in the handbook.

ESD Precautions

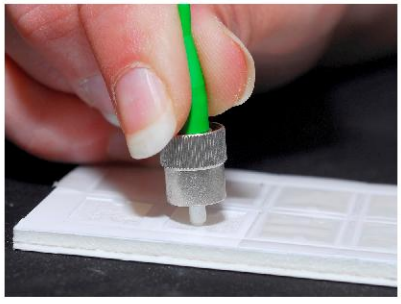
Precautions for handling electro-static sensitive devices should be observed when handling all ***ViaLite*** modules. Technicians should ensure that they use effective personal grounding (i.e. ESD wrist strap etc..) when servicing the equipment. Any equipment or tools used should be grounded to prevent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

Optical Safety

The ***ViaLite*** RF Transmitter modules contain laser diode sources operating at 1290nm to 1613nm.
These devices are rated as EN60825-1:1994 as CLASS 1 radiation emitting devices.
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 equipment external covers when operating.

Optical Connectors and Fibres
Ensure that all mating connectors are matched types. All PPM FC/APC equipment uses narrow key FC/APC connectors, these are not compatible with wide key FC/APC. Optical connectors MUST be cleaned before use. **Most performance issues are due to dirty fibres**.

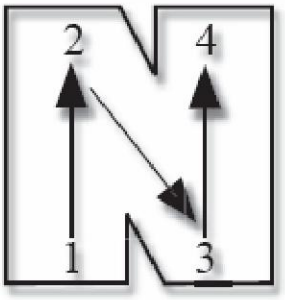


- Peel the plastic cover from an unused "N" cleaning pad.

- Hold the connector between your thumb and forefinger

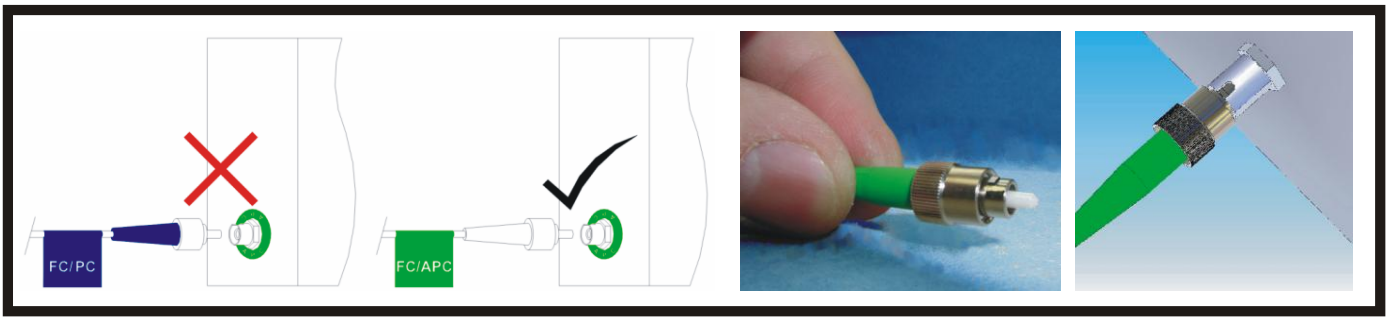
Clean the connector using firm pressure by swiping in a pendulum motion through each segment of the "N" shape, following the diagram

- Do not swipe over the same space twice.



For more details please read the cleaning instruction which accompanies the connector cleaning kit. Details can also be found on the CD supplied with your equipment.

To connect FC/APC optical connectors, remove the dustcaps 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 and finger tighten the knurled collet nut onto the threaded receptacle. Disconnection is the reverse of connection; replace the dustcaps on both the receptacle and the cable plug.



Only connect FC/APC cable to FC/APC modules

Locate connector key

Align key and keyway

To connect E2000 optical connectors, gently push the plug into the E2000 adapter until a click is heard and the connector locks. To disconnect, depress the lever at the rear of the connector and withdraw the connector. The protective cover automatically engages and disengages, when inserted or removed.

Minimum Bend Radius of a simplex patch cable is typically 30mm, at this radius there will be a very small increase in loss due to the bend (~0.05dB)

Connecting and Disconnecting RF Connectors
This product uses a range of RF connectors. Please ensure that RF connections are made with correctly matched connectors and cable impedances. Failure to do so may result in damage to the connectors and loss of performance. SMA RF connectors should only be connected with a calibrated SMA torque spanner.

