



TECHNICAL NEWS BULLETIN

FAIL-SAFE COMMUNICATION NETWORK FOR MULTIPLE TELEPHONE LEASE LINES

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When an installation calls for communication via leased telephone lines from a central dispatching location to various branches located in separate buildings or floors of the same building — with the specific requirements that a problem in one of the phone lines will not disrupt communication with any of the others — the inclusion of a small number of accessory items in the system can convert an otherwise complex situation into a relatively simple one. Examples: communication between a central fire station and the neighborhood substations, multiple-phone installations, Muzak type systems, etc.

In every case isolating resistors are used on each phone line between the dispatching station and the branches to prevent a short circuit or other defect on one from disabling communication with any or all of the others. A Raymer 701 one-watt amplifier required to drive this network is connected to the output line of the dispatching amplifier at the central station. On the 701 the 8-ohm impedance output only should be used, which in turn is connected to a resistor network in each of the telephone lines. The network consists of one 300-ohm resistor inserted in each leg of the leased line, which maintains the correct impedance for the telephone line transmission as well as provides the correct line voltage. The output of the Raymer 701 amplifier is in the order of 2.83 v maximum but the 300-ohm resistors will drop this voltage to 1.29 maximum, or approximately 4½ db, which is the correct level for telephone use.

When a Raymer amplifier is used as the source at the originating location, connecting to the "PreAmp In/C" jack of this unit will drive the 701 amplifier perfectly. Should a different amplifier be used, it must have 25-volt availability, to which a Raymer TLA-1 Adaptor should be connected so as to couple the 25-volt line to the input of the Raymer 701 accessory amplifier. A Raymer 702 one-watt Amplifier may be substituted for the 701 if the originating amplifier has a 500-ohm output availability. At each substation a Raymer TM-2 Adaptor is required to match the telephone line to the amplifier in use.

Please refer to the diagram shown below.

