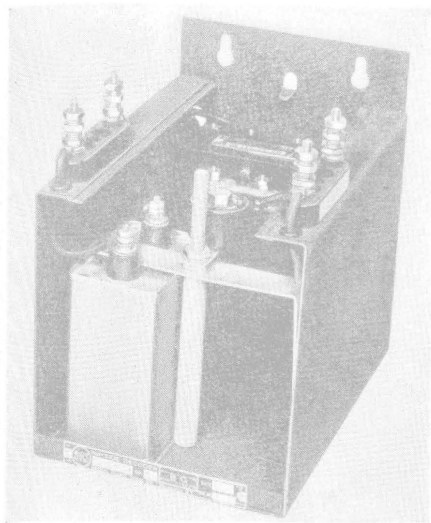


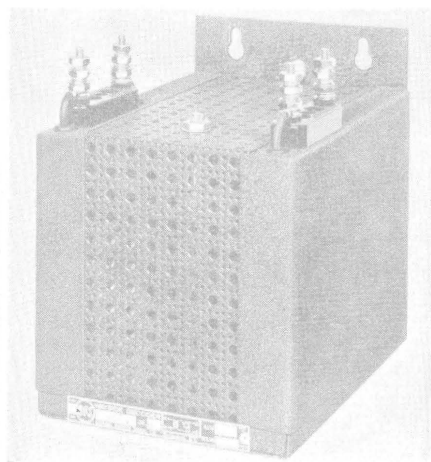
name implies, follows the code that is being transmitted and, through its own contacts, applies the code to decoding apparatus. The relay is furnished with one or two dependent front-back contacts and with windings to fit the application. The magnetic



Decoding unit with cover removed

structure of the relay includes a permanent magnet, so arranged that direct current of only one polarity will operate the relay. This is to preclude any operation by energy of opposite polarity. Such energy would only tend to drive the armature tighter against its back stop.

The mass of the armature is held to a minimum without sacrificing



Decoding unit

strength, so that the relay can easily follow the code frequencies in general use. The bearings are rugged in order to stand up in continuous operation. A plug-coupler is standard equipment; A.A.R. binding posts optional.

The master transformer is used to transform the coded impulses from the code-following relay into low-frequency alternating current, which is fed to one or two decoders, as re-

quired. A Type-U transformer, used for this purpose, is designed to operate on the low code frequencies. Modifications in the windings adapt this transformer to the different decoding circuits. The voltage usually impressed on the primary winding is low, about 10 volts. The output is matched to the load imposed.

The decoder unit receives low frequency a.c. from the master transformer, filters and rectifies it to energize a standard d.c. signal relay. In the decoder unit there are a condenser, a transformer, and a rectifying unit. The capacitance of the condenser and the reactance of the transformer are matched to pass alternating current of the code rate for which it is designed, and no other. Thus the 120 decoder unit filters only the 120-code, the 180 decoder unit, the 180-code. The rectifying unit is built-in so that standard d.c. relays can be operated by the decoder units.

In two-block three-indication signaling, where the 75-code is decoded by relays and not by a decoder, the 180-decoder is the only unit used. When a fourth indication is required, the 120-decoder unit must be used to decode the required 120-code. The decoder unit is arranged for shelf- or wall-mounting.

New Code Transmitter

THE Union Switch & Signal Company, Swissvale, Pa., announces the introduction of its new Style-DM code transmitter for its coded wayside signal system. This transmitter has been designed to make use of a simple pendulum arrangement which is tuned for the three code speeds at which the transmitter is to be operated. This tuning is accomplished by means of a pendulum which is made up of a spring arrangement with weights at

the lower end of the spring, so designed as to provide the required code speed.

