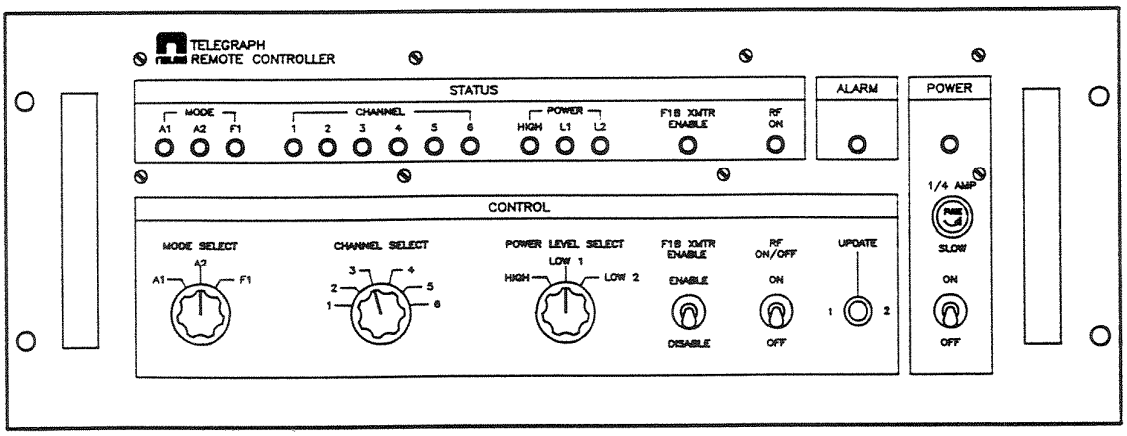
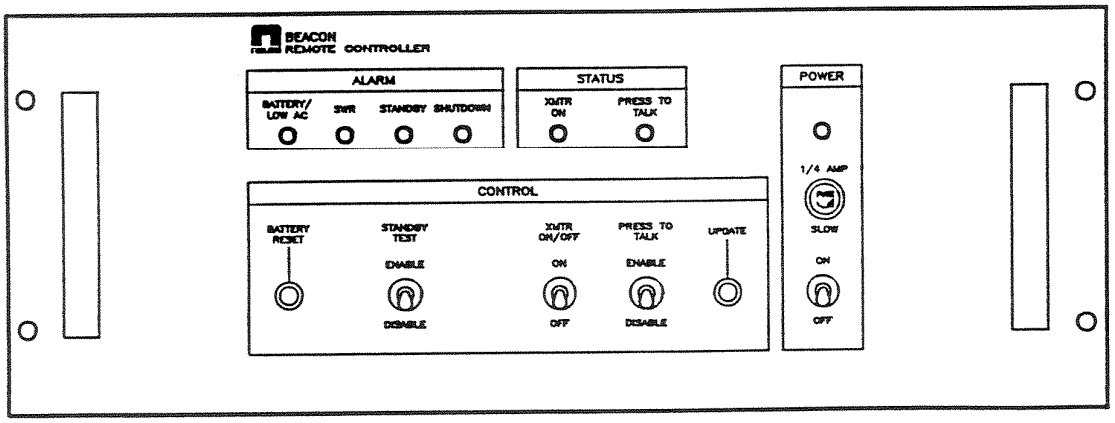
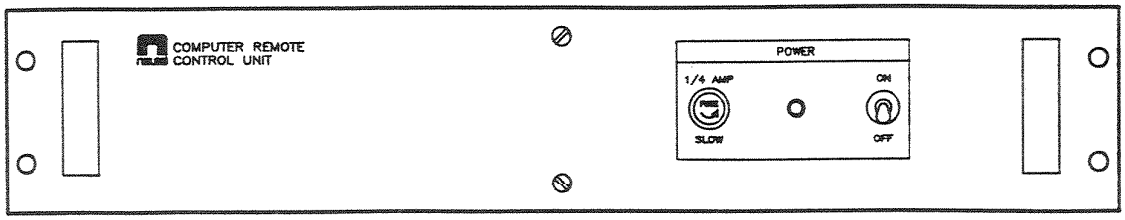
REMOTE CONTROL & MONITORING EQUIPMENT



NAX128/01 TELEGRAPH REMOTE CONTROLLER



NAX128/03 BEACON REMOTE CONTROLLER



NAX51 COMPUTER REMOTE CONTROL UNIT

Nautel's family of micro-processor based remote control and monitoring equipment provides control with full revertive feedback for their radiobeacon and MF telegraph transmitters. Several configurations are available, all of which send control signals to, and receive status feedback signals from, an NAX51 Computer Remote Control Unit mounted in, or adjacent to, the transmitter cabinet.

Choice of the equipment to be employed at the command position will depend upon the distance to the transmitter site, whether a single transmitter or multiple transmitters are involved and whether an operator's control panel or a computer is preferred by the user.

