

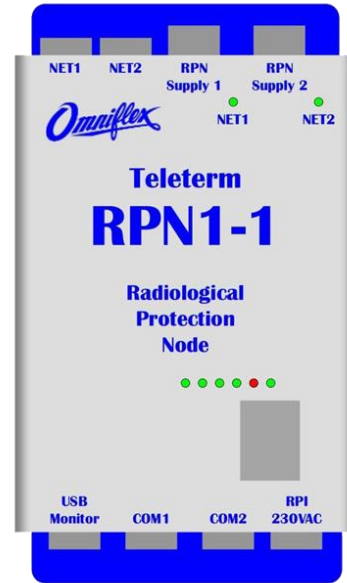


Teleterm RPN1-1 Gateway

Model C5133A Teleterm Fibre Optic Radiation Protection Gateway

DATASHEET

- Enables RS485 equipped radiation monitors to be easily connected to SCADA systems.
- Interfaces to multiple Ultra Electronics, Mirion AB96, iCAM or G64 radiation monitors
- Connects into an Ethernet Fibre Optic ring network with separate AC power distribution.
- Supplies AC power to one radiation monitor directly off the unit.
- Pre-processes monitor data ready for transmission to the SCADA computer.



Features

- **Separate 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 (RPN1-1) simplifies the process of gathering data from Ultra Electronics, Mirion AB96, iCAM or G64 monitors by combining all the required features into a standard, off-the-shelf product.

Simply connect Teleterm RPN1-1 nodes together into a fibre optic ring network using standard cabling and link to the Ultra Electronics or Mirion radiation monitors of your choice.

Monitor data will be easily readable by the radiological surveillance SCADA system from the RPN1-1 gateway.

The RPN1-1 gateway only requires simple configuration through the USB port provided to produce the required functionality.

AC Power and Fibre Ring Network

The Teleterm RPN1-1 gateway connects into a fibre optic ring network using the "NET1" and "NET2" connectors on the top of the housing. These are standard LC fibre connectors.

There are also two separate power connections for a loop-in / loop-out or ring-main arrangement. These connectors are protected against accidental touching of the live conductors on both the cable and RPN1-1 connectors.

Redundant Ring Network

Normally the RPN1-1 gateway is connected in a ring of gateways through the two connectors "NET1" and "NET2", but these connections are symmetrical, allowing communications to be provided to the Teleterm RPN1-1 through either connector.

In the event of a failure in the ring in either direction, the Rapid Spanning Tree Protocol (RSTP) will adjust to operate through only one connection, creating a redundant ring topology.

Ring-main power connections will also allow for redundancy in the power supply to the RPN1-1.

Embedded Ethernet Switch

An embedded Ethernet switch in the Teleterm RPN1-1 provides the following functions:

- Fault tolerant to loss of one of the fibre links using the Rapid Spanning Tree Protocol (RSTP).
- 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 RPN1-1 Gateway is capable of powering and communicating with Ultra, Mirion iCAM or G64 monitors.

The -41 version can communicate with monitors from two manufacturers as opposed to one manufacturer in the standard version. Serial Modbus based communications can also be provided on the -41 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 RPN1-1 Gateway communicates with the radiation monitors through two dedicated RS485 connectors on the bottom of the housing. On the standard RPN1-1, 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 RPN1-1.