Installation

19 Inch Rack Installation

The ViaLite 19" Rack Case is designed to fit 19" cabinets. Two options are available that occupy a height of either 1U or 3U. The Rack is provided with flanges for mounting to the cabinet. The 3U Rack Case must be used with at least one plug-in LPS Power Supply Module. The rack backplane contains 15-way D-type data connectors for each module position. This provides user access to data and voltage feed outputs from relevant modules. The pin-outs of these connectors are given in the following section. There is also a common alarm concentrator 25-way connector providing access to alarm and monitoring information from all modules.

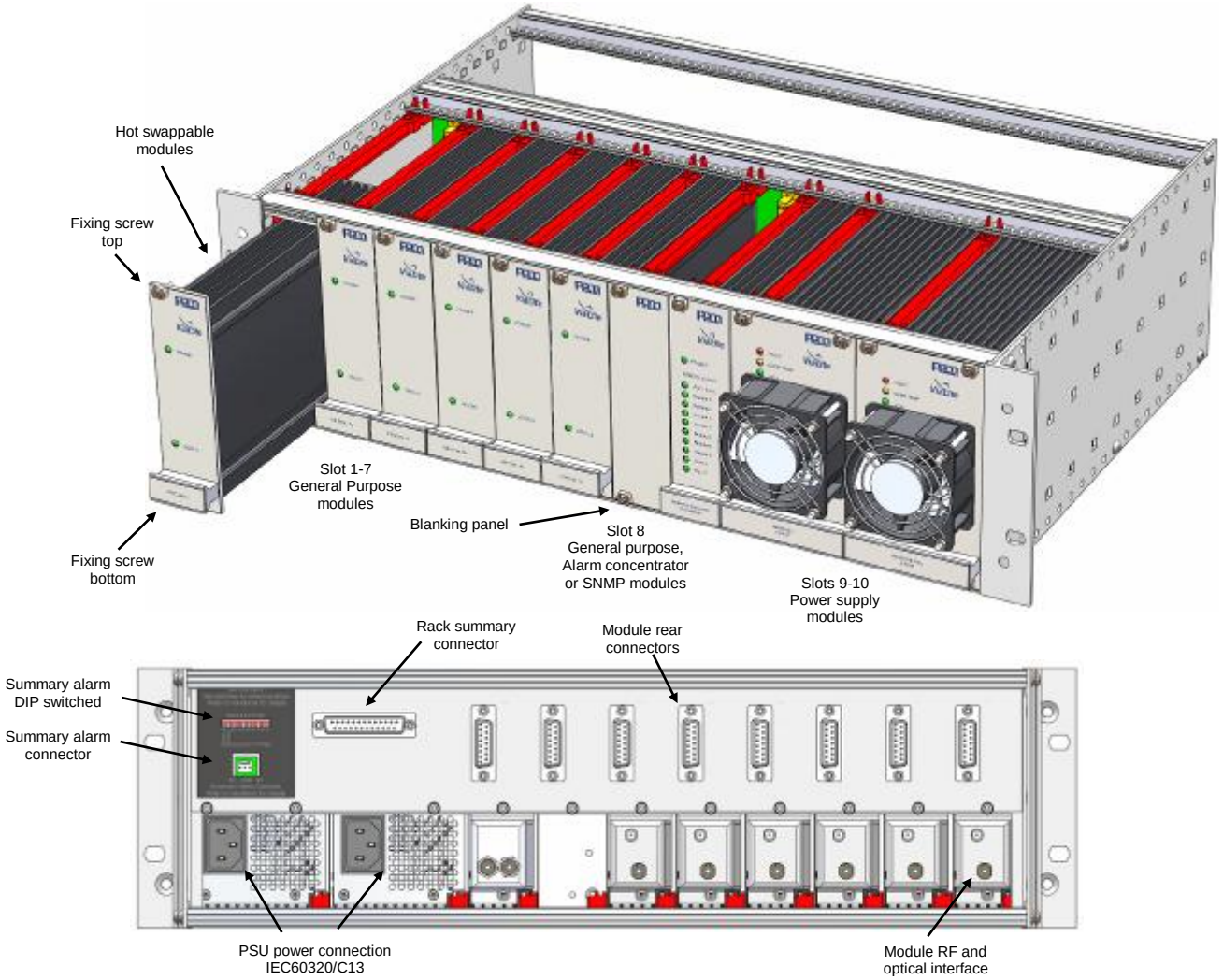
Power Supply Installation

The 1U rack and outdoor cabinets are supplied with power supplies pre-installed. The 3U rack LPS-M/R plug-in modules are installed by simply sliding them into either of the two right hand positions, identified by a vertical line on the Rack Backplane PCB in position 9 or 10. Once the module is pushed fully home, tighten the corner screws, which hold the unit onto the front rails of the rack case. If the equipment is to be operated in dual redundancy mode, one Main Power Supply (LPS-M) and one Reserve Power Supply (LPS-R) will be required. The location of each is not critical.