REMOTE CONTROLLER AT COMMAND POSITION

When operating with a single transmitter, an NAX128 Remote Controller may be used. This unit has front panel switches for all control functions and LED lamp displays which provide status indications through full revertive feedback from the transmitter. Two versions of the Remote Controller are available with front panels customised to suit Nautel's Telegraph transmitters (NAX128/1) and Radiobeacon transmitters (NAX128/3). When the distance to the transmitter site is 1 kilometre or less, direct communication via RS422 ports is possible at 300 baud using an 8-conductor cable and a null modem*. A block diagram of this configuration is shown in Figure 1. For larger distances, of up to approximately 5 kilometres, an alternative configuration utilises RS232 communication at 300 baud using standard modems and a dedicated telephone line as shown in Figure 2.

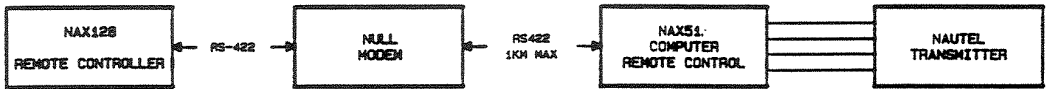


Figure 1

Figure 2

* The NAX128 and NAX51 are wired as Data Terminal Equipment (DTE). When interfacing directly to a standard terminal or personal computer (either RS232 or RS422) a nullmodem or similar device must be used to make the appropriate signal reversals and connections.

PERSONAL COMPUTER OR STANDARD TERMINAL AT COMMAND POSITION.

The use of a personal computer or standard terminal using third party communication software (Crosstalk or similar) is another option for the command position. This allows the control and monitoring from one position, of either a single transmitter, or a group of transmitters which are networked together over distances up to 1 kilometre via their RS-422 ports. Each NAX51 has two RS-422 ports which are wired in parallel to simplify this interconnection. With this arrangement, the NAX51 associated with each transmitter is pre-programmed with a unique address which may be selected for control/monitoring from the computer keyboard. When the distance from the control point to the transmitter, or to the network in multiple transmitter applications, is less than 15 metres, direct communication via the RS232 ports and an 8-conductor cable is possible. A block diagram for this arrangement is shown in Figure 3. When this distance is greater than 15 metres the configuration shown in Figure 4 is more suitable. Here communication is through the RS232 ports and standard modems at 300, 1200, 2400 or 9600 baud using a dedicated 600 ohm telephone pair with a maximum length of 5 kilometres. As in Figure 3, the RS422 links between individual transmitters is limited to 1 kilometre.