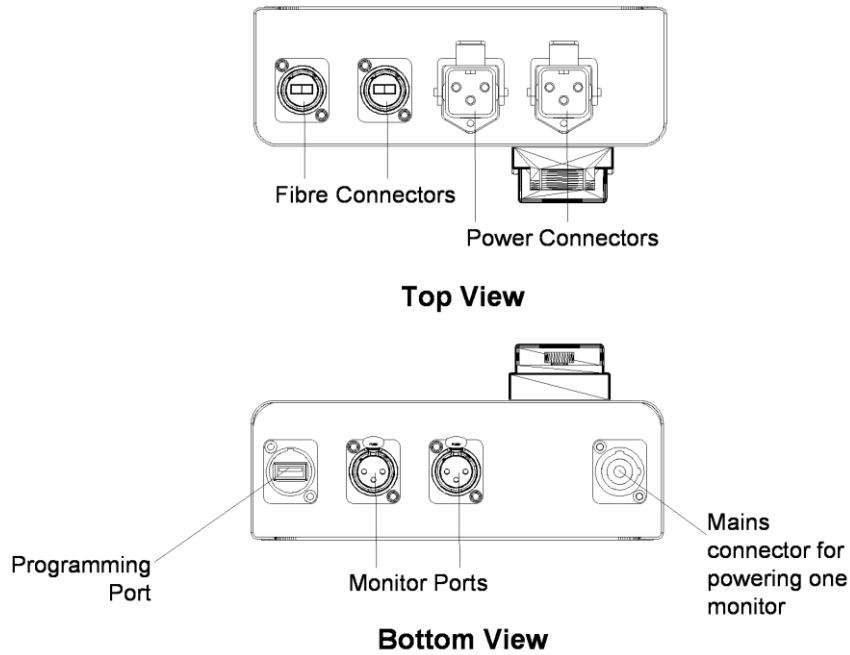




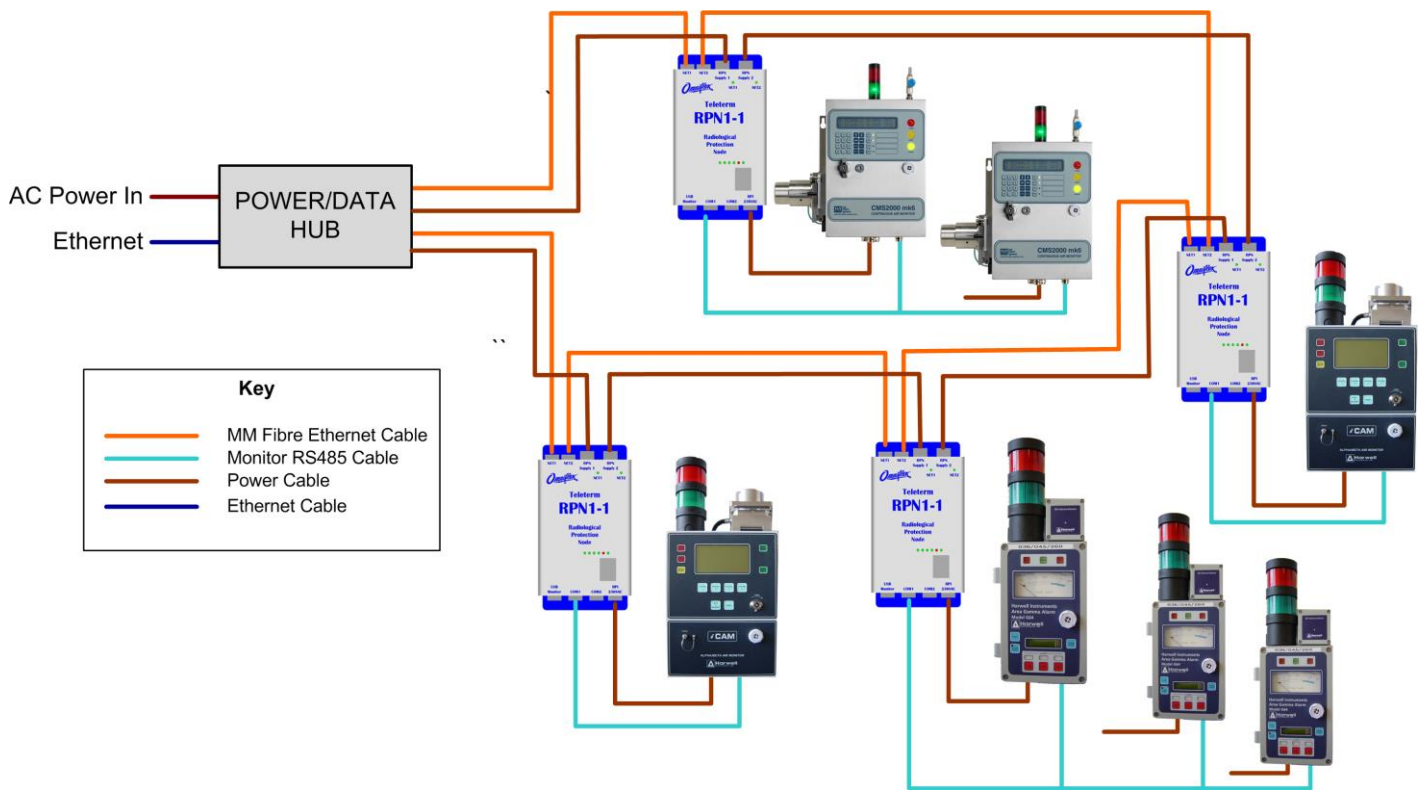
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Layout of Connectors