Installation of Plug-in Modules

All ***ViaLite*** plug-in modules are hot-swappable, so it is not necessary to power-down the rack before inserting a module. Simply slide the module along the guides ensuring that it does not foul the adjacent units. When the module is pushed fully home, tighten the upper and lower screws on the module front panel. Connections are made at the rear of the unit, through the void at the rear of the rack case. It is advised that all unused slots be fitted with blanking panels. These are designed to fit the 7HP card slots used in either PPM's 1U or 3U racks. They prevent accidental/unwanted access and the ingress of dust.

When operating RF fibre optics links the ideal operating input power is dependent on the end users system. However in all cases there will be the desire to achieve the optimal SINAD. At low signal power this will be dominated by thermal noise and at high signal powers it will be dominated by distortion products. Typically a good quality signal can be obtained by operating the link at a composite input power 10-20dB below the fibre optics link's P1dB specification level (see handbooks).



ViaLite **user manuals**

ViaLite OEM Module All OEM modules	**LRx-xM-HB**
ViaLite System User Manual 19" chassis 3U and 1U version single module converter sleeve all power supply options (24V/48V/108-240V)	**Lxx-HB**
ViaLite SatCom Links User Manual LRx-Lx (950MHz to 2150MHz) L Band LRx-Bx (10MHz to 200MHz) IF Band	**LRx-L-HB**
ViaLite Wideband Links User Manual LRx-Nx (10MHz to 1GHz) LRx-Rx (2kHz to 1.5GHz) LRx-Sx (10MHz to 3GHz) LRx-Wx(10MHz to 4.2GHz) including digital channel option	**LRx-R-HB**

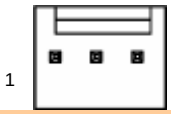
ViaLite DVB-T Link User Manual	**LRx-D-HB**
ViaLite Low Frequency Timing Module Handbook	**LRx-T-HB**
ViaLite Serial Digital Fibre Modem User Manual	**LSX-x2-HB**
ViaLite Ethernet Link User Manual	**LSX-E2-HB**
ViaLite SNMP Network Monitoring Module User Manual	**LRC-HB**
ViaLite Metro GPS User Manual	**Metro-GPS-HB**
ViaLite RF GPS Link User Manual	**LRx-G-HB**
ViaLite Digital GPS Link User Manual	**LSx-HB**
ViaLite Redundancy Switch User Manual	**LRS-HB**
ViaLite RF Splitter and Combiner User Manual	**LRD-HB**
ViaLite Alarm Concentrator User Manual	**LAC-HB**
ViaLite Fibre Optic Connector Cleaning Guide	**72793-HB**

All manuals are available on CD Rom or from www.vialite.com

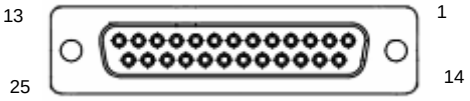
Rack Summary Pinout

Pin	Rack summary	Pin	Rack Summary
1	Summary Alarm	**14**	PSU 1 Secondary Alarm
2	PSU 2 Secondary Alarm	**15**	PSU 1 Primary Alarm
3	PSU 2 Primary Alarm	**16**	Module 1 Secondary Alarm
4	Module 2 Secondary Alarm	**17**	Module 3 Secondary Alarm
5	Module 4 Secondary Alarm	**18**	Module 5 Secondary Alarm
6	Module 6 Secondary Alarm	**19**	Module 7 Secondary Alarm
7	Module 8 Secondary Alarm	**20**	Module 1 Primary Alarm
8	Module 2 Primary Alarm	**21**	Module 3 Primary Alarm
9	Module 4 Primary Alarm	**22**	Module 5 Primary Alarm
10	Module 6 Primary Alarm	**23**	Module 7 Primary Alarm
11	Module 8 Primary Alarm	**24**	+12V from rack
12	+12V from rack	**25**	Ground
13	Ground		

Note: Colour indicates relevant connector drawing



Summary Alarm: View looking into connector
Connector Type: 3 pin, 2.54mm Molex KK



Rack summary: View looking into connector
D-Type connector (DB-25)

Summary alarm pinout

Pin	Summary Alarm
1	Normally open
2	Common
3	Normally closed

Note: Colour indicates relevant connector drawing
Note: Ensure that rear DIP switches are appropriately set to “Fitted” and “Not Fitted” cards for correct summary alarm operation.

