- Enables RS485 equipped radiation monitors to be easily connected to SCADA systems.

- Interfaces to multiple Lab-Impex/Ultra Electronics, Canberra AB96, iCAM or G64 radiation monitors

- Connects into an Ethernet Fibre Optic ring network with integrated AC power distribution.

- Supplies AC power to one radiation monitor

- Pre-processes monitor data ready for transmission to the SCADA computer.

Features

- **Combined power and fibre ring network**
- **Extra RS485 option to allow for two manufacturers**
- **Self-healing Ethernet ring topology using RSTP**

- **Indicator lights for easy system diagnostics**
- **Wide operating temperature range 0-60°C**
- **IP44 Wall mounted enclosure**

Overview

The Omniflex Teleterm Radiological Protection Gateway (RPN1) simplifies the process of gathering data from Lab-Impex/Ultra Electronics, Canberra AB96, iCAM or G64 monitors by combining all the required features into a standard, off-the-shelf product.

Simply connect Teleterm RPN1 nodes together into a fibre+power ring network using the specified cables and link to the Lab-Impex/Ultra Electronics or Canberra radiation monitors of your choice.

Monitor data will be easily readable by the radiological surveillance SCADA system from the RPN1 gateway.

The RPN1 gateway only requires simple configuration through the USB port provided produce the required functionality.

AC Power and Fibre Ring Network

The Teleterm RPN1 gateway connects into a Fibre+Power ring network using the "Net1" and "Net2" connectors on the top of the housing.

Each connector integrates a fault-tolerant Ethernet fibre-optic network and AC power in or out into a single cable, allowing easy installation and replacement of the Teleterm RPN1 with minimal disturbance to other gateways in the ring network.

Compatible cables are available in lengths from 1m to 300m, to allow easy installation.

Redundant Ring Network

Normally the RPN1 gateway is connected in a ring of gateways through the two connectors "Net1" and "Net2", but these connections are symmetrical, allowing AC power and fibre-optic communications to be provided to the Teleterm RPN1 through either connector.

In the event of a failure in the ring in either direction, power can still be supplied from the other direction and the Ethernet fibre-optic ring will adjust to operate through only one connection, creating a redundant ring topology.

Embedded Ethernet Switch

An embedded Ethernet switch in the Teleterm RPN1 provides the following functions:

- Fault tolerant to loss of one of the fibre links using RSTP redundancy protocol.

- Fast access to the latest radiation monitor data and status stored in the gateway.

LED Indicators

A comprehensive set of LED (Light Emitting Diode) indicators are provided to diagnose communications links.

Radiation Monitor Connections

The Teleterm RPN1 Gateway is capable of powering and communicating with Lab Impex, Canberra iCAM or G64 monitors. The -41 version can communicate with monitors from two manufacturers as opposed to one manufacturer in the standard version.

A local MCB on the gateway provides protected power to the monitor through a dedicated power plug on the bottom of the unit.

The RPN1 Gateway communicates with the radiation monitors through two dedicated RS485 connectors on the bottom of the housing. On the standard RPN1, both connectors share a single RS485 link to the gateway. On the -41 version, the two ports are separate allowing monitors from different manufacturers on one unit.

