

Spectrum Analyzer FSP

Remote monitoring via Ethernet

In production testing, central monitoring of the measuring instruments for remote maintenance and diagnostics is frequently required. With the optional LAN interface (FSP-B16) the new FSP Spectrum Analyzer Family (FIG 1) is ideal for use in production environments. The interface allows access to all common Ethernet systems with transmission speeds of 10 Mbit/s (10Base-T) and 100 Mbit/s (100Base-T), thus opening up a variety of new applications.



Photo 43404/14

FIG 1 With its high measurement speed and accuracy, FSP is not only the right tool for general-purpose laboratory and service applications but also an ideal choice for production needs

Application? Just name it

Due to its Windows NT™ operating system the FSP Spectrum Analyzer* supports all common network protocols and can be operated in NT networks as well as in other network environ-

ments like Novell™. The amount of applications in which this analyzer can be used is almost unlimited.

FSP can directly use the resources provided by the network, eg network printers or drives for storing instrument set-

tings and measurement results. Thus FSP enormously facilitates the collection of statistical data in production and consequently the monitoring of production quality.

In addition, FSP provides several libraries and Windows DLLs (the so-called RSIB interface), which allow remote control of the instrument directly from application programs. FSP supports the complete IEC/IEEE-bus command set via Ethernet, which makes the adaptation of existing programs to the network interface easier.

The high speed of the 100Base-T connection shows its benefit especially in the FSP's new measurement functions. Recording of I/Q measurement results with selectable recording time very soon produces data packets of 500 Kbyte or more that have to be transferred to the controller within a minimum of time. The IEC/IEEE bus previously used for this purpose reaches its physical limits here and is outperformed by Ethernet at least by a factor of 2.

Virtual reality – the analyzer in a monitoring PC

Ethernet connection of the analyzer is indispensable where complete access to all manual operating functions is required from a remote workstation.

For remote control the analyzer must provide a user interface on the controller that allows all front-panel keys to be accessed by a mouse click and the displayed measurement results to be

transferred to the PC so that a virtual analyzer is available there.

An initial step towards remote-control capability is the FSP's "Soft-Frontpanel" function: the analyzer can be operated by means of mouse clicks and all its control elements are displayed on the connected monitor in addition to the measurement traces. So the only feature still missing is the transmission of the complete screen contents to the monitoring PC.

This is where the Windows NT™ operating system with its large number of commercial applications proves its benefit for FSP. There are quite a few programs on the market that allow remote control of one PC by another. One of the best known is pcANYWHERE from Symantec, which was successfully tested on FSP.

The program is installed as a host (= device to be controlled) on the FSP analyzer and as a remote PC (= remote controller) on the monitoring PC and is automatically started upon booting FSP.

The two systems communicate via TCP/IP. To avoid conflicts in the network, each FSP is assigned its own IP address and network device name.

After connection has been established, the FSP's user interface is displayed in the window of pcANYWHERE on the monitoring PC. All mouse clicks and keyboard entries on the PC are directly transferred to FSP, executed there, and the response on the screen is immediately transferred back to the monitoring PC (FIG 2).

The response time only depends on the speed of the network and its spare capacity. Experience has shown that even in a 10Base-T network with medium network traffic no tiresome queuing times will occur.

The pcANYWHERE program also supports modem connections. This allows

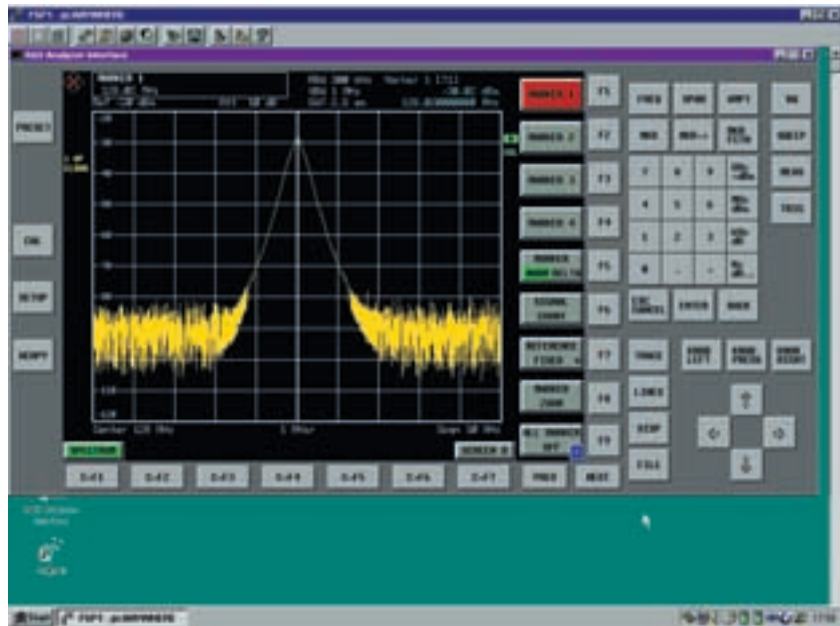


FIG 2 Spectrum Analyzer FSP "in" a monitoring PC

FSP to be used in remote-controlled radiomonitoring stations.

Big brother is watching FSP

Remote monitoring using the pcANYWHERE software provides access to all FSP functions and thus to all important device parameters such as counters for operating hours or attenuator switching cycles, so that the next calibration or maintenance can be scheduled in time. Firmware updates can also be carried out from a central server so that there is no need for locally exchanging floppy disks.

For remote diagnostics the internal error stacks can be checked and, if required, a selftest of device functions or an internal alignment can be triggered.

Conclusion

The optional LAN Interface FSP-B16 is a universal interface for remote control and remote monitoring, suiting FSP optimally for communication in any scenarios.

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REFERENCES

- * Wolf, Josef: Spectrum Analyzer FSP – Medium class aspiring to high end. News from Rohde&Schwarz (2000) No. 166, pp 4–7

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