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SIEMENS & HALSKE

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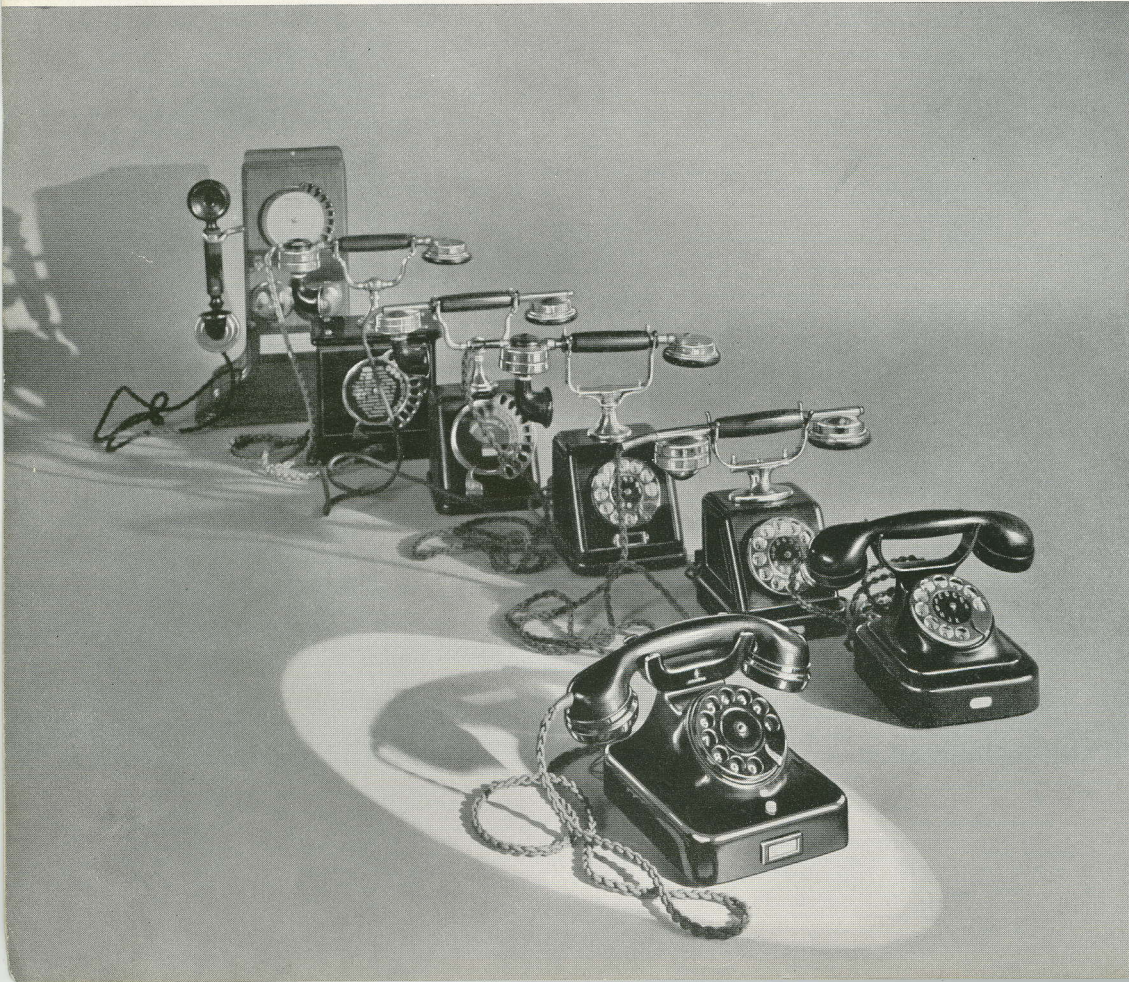
SH 6690



*Can you do
without this?*

**Better is
the enemy of good**

*I*t is not necessary to go back as far as the mail coach to realise the technical progress embodied in a stream-lined locomotive! If one considers the telephone instruments of yesterday and yesteryear that are depicted below, of one's own accord one reaches the decision: No longer to work with old tools. As long as the telephone exists in the world, Siemens has been working towards the perfection of this achievement of civilisation. The sum of *our* experiences determines *our* success. On the following pages Siemens show telephone equipments of the most modern design — *the right one for every requirement!*





The new Wall Telephone Model 36, the counterpart of the Desk Telephone Model 36 illustrated on the title page

**Precision tools
are the basis of accurate
work**

The same remark applies also to all office activities. Working with old-fashioned methods, one cannot expect much of one's staff or of oneself. Our typical *telephone equipments* are *INDIVIDUALLY* developed to meet the requirements of each separate concern. Therein lies our strength, and it is this that has enabled us up to the present to install more than 4 million lines throughout the world. For a long time past we have been producing telephone equipment particularly suited for the tropics. The backbone of our tropical instruments is the special Siemens tropical cable.