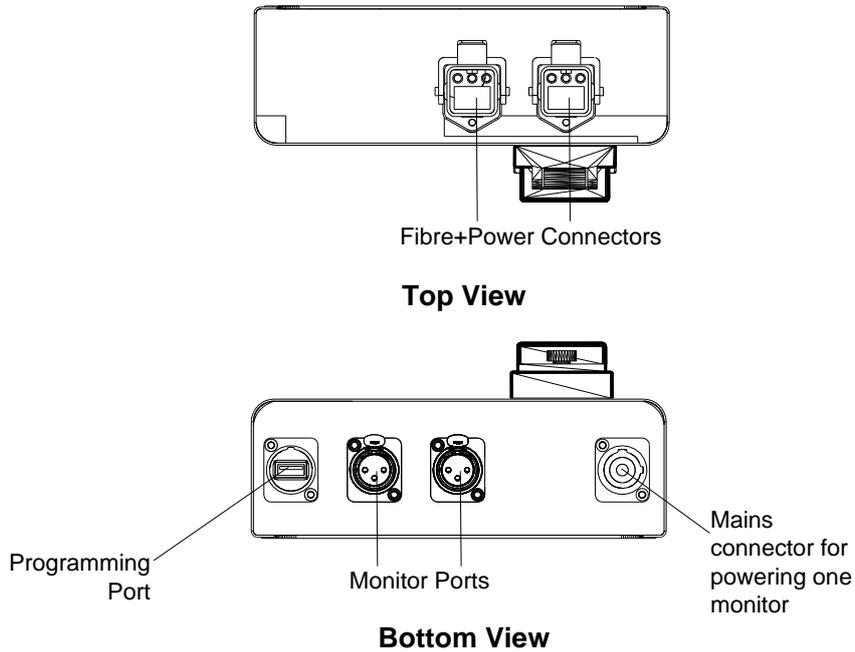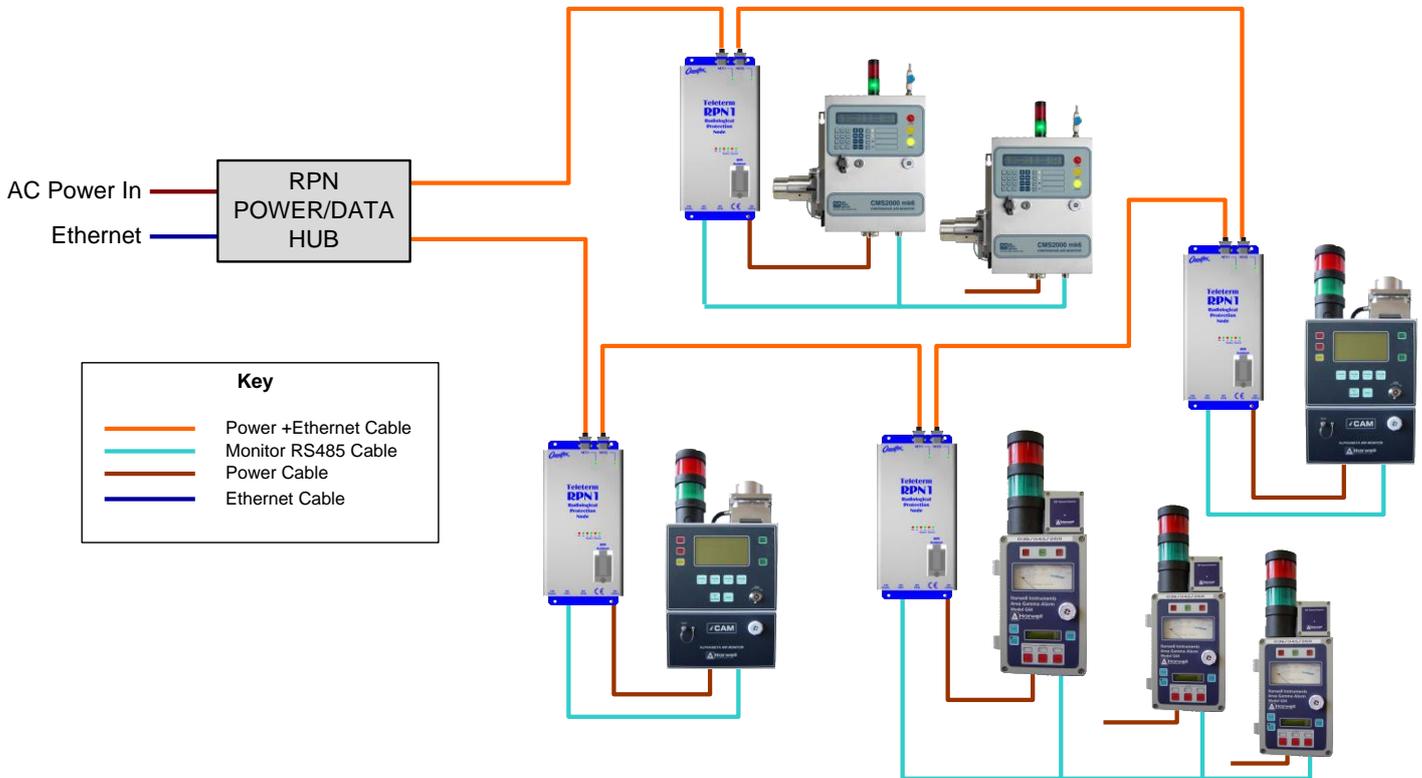It is recommended that a maximum of 16 monitors are connected to each RPN1.