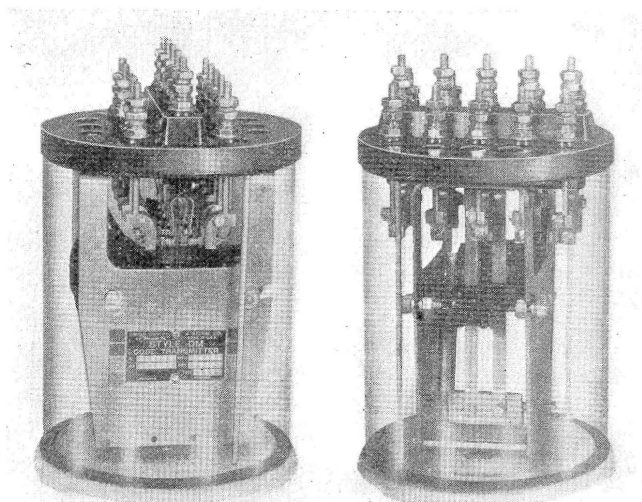
The DM code transmitter was designed to provide for long, trouble-free life with a minimum of maintenance. For example, the 180- and 120-code transmitter operates without the use of bearings. The 75-code transmitter has only a knife-edge bearing which is designed to give long trouble-free operation. This bearing will tolerate slight wear without affecting the transmitter operation.

The DM code transmitter has a maximum capacity of 4F-4B contacts. The contacts may be of either silver-platinum for low-voltage circuits, or of tungsten, if high voltage circuits are to be used. The power requirements for this code transmitter are much less than of previous models, 0.25 watts being required for its operation.

As the DM code transmitter has no bearings requiring lubrication, it is capable of satisfactory operation over wider ranges of temperature than has been possible heretofore and, as a consequence, the code speed of the transmitter also remains constant over an extremely wide temperature range. Other features which help keep maintenance costs low are that there are practically no wearing parts on the transmitter; the contact erosion is reduced to a minimum, as the contacts are of large diameter, thus extending the life of the transmitter.

The coil within the transmitter is snubbed by means of a copper-oxide rectifier. The coil is easily removable and can be changed out without affecting the contacts or the magnetic pole pieces. There is practically no sparking on the driving contacts and no appreciable wear. The contacts themselves are readily accessible, and can be easily replaced in connection with regular maintenance work. The trans-

Front and side views of a style-DM code transmitter for wayside signal system



mitter is entirely enclosed in a round glass cover which provides a clear view of all parts of the transmitter.

Hook-On Volt-Ammeter

THE General Electric Company has recently placed on the market a versatile, portable, Type AK-1 hook-on volt-ammeter, for measuring alternating current and voltage. With this instrument, current readings can be made, simply by hooking a portion of the instrument around an insulated or non-insulated wire of the circuit.



Type AK-1 hook-on volt-ammeter in use for current reading

An integral part of the instrument is a C-shaped, split-core current transformer, so designed that it can be operated without a trigger.

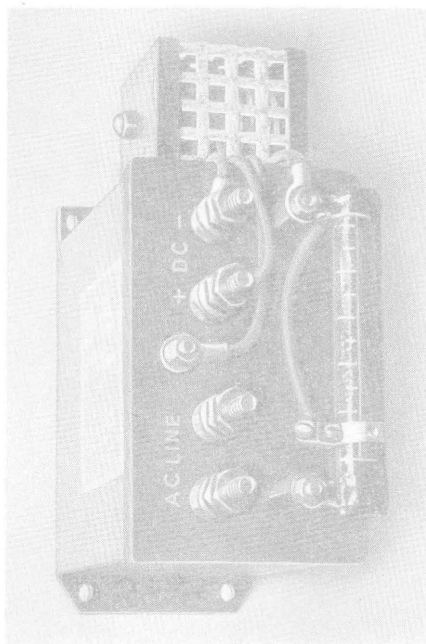
In making electrical measurements of current, the transformer is simply pulled open and placed against the conductor. A slight push upon the handle snaps the transformer shut. A gentle pull, after the measurement has been made, springs open the dovetail point of the transformer and releases the conductor. The dovetail joint assures that any particles of dirt, which would cause large errors in the ordinary butt joint, have almost negligible effects upon the indication. This instrument may also be used as an a-c. voltmeter, terminal posts, on the instrument, and lead wires being furnished to connect the instrument in the ordinary manner. Four current ranges, 0-15/60/150/600 amp., and two voltage ranges, 0-150/600 volts, are available at the setting of a convenient six-position snap switch.