THE ELECTRIC PORTER

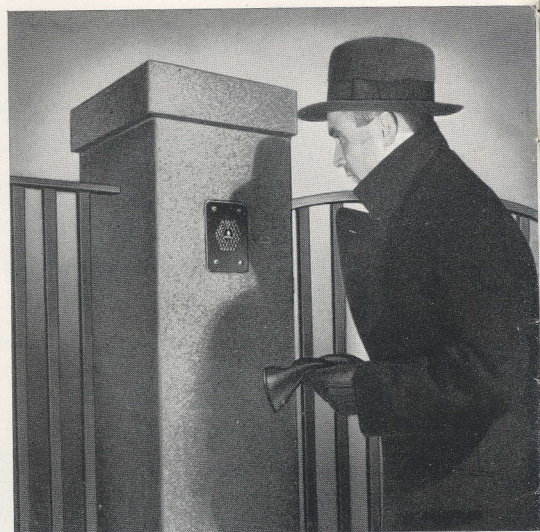
Ready day and night —
an
exemplary servant

Those who can afford it, have a porter or a major-domo, who enquires the business of every visitor at the house door itself. But even the porter frequently has to consult his master by telephone.

With our electric porter we cater for the comfort of every householder.

*Our electric porter is on
duty day and night.*

This device is installed either at the garden gate or at the house door and is connected to the home telephone. The microphone and the loudspeaker are inclosed in a weatherproof steel case. The line can be of any length up to 500 yards. The installation of the system is extremely simple and the expenditure involved is small.



THE HOME CONVERSER

Treat yourself to the added
convenience
of our new home converser

*I*n many directions "comfort" is demanded. In one respect, however, this demand is sadly neglected. Certainly, the telephone is used for communicating with distant places. But in the home and in business there is a running to and fro on account of the smallest detail.

*Our home telephone system
saves all this trouble.*

Two Siemens home telephones can be put into service with the help of ordinary bell wire and a standard pocket-lamp battery. The handset, which in shape and make-up is in no way distinguishable from that of a standard telephone instrument, hangs on a small bracket, which also contains the calling device. After the handset has been lifted, a knob is pressed to set in operation the calling device at the distant station. The line which consists of a simple bell-wire may be of any length up to 500 yards.

*Intelligibility is exactly the same
as with a normal telephone.*



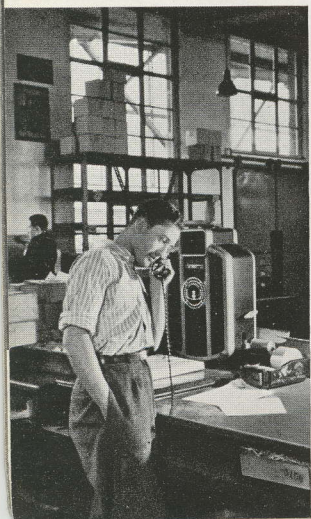


The Dial-Type Line-Selector.
The ideal telephone system for
special requirements

The necessity to reach several subscribers from one point is satisfied by our combination of a dial-type line-selector and home telephones up to the number of nineteen.

Such equipments are often required, if the principal, his secretary or any other privileged subscriber wants a separate connection for putting urgent questions. Such a simple equipment often greatly facilitates the handling of business.

The names of the subscribers are conspicuously arranged under a transparent dial. This is provided with a red mark which, with the microtelephone removed, is adjusted to the wanted subscriber. By depressing the push-button arranged in the middle of the dial, the bell of the called subscriber is caused to ring. When the latter removes his handset, the connection is established.





Rotary Line Selector

THE NEW ROTARY LINE SELECTOR for Automatic Intercommunication without a Switchboard

*W*ith the new rotary line selector, up to 20 points