Omniflex
®REMOTE MONITORING SPECIALISTS

Layout of Connectors

Fibre+Power Connectors

Top View

Programming Port

Monitor Ports

Mains connector for powering one monitor

Bottom View

Typical System Connection Diagram

AC Power In

Ethernet

RPN POWER/DATA HUB

Key

Power +Ethernet Cable	
Monitor RS485 Cable	
Power Cable	
Ethernet Cable	

www.omniflex.com

Omniflex
REMOTE MONITORING SPECIALISTS

Mechanical Details
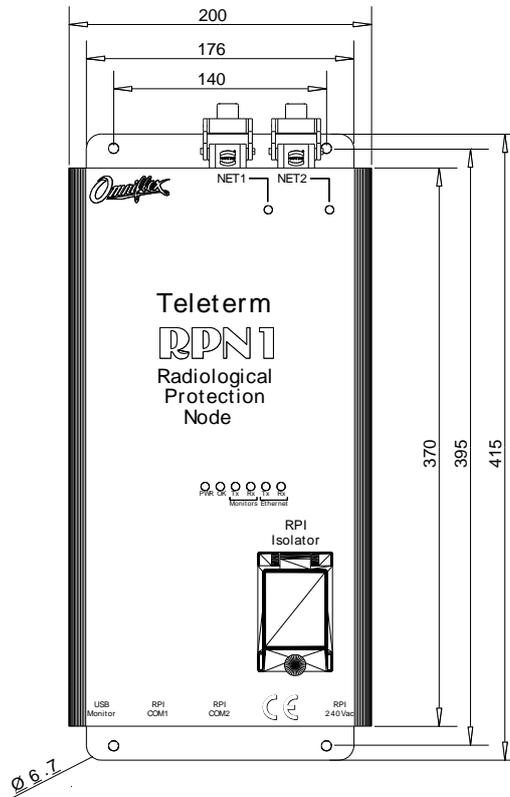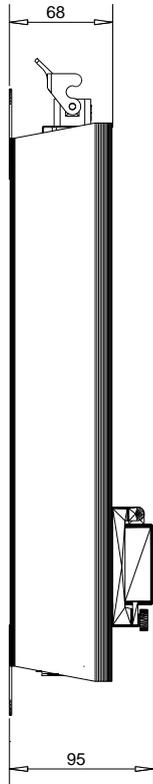
Specifications

Ethernet Network Ports (Link In and Link Out)

Fibre Optic Ethernet Port	802.3u 100BaseFX
Optical Fibre	1300nm multimode
Ring Redundancy Protocol	RSTP/STP

Power Requirements (Net 1 or Net 2)

AC Input Voltage	85-264Vac
AC Input Frequency	47-63Hz
Input current	<0.15A rms at 115Vac <0.1A rms at 230Vac (excludes current to Radiation Monitor)
Switch-on inrush current	2A for <10ms (10A for < 1ms)

Radiation Monitor Power Port

Quantity	1
Connector Type	powerCON 20A
Power Rating	240Vac 1A maximum

Radiation Monitor Communications Port

Quantity	2 x RS485 ports
Number of Connectors	2
Connector Type	3 pin XLR
Monitors supported	Canberra iCAM Alpha and/or Beta Monitor Canberra G64 Gamma Monitor Ultra Electronics / Lab Impex Systems CMS Gamma Monitor Ultra Electronics / Lab Impex Systems SmartCAM *Others including the Canberra AB96 and the Ultra Electronics / Lab Impex Systems CMS2000 may be available on request*

LED Indicators

Net 1	Green	ON = Link 1 is established FLASH = data is being transferred
Net 2	Green	ON = Link 2 is established FLASH = data is being transferred
AC	Red	ON = Power Supply is healthy
OK	Green	ON = Gateway is healthy FLASH/OFF = Gateway is faulty
Monitors TX*	Red	ON = Data is being sent to monitor(s)
Monitors RX*	Green	ON = Data is being received from monitor(s)
RPI COM1**	Green	Monitor comms activity on RPI COM1
RPI COM2**	Green	Monitor comms activity on RPI COM2
Ethernet TX	Red	ON = Data is being sent by gateway
Ethernet RX	Green	ON = Data is being received by gateway

*On standard version
**On -41 version

Internal Temperature Sensor

Temperature Accuracy	± 2 °C

Environment

Operating Temperature	0 to +60°C (+32°F – 140°F)
Storage Temperature	-10°C – 70 °C (+14°F – 158°F)

Mechanical

Width	200mm
Height	415mm (excluding connectors)
Depth	85mm

Weight

Unpacked	600gm approx.
Packed	700gm approx.

Compliance to Standards

Safety	IEC950; EN60950:2000
Emissions	EN 55011 and EN50081-2:1994 Group I, Class A
Immunity – ESD	IEC 61000-4-2:2001, level 3
Immunity – RF Fields	IEC 61000-4-3:2003, level 3
Immunity – Fast Transients	IEC 61000-4-4:2004 2 kV – AC power ports 1 kV – other input/output lines
Insulation Resistance (100% tested)	100Mohm at 500Vdc input to outputs to ground.

Ordering Information

ORDER CODE	DESCRIPTION
C5132A	Teleterm RPN1 Std Radiological Gateway
C5132A-41	Teleterm RPN1 Radiological Gateway with two separate serial ports
Accessories	
C5140A	Teleterm RPN1 Fibre Optic Configurator
C1210A-xx	Power+Fibre link cable (xx = length in m)
C1211A-xx	Monitor Communication Cable with loose ends (xx = length in m)
C1212A-xx	RPI Monitor Power Cable with loose ends (xx = length in m)