



Ethernet Monitor & Control



**PARADISE
DATACOM**
AN INTELEK PLC COMPANY

In response to growing demand, Paradise Datacom has developed an Ethernet Interface for its family of SSPA and Redundancy Controller products. Some of the obvious benefits that result from this feature include:

- Ability to control equipment over Internet - Worldwide availability makes remote management a reality.
- Ease of use - Plug the network cable into the RJ-45 connector on the back of the device and assign it an IP Address. That's it; your device is connected with no need for a 3rd party M&C platform.
- Widely available and inexpensive set of support equipment
Hubs, Switches and Network Cables are extremely affordable.

There are many products available today that provide an IP Interface for Earth Station Monitor and Control either through a serial to Ethernet converter (Figure 1) or an integrated Ethernet interface. With a Serial to Ethernet converter a user typically has to purchase and install additional hardware and software. These "extras" are generally not user-friendly making them difficult to use. Products that have an integrated Ethernet port tend to provide a lightweight interface. They tend to leave out all but the most critical functionality.

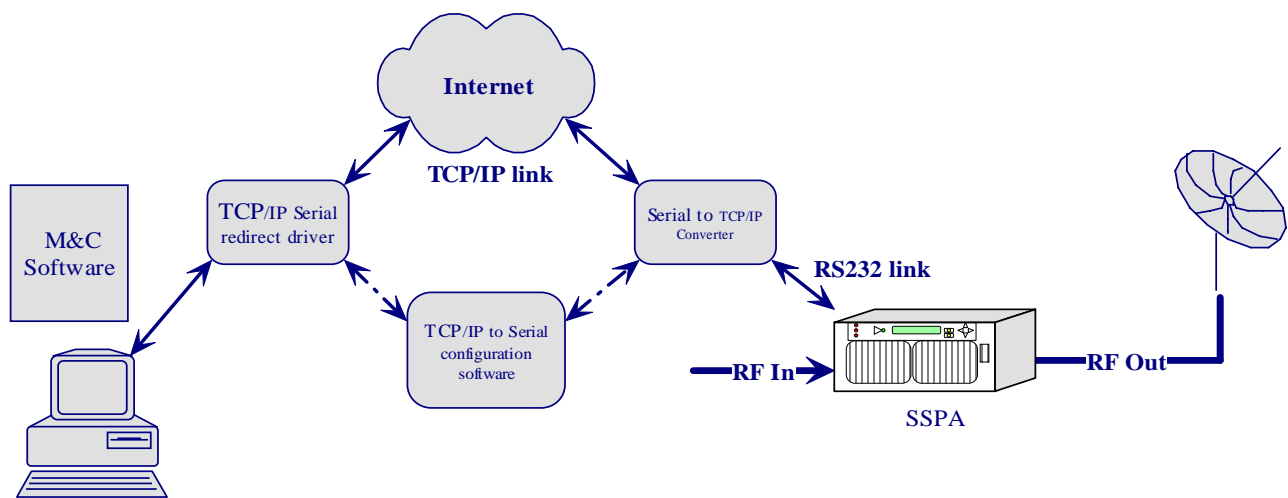


Figure 1: IP Interface with Serial to Ethernet TCP/IP Converter

Paradise Datacom provides a Microsoft Windows based control application to establish and perform Ethernet communication. The control application manages the exchange of packets to ensure error-free communication.

The Paradise Datacom Ethernet Interface provides complete functionality and is available with the legacy serial interface (Figure 2). Consequently, problems associated with third party devices and their associated costs are eliminated.

