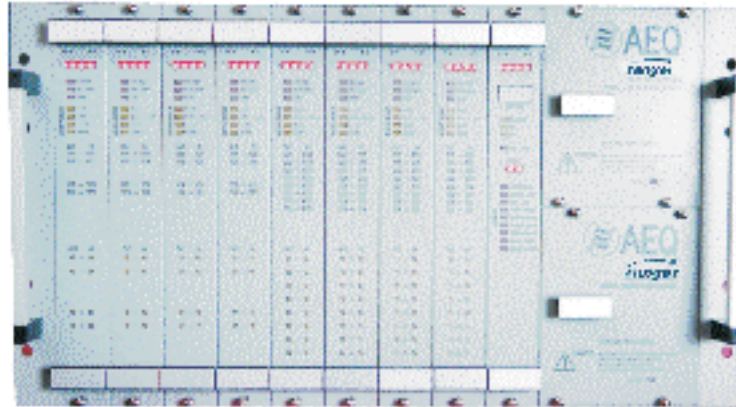




**E@sy** © Family  
Enhanced Automation System  
**WWR** World Wide Ready series.  
The WWR equipment ensures connectivity to the different world-wide communication networks.



Ed.: 12/04

Audio and Data multiplexer for a full duplex channel E1/T1 of up to 2 Mb, with capacity for 15 circuits of 15-KHz., 31circuits of 7.5-KHz or 62 circuits of 3.5-KHz., Or the corresponding data channels V-35 or X-21 interfaces at 64, 128 or 256 Kb.

**APPLICATIONS:**

Replacing a single-channel analog radio link with a digital radio link with E1/T1 interface, it is used to transmit several two-way audio, data and telephony links.

Connected to a communications network, it is used to interconnect two remote points for several Audio, data and telephony circuits.

Connected to the same network, it is used for full duplex audio distribution between a Central Station and the Secondary Stations of a Radio Broadcasting Network.

**BENEFITS AND DIFFERENTIAL FEATURES**

- Member of the E@sy family: From a multipoint network, a suite of RANGER and other E@sy equipment can be controlled, making a system of first-class features and powerful functions.
- Low-delay ADPCM coding. Includes the 15-KHz AEQ LD Extend mode.
- Complete bidirectional communication.
- Transmits analog audio and data in the same equipment.
- World Wide Ready series equipment: Connectable to all kind of communication networks; E1/T1. Its data cards can be connected as V-35 or X-21 interfaces.
- Transmits mono or stereo signals.
- Flexible configuration of the audio qualities (from stereo at 15 KHz., to mono at 3.5 KHz) and different binary data rates (64 Kbps to 256 Kbps per channel).
- Reliable technology proven extensively during several large sports Events such as Olympic Games. Etc.



## FEATURES

The equipment is housed in a modular rack format, including two universal autorange power supply units. The rack handles up to 8 audio and data cards.

**RANGER** offers three different audio quality compression modes: 3.5 KHz (32 Kbits), 7.5 KHz (64 Kbits) and 15 KHz (128 Kbits), all of them with low encoding/decoding delay features. The data cards can handle interfaces at 64, 128 and 256 Kbits.

### AVAILABLE CARDS:

- \*4B/4C card: allowing three different configurations:
  - 2 two way 15Khz circuits
  - 4 two way 7.5Khz circuits
  - 2 two way 7.5Khz + 1 two way 15Khz circuit
- \*4B/8C card: allowing three different configurations:
  - 4 two way 7.5Khz circuits
  - 8 two way 3.5Khz circuits
  - 4 two way 3.5Khz + 2 two way 7.5Khz circuits
- \*DATA-BCMx card has four V35 - X21 interfaces, with clock generation, configurable as:
  - 1 at 256 Kb.
  - 2 at 128 Kb.
  - 2 at 64 Kb and one at 128 Kb.
  - 4 at 64 Kb.



## E@sy SOFTWARE FOR ranger

The standard software for the RANGER series is divided into two functional modules:

