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ELECTRICAL MEASUREMENTS AND THEIR INDUSTRIAL APPLICATIONS

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FREQUENCY CHARACTERISTICS OF DECADE CONDENSERS

● IT HAS BEEN CUSTOMARY IN THE PAST to think of the capacitance and dissipation factor of decade condensers, such as the TYPE 219 Decade Condensers and the TYPE 380 Decade-Condenser Units of which they are composed, as fixed quantities independent of frequency, at least to their stated

accuracy. This is by no means the case and, since decade condensers are now being used over increasingly wide frequency limits, it becomes important to know the limits within which these condensers may be safely used.

The general way in which both capacitance and dissipation factor vary with frequency is shown by the various curves of Figure 6. There is always a minimum, but the increases at the high and low ends are produced by quite different causes. The low frequency rise is caused by dielectric polarization, a property of the solid dielectric of which the condensers are made, while the high frequency rise comes from the effect of the residual impedances in the leads from the terminals through the switches to the individual mica or paper condensers. Each of these causes will be discussed in considerable detail, first for TYPE 380 Decade-Condenser Units and then for TYPE 219 Decade Condensers.



FIGURE 1. Panel view of a TYPE 219-M Decade Condenser.



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