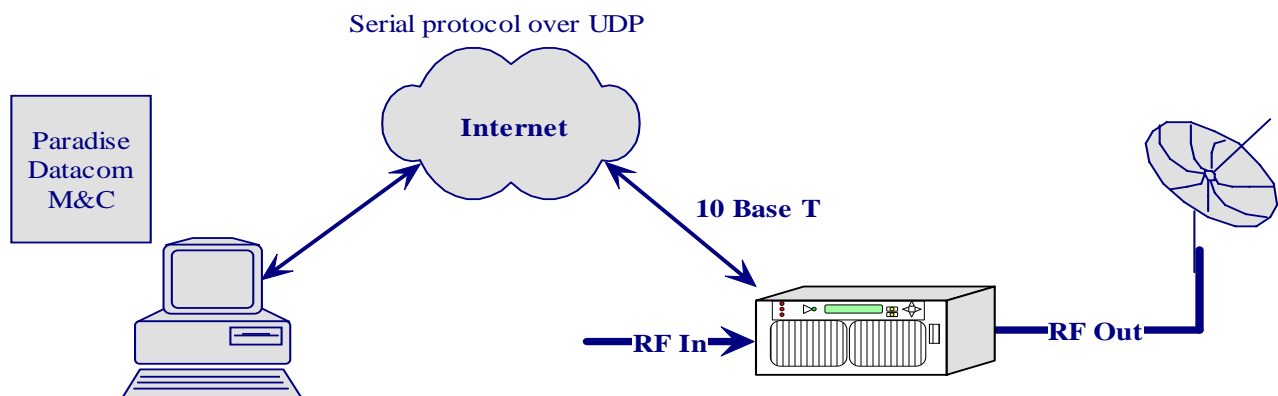


Figure 2: Paradise IP Interface

The application layer protocol (which actually carries the meaningful data) used for the Ethernet IP Interface is the standard Paradise Datacom Serial Protocol. This protocol proves to be extremely flexible and efficient. The UDP protocol is used for the Network/Transport layer. The attractive benefit of UDP is that it requires low overhead resulting in minimal impact to network performance. An example of the UDP frame with the encapsulated Paradise Datacom protocol frame is shown in Figure 3.

UDP Header (8 bytes)	Paradise Datacom Serial Protocol Frame (11+N bytes,	CRC16 Checksum
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Figure 3: Paradise Datacom UDP Frame

Recent additions to the Ethernet interface:

- Paradise Datacom now has Web and SNMP interfaces for Monitor and Control of its Rack Mount SSPA products. The two standard interfaces meet the needs of any IP enabled customer. Utilizing the Ethernet IP interface on the SSPA eliminates the need for additional devices to achieve instant internet connectivity.
- The SNMP interface enables an enterprise to “plug-in” a RM SSPA to its existing Network Management System. The Paradise Datacom SNMPv1 MIB provides specifications containing definitions of management information so the SSPA can be remotely monitored, configured and controlled.
- The Web interface uses a Java applet for “low network overhead” management of a RM SSPA. The end user has no need to worry about the hefty cost of a TCP connection to the SSPA web server while using the Web interface. The contained applet utilizes a “connectionless” UDP socket to perform all M&C functions once the Web Browser establishes a link to the SSPA.
- The Browser-based interface allows platform-independent operation – control and status can be achieved from computers running MS Windows, Apple OS, Linux, UNIX, etc. Using Java, web interface provides a clean and simple user interface, with continuous real time information update.

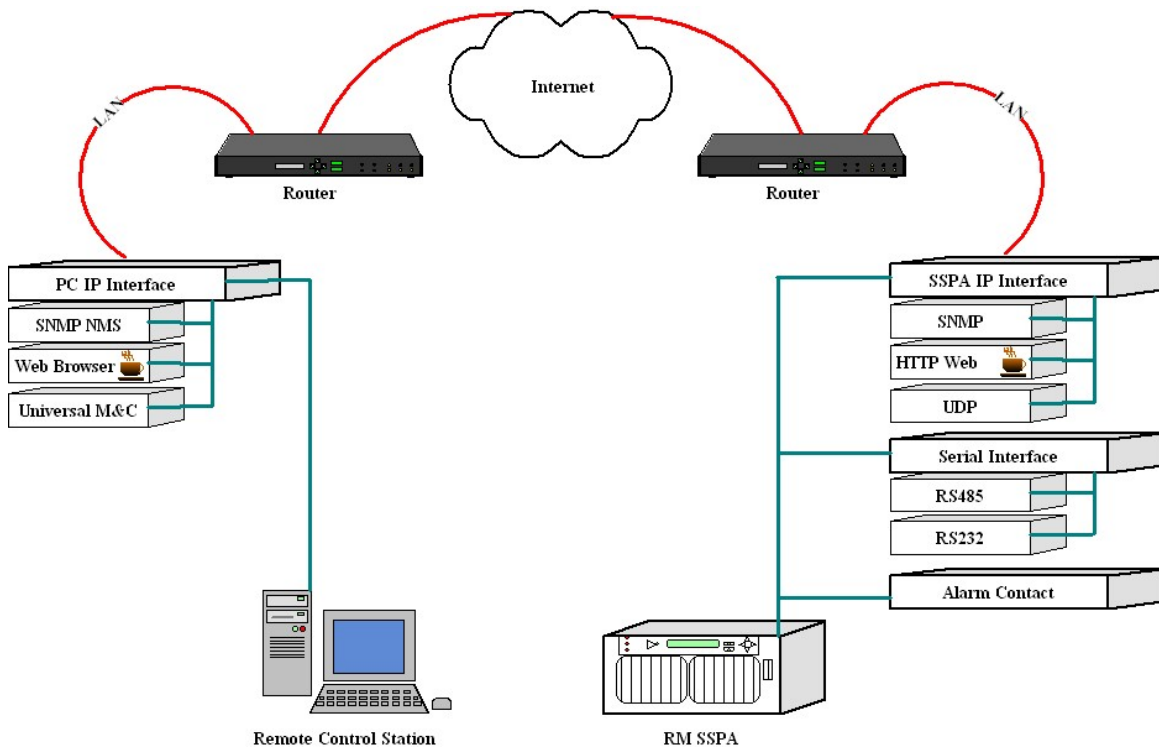


Figure 4: Typical M&C over Ethernet using either SNMP, Web User Interface, or Windows based Universal M&C.