RF Module Input/Outputs Levels

- RF inputs and outputs should not be exposed to DC voltage levels in excess of ±36V.
- Absolute maximum no damage RF input level is +13dBm (some unit will tolerate more, see handbook).
- Absolute maximum no damage RF level applied to an RF output is +13dBm.

Some transmitter modules are pre-configured to have a DC voltage present on the RF input connector, to drive low noise amplifiers and similar equipment. Check module handbook and description for more details.

Receiver modules: All receiver modules will create a 1-2Vpeak DC transient from the RF output at start up into a 50Ω load (approximately 5V into a 1MΩ load). This may cause failure in some very sensitive spectrum analyzers or similar equipment.

All modules have AC coupled inputs and/or outputs and will be sensitive to large transients (>5V) applied to either input or output. This may result in permanent damage to the units, particularly to low frequency units. Contact PPM for more details.

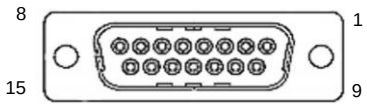
Module Pin Outs

Rack Mounted Modules

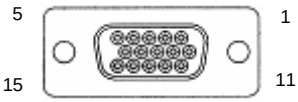
Pin	RF module	Switch*	Ethernet *	Alarm Concentrator
1	Not used	Control	RJ45-1 orange/white	RS232 Data Output
2	*RS422/485 Data +*	Control	RJ45-3 green/white	Remote 1 Alarm
3	*RS422/485 Data -*	Control	RJ45-5 blue/white	Remote 2 Alarm
4	*RS232 Data*	Control	RJ45-7 brown/white	Remote 3 Alarm
5	Alarm Output	Alarm Output	Not used	Alarm Output
6	+12V from rack	+12V from rack	Not used	+12V from rack
7	*External Feed*	Not used	Not used	Remote PSU Alarm
8	Ground	Ground	Not used	Ground
9	Not used	Not used	RJ45-2 orange	RS232 Data Input
10	Not used	Not used	RJ45-6 green	Remote 4 Alarm
11	*Digital Ch Disable*	Not used	RJ45-4 blue	Remote 5 Alarm
12	*RTS_485*	Not used	RJ45-8 brown	Remote 6 Alarm
13	*Analogue Monitor*	Not used	Not used	Remote 7 Alarm
14	*External LNA Feed*	Not used	Not used	Remote PSU Alarm
15	Ground	Ground	Not used	Ground

Pin	Serial Digital – 2 channel	Serial Digital – 3 channel	SNMP / Splitter	SNMP alarm extender*/**
1	RS422/485 output+	RS422/485 output1+	Not used	Frame 2 Alarm 1 input
2	RS422/485 output-	RS422/485 output1-	Not used	Frame 2 Alarm 2 input
3	RS232 / TTL Data output	*RS422/485 output2+*	Not used	Frame 2 Alarm 3 input
4	Rx Optical Detect	*RS422/485 output2-*	Not used	Frame 2 Alarm 4 input
5	Alarm Output	Alarm Output	Alarm Output	Frame 2 Alarm 5 input
6	+12V from rack	+12V from rack	+12V from rack	Frame 2 Alarm 6 input
7	Not used	Not used	Not used	Frame 2 Alarm 7 input
8	Ground	Ground	Ground	Frame 2 Alarm 8 input
9	RS422/485 input+	RS422/485 input1+	Not used	Ground
10	RS422/485 input -	RS422/485 input1 -	Not used	Frame 2 PSU Alarm 1 input
11	RS232 / TTL Data input	*RS422/485 input2+*	Not used	Frame 2 PSU Alarm 2 input
12	Tx Optical Detect	*RS422/485 input2 -*	Not used	Not used
13	Alarm Output	Alarm Output	Not used	Not used
14	Not used	Not used	Not used	Not used
15	Ground	Ground	Ground	Ground

Connections in *Blue* are optional and only available on some types of module
* Units supplied with custom cable for use in ***ViaLite*** system
** Optional custom cable available for use in ***ViaLite*** system
Note: Colour indicates relevant connector drawing



Rack rear module: View looking into connector
D-Type connector (DA-15)