### ENGINEERING PLANNING MODULE.

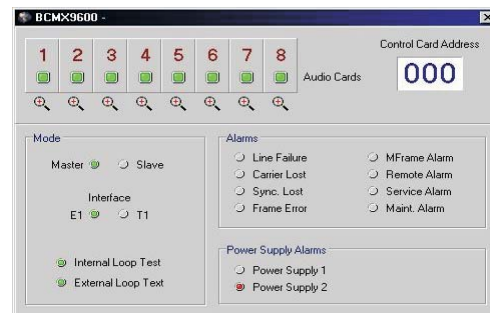
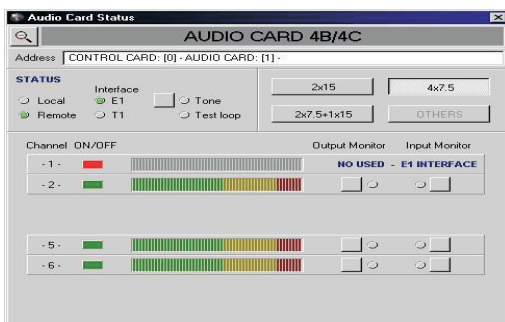
Network E@sy configuration planning, includes RANGER equipment ID, card quantity and type, and audio quality. It retrieves engineering reports in html, word, excel and other formats. It creates configuration files that are transferable to a floppy disk.

### REAL-TIME CONTROL AND MONITORING MODULE.

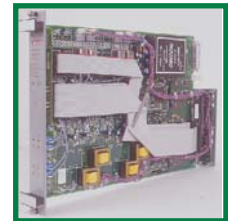
The application controls the E@sy devices connected to the computer, monitoring their status and remotely changing their configuration. We can check the type of equipment and card, change the operating mode, audio mode, test tone configuration, monitoring audio levels is, and also obtain information on any incident that occurs.

### FIRMWARE UPDATING MODULE.

As standard feature includes an application for updating firmware through a serial port.



## TECNICAL SPECIFICATIONS



Audio I/O Nominal Level (dBu)	+4 dBu*
Audio Input Impedance	6 kOhms xformer balanced
Audio Output Impedance	50 Ohms xformer balanced
Audio Input Connectors	Hartman Type
E1 Framing Standard	G732
E1 Interface Standard	G703 (HDB3)
T1 Framing Standard	193S or 193 E (Super Frame enhanced Superframe)
T1 Interface Standard	G703 (B8ZS)
E1/T1 Connector	RJ 45
V35 - X 21 Connector	Female
2/1,5 Mbps Impedance	120 Ohms
Pass-Band Intermodulation	Better than -50 dB
240 v Power	Autorange 90-250 VAC
* PFC=Power Factor Correction	With auto PFC*
Power Supply	Dual - redundant
Max Power Consumption	200 Watts
Height (U 19" rack)	6
Depth (mm)	362
Width	19"

\* Factory defaults.

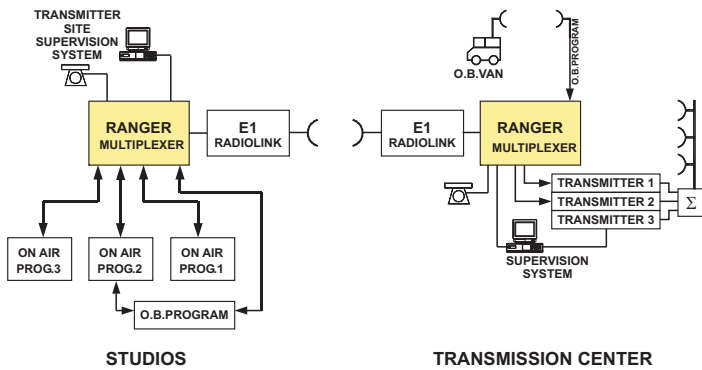
## AUDIO SPECIFICATIONS \*

### BINARY RATES OF EACH CIRCUIT

	32 Kbps	64 Kbps	128 Kbps
Analogue Audio I/O Quality	3,5 kHz	7,5 kHz	15 kHz
E1 4 Wire CCTs Max	62	31	15
T1 4 Wire CCTs Max	48	24	12
Stereo Available	yes	yes	yes
Audio Sampling/Compression	ADPCM/16 bits	ADPCM/16 bits G722	ADPCM Multiband/16 bits
Audio I/O Max. Level (THD=0,2%)	Fs=8 kHz	Fs=16 kHz	Fs=32 kHz
Adjustable Gain on I/O	+22 dBu	+22 dBu	+22 dBu
Channel Loss	+6/-14 dB*	+6/-14 dB*	+6/-14 dB*
Frequency Response ref to 1 kHz*	Less than 0,2 dB	Less than 0,2 dB	Less than 0,2 dB
Idle channel SNR *	20-3.500 Hz (-3dB)	20-7.500 Hz (-3dB)	20-15.000 Hz (-3dB)
@ 1 kHz Intelligible Crosstalk*	-53 dB	-64 dB	-64 dB
THD + N (dB)	-70 dB	-63 dB	-67 dB
Amplitude Linearity @ +10 dBu	-43 dB @ 1 kHz	-55 dB @ 1 kHz	-53 dB @ 1 kHz
Stereo Diff Freq Resp	Better than 0,3 dB	Better than 0,3 dB	Better than 0,3 dB
Stereo Intelligible Crosstalk (dB)	Less than 0,5 dB	Less than 0,5 dB	Less than 0,5 dB
Dynamic Range	-70 dB	-63 dB	-67 dB
Time Delay ( Encoder-Decoder)	Better than 79 dB	Better than 77 dB	Better than 77 dB
	9,6 ms	6,7 ms	5 ms

\* Ref to = 4dBu.