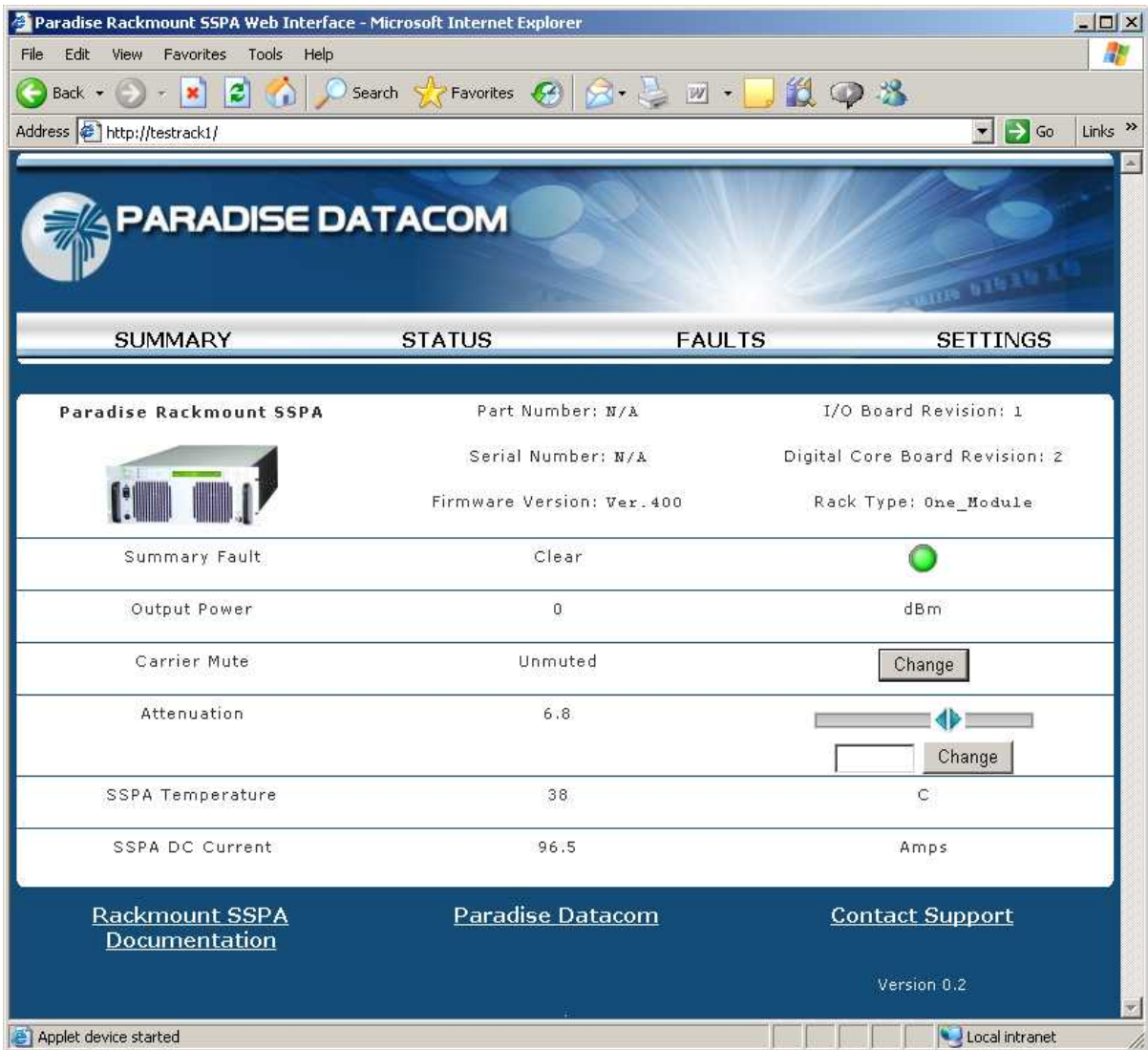


Figure 5: Web User Interface Summary screenshot

Conclusion

The diversity of interfaces offered in Paradise Datacom products give our customers the flexibility to use the management application that is best suited to their needs.

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