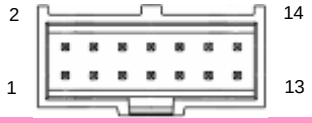


SNMP module alarm extender/programming: View looking into connector
D-Type high density connector (DE-15)

OEM modules

Pin	RF module TX *	RF module RX *	Serial Digital – 2 channel*
1	*RS422/485 input+*	Not used	RS422/485 input+
2	Not used	*RS422/485 output+*	RS422/485 output+
3	*RS422/485 input -*	Not used	RS422/485 input -
4	Not used	*RS422/485 output-*	RS422/485 output-
5	Alarm Output	Alarm Output	Alarm Output
6	*FSK disable*	*FSK disable*	RTS RS485
7	+12V Power	+12V Power	+12V Power
8	Ground	Ground	Ground
9	*Fuse voltage monitor*	*RS232 Data output*	RS232 / TTL Data output
10	*RS232 Data input*	*RTS*	RS232 / TTL Data input
11	Ground	Ground	Ground
12	*LNA feed monitor*	*FSK detect*	Tx Optical Detect
13	*External LNA Feed*	Not used	Not used
14	Analogue Monitor	Analogue Monitor	Rx Optical Detect

Note: Colour indicates relevant connector drawing



OEM module: Top view, 14 pin header
Connector Type: Molex (C-Grid III), dual row

Shielded Remote module: Looking into connector
Connector Type: Lemo 1B 8-pole

Shielded remote modules

Pin	RF module TX	RF module RX	Serial Digital– 2 channel **	Serial Digital– 3 channel **
1	Alarm Output	Alarm Output	Alarm Output	*RS422/485 output2+ or RS422/485 input2+*
2	*RS232/422/485 input+*	*RS232/422/485 output+*	RS232/422/485 output+	RS422/485 output1+
3	*RS422/485 input -*	*RS422/485 output -*	RS422/485 output -	RS422/485 output 1-
4	Ground	Ground	Ground	Ground
5	Power	Power	Power	Power
6	*FSK disable*	*FSK disable*	RS232/422/485 input+	RS422/485 input1+
7	*LNA feed monitor*	*FSK detect*	RS422/485 input -	RS422/485 input 1-
8	Analogue	Analogue Monitor	RTS RS485	*RS422/485 output2- or RS422/485 input2-*

Note: Colour indicates relevant connector drawing

Connections in *Blue* are optional and only available on some types of module
* Units supplied with custom cable for use in ***ViaLite*** system
** Optional custom cable available for use in ***ViaLite*** system

Front Panel Indicators
The following table shows the operation of the front panel LEDs:

RF Transmitter, RF Receiver, Switch, Splitter and Serial digital modules

	Power LED (RF modules)	Power LED (Switch, Splitter and Serial digital modules)	Status LED (LRT modules)	Status LED (LRR modules)	Switch Position LED (LRS modules)	Status LED (LSX modules)
Off	Unit Off	Unit Off	Unit Off	Unit Off	RF Port Isolated	No traffic
Green	Unit OK	Unit OK	Laser OK	Link OK	RF Port Connected	Traffic present
Red	Internal Fault	NA	Laser Failed	High optical Loss	NA	NA

Alarm concentrator and SNMP modules

	Power LED (ALL modules)	Remote LED (Alarm Concentrator)	Remote LED (Alarm Concentrator)	Status LED (SNMP module)
Off	Unit Off	Unit is Off	Unit Off OR No valid ACM link	Configuration mode
Green	Unit OK	ACM Link OK	Remote Module OK	Normal operation
Red	Internal Fault	No valid ACM link	Remote Module Fault	NA

Ethernet

	Power LED	Link status LED (Fibre port)	Link status LED (Copper port)	RX/ACT LED (Either port)
Off	Unit Off	Unit Off	Unit Off	No traffic
Green	Unit OK	Link established (steady) Remote fault (flashing)	Link established	Traffic present

Power supply modules

	Fault LED	Over Temp LED	+12V LED
Off	PSU okay or Unit OFF	PSU okay or Unit OFF	Internal Fault or Unit OFF
Green	NA	NA	PSU okay
Amber	NA	internal temperature >55°C	NA
Red	Internal Fault	NA	NA

PULSE POWER AND MEASUREMENT LTD., 65 SHRIVENHAM HUNDRED BUSINESS PARK, SWINDON, SN6 8TY, UK.
TEL: +44 1793 784389 FAX: +44 1793 784391
EMAIL: SALES@PPM.CO.UK WEBSITE : WWW.PPM.CO.UK