Typical System Connection Diagram

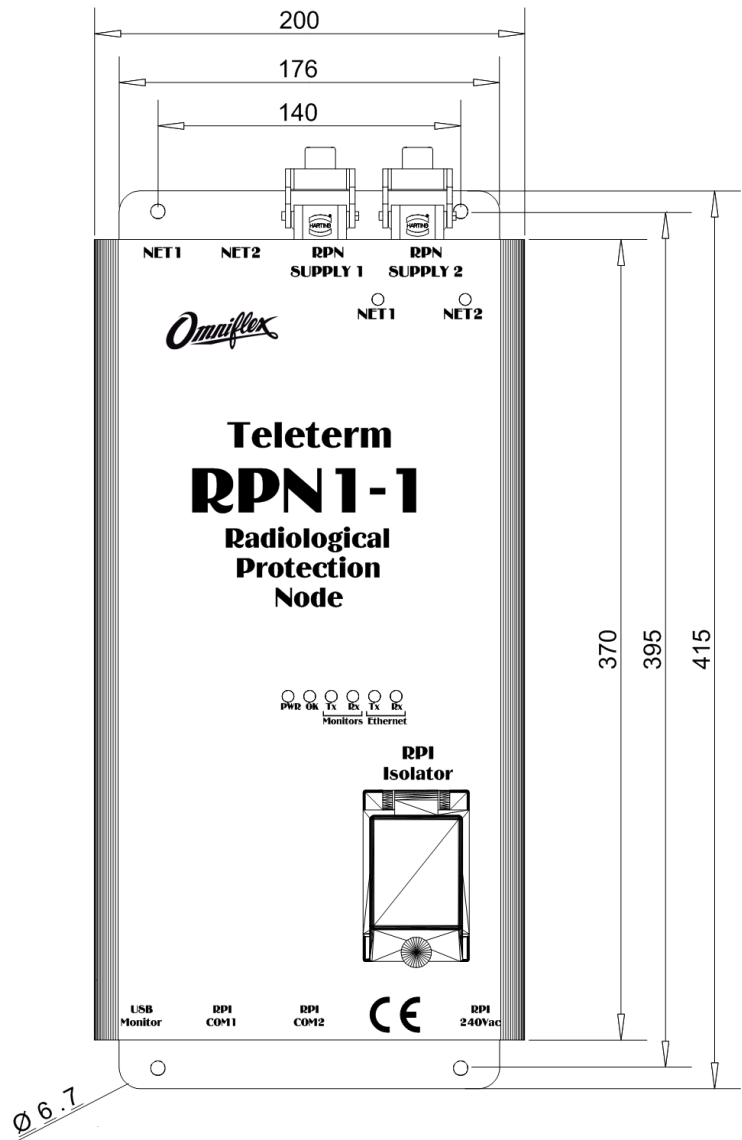
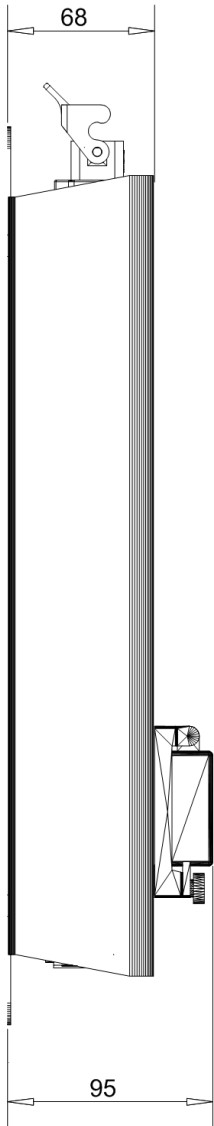




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Mechanical Details





Specifications

Ethernet Network Ports (NET1 and NET2)		
Fibre Optic Ethernet Port	802.3u 100BaseFX – LC Connection	
Optical Fibre	1300nm multimode	
Ring Redundancy Protocol	RSTP/STP	
Power Requirements		
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	Mirion iCAM Alpha and/or Beta Monitor Mirion G64 Gamma Monitor Ultra Electronics / Lab Impex Systems CMS Gamma Monitor Ultra Electronics / Lab Impex Systems SmartCAM <i>Others including the Canberra AB96 and the Ultra Electronics / Lab Impex Systems CMS2000 may be available on request</i>	
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 = Firmware update in progress 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
C5133A	Teleterm RPN1-1 Std Radiological Gateway
C5133A-41	Teleterm RPN1-1 Radiological Gateway with two separate serial ports
Accessories	
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)