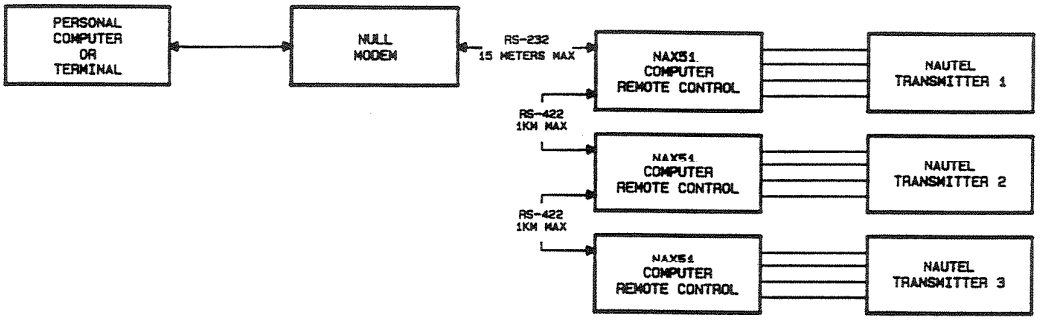


Figure 3

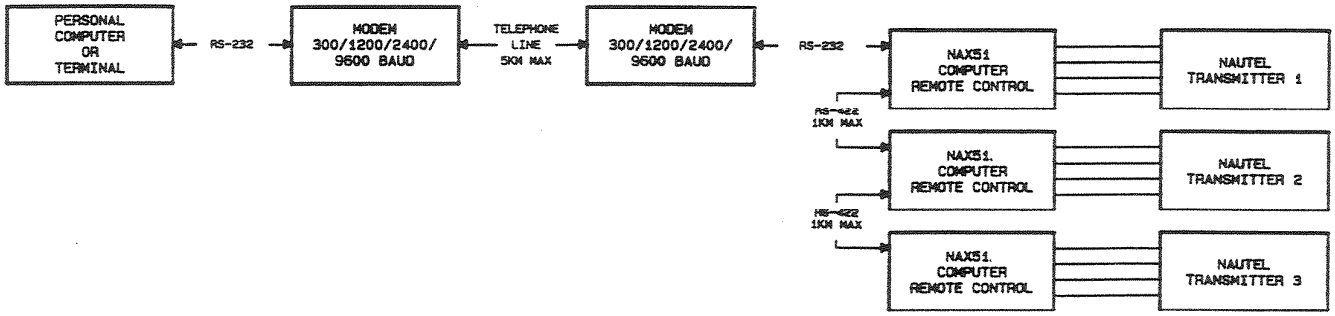
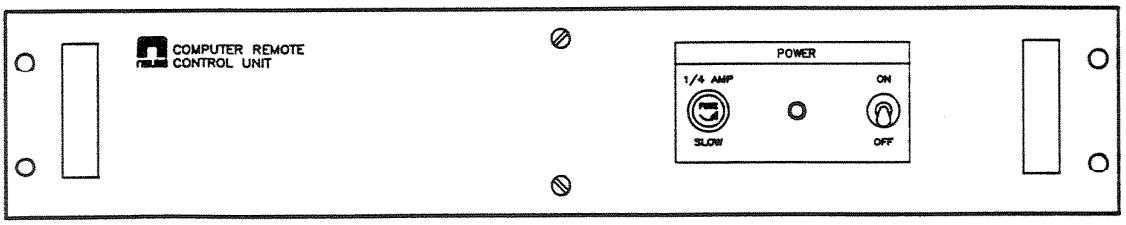


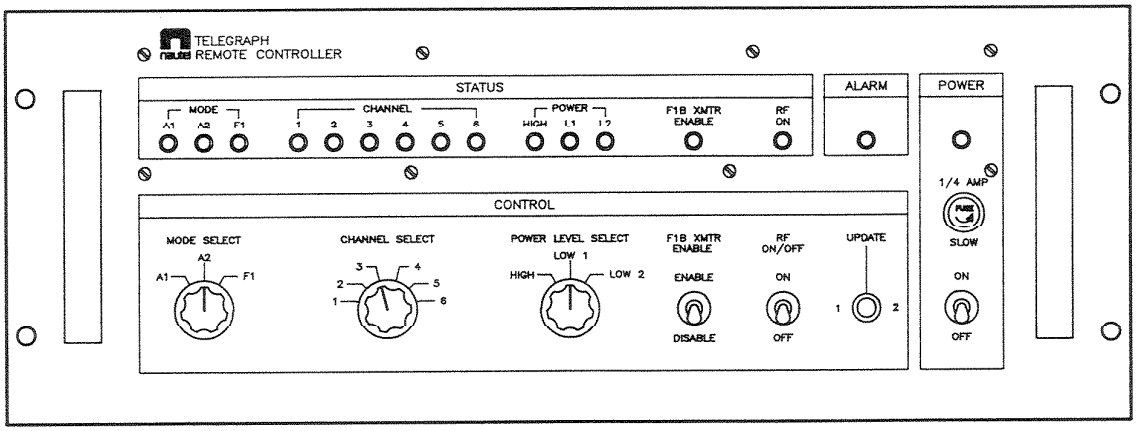
Figure 4

COMPUTER REMOTE CONTROL UNIT



Model Numbers	NAX51/1, 115V, 60Hz NAX51/3, 230V, 50Hz
Microcontroller	INTEL 8751
Communications	RS-232 & RS422 DTE at 300, 1200, 2400 or 9600 baud 7 Data Bits, Space Parity 1 Stop Bit, CTS/RTS Handshaking
Control Points (Outputs)	16 Optically isolated outputs active (Low) Vce = 0.5 at 0.5ma inactive (high) = Open Circuit
Status Points (inputs)	16 Optically isolated inputs active (low) – -10 to -48V INPUT inactive (high) = Open Circuit
Dimensions	Rack Monitoring Height 8.9 cm (3.5 inches) Width 48.3 cm (19.0 inches) Depth 29.2 (11.5 inches)
Environmental Conditions	Temperature 0°C to +55°C operating -55°C to +70°C storage Relative Humidity 0-95%

TELEGRAPH REMOTE CONTROLLER



Model Numbers	NAX128/1, 115V, 60Hz NAX128/2, 230V, 50Hz
Communications	RS-232 & RS422 DTE at 300 baud 7 Data Bits, Space Parity, 1 Stop Bit, CTS/RTS Handshaking
Control Functions	Select 1 of 3 Modes Select 1 of 6 Channels Select 1 of 3 Preset Power Levels RF ON/OFF Update F1B XMTR Enable/Disable
Status Indications	Operating Mode (1 of 3) Operating Channel (1 of 6) Operating Power Level (1 of 3) RF ON F1B XMTR Enable Alarm
Dimensions	Height 17.8 cm (7 inches) Width 48.3 cm (19.0 inches) Depth 29.2 (11.5 inches) Rack Mountable on Stand Alone
Environmental Conditions	Temperature 0°C to +55°C operating -55°C to +70°C storage Relative Humidity 0-95%