\* The audio characteristics of the standard, low-delay coding modes are indicated. Other encoding modes can be implemented on demand.



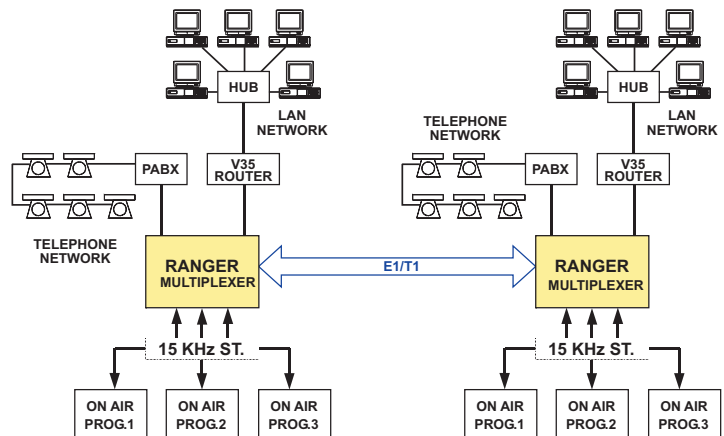
### MULTI-CHANNEL RADIO LINK

Replacing a single-channel analog radio link with a digital radio link E1, connections can be established for:

- 7 stereo FM programs (28 mono AM programs).
- Data connection for the broadcast station monitoring software.
- Audio or data connection for telephony or intercommunication.
- Connection for the program relay from Mobile Units.

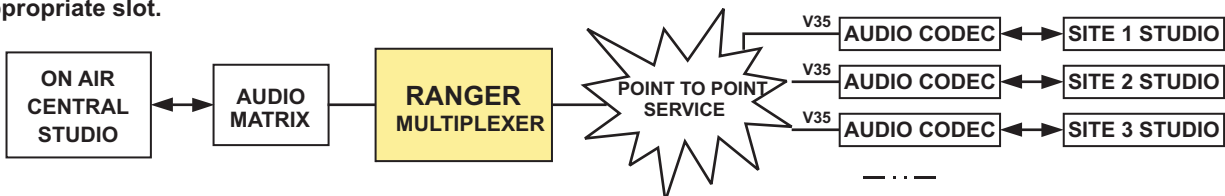
### DUPLEX BROADCASTING

Full duplex link for audio, computers and telephony between two production centers working in duplex, one can do the programming in either point.



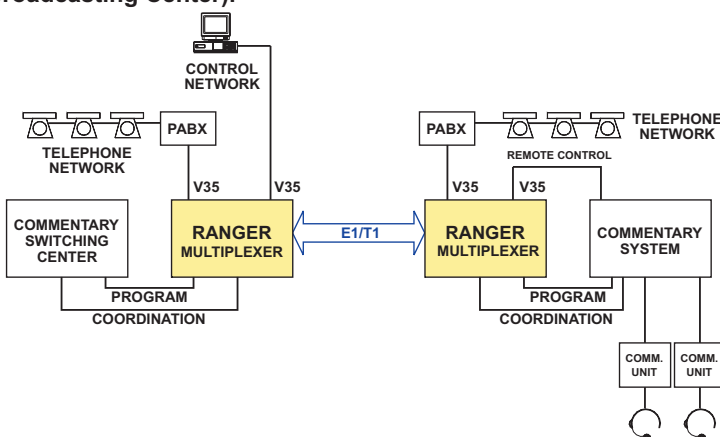
### AUDIO DISTRIBUTION IN A NETWORK

Program distribution and audio return between a central station and the secondary stations of a radio broadcasting network. The RANGER automatically identifies the frame synchronism to assign each of the return circuits to its appropriate slot.



### MAJOR SPORTING EVENT

Full duplex audio link for commentators, for high-quality program circuits and coordination at 3.5 Khz., set up in the Sydney Olympic Games between each headquarters and the IBC (International Broadcasting Center).



**ranger AT THE IBC AT SYDNEY 2000**