The indicating instrument used in the AK-1 meter is the G. E. Type DO-40, miniature rectifier instrument. Readings are taken on a uniformly-divided scale, approximately $2\frac{1}{2}$ in. long and marked in large red and black figures corresponding to the figures on the selector switch. The transformer, indicating instrument, internal resistors for extending the range, and the selector switch are all mounted in a single textolite case. The handle, molded as part of the case, provides insulation and a maximum of safety for the operator. A convenient slot for a carrying strap is molded in the handle.

This meter is designed for use on conductors of 2-in. maximum diameter, and is compact enough to get into tight places, light enough to be hung on a lineman's belt, and sufficiently accurate for a great variety of measuring jobs. The instrument weighs $3\frac{1}{2}$ lbs., and is designed for easy, one-hand operation. The accuracy of this volt-ammeter is within 3 per cent.

Voltage-Stabilized Transformer

A COMPACT voltage-stabilized transformer of 10 v.a. output, intended for stabilizing the voltage of small rectifiers in localities where fluctuating line voltages are prevalent, has been developed by Fansteel Metallurgical Corporation, North Chicago, Ill., and is announced as the Type U-16 Fansteel - Sola voltage - stabilized transformer.

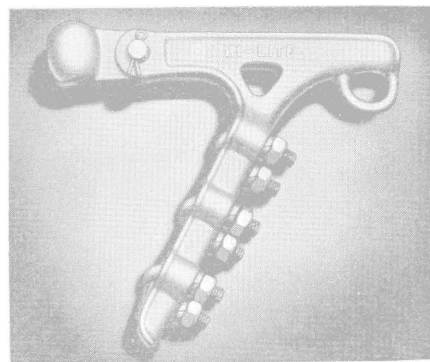


Voltage-stabilized transformer

This unit is of 1:1 ratio, with the secondary stabilized at 115 volts from a 60-cycle primary varying between 95 and 130 volts. This transformer installed on the a.-c. input side of small track or signal rectifiers, completely remedies signal difficulties due to fluctuating line voltage. It is especially recommended for a.-c. primary systems. Installation of the Type U-16 transformer does not necessitate the removal of existing transformers or any other apparatus. The unit is simply installed in the a.-c. line, and when this is done, the voltage to the existing apparatus is automatically stabilized to the output of the Fansteel-Sola transformer. Dimensions are $5\frac{1}{2}$ in. high by $2\frac{7}{8}$ in. wide by $5\frac{7}{8}$ in. deep.

Small Strain Clamp

THE Ohio Brass Company, Mansfield, Ohio, has redesigned its smallest size Hi-Lite strain clamp to increase the range of conductors accommodated. With the new design this clamp without liners will take 0.20- to 0.55-in. conductors. This range includes copper conductors from No. 4 solid to 4/0 stranded. The clamp with liners



Hi-Lite strain clamp

will take conductors from No. 4 A. C. S. R. to 2/0 A. C. S. R.

The redesigned clamp is equipped with three U-bolts and the active clamping section is approximately $7\frac{3}{8}$ in. long, providing greater holding power and easier carriage of the cable. The radius of curvature at the entrance to the clamp is $3\frac{3}{4}$ in., resulting in less stress in the cable at the critical section and less likelihood of damage as a result of vibration. The small Hi-Lite is furnished with a loop at the mouth of the clamp to which tackle used in pulling a conductor to final sag may be attached. This feature permits installation of the clamp in its working position. It also eliminates the necessity of measuring insulators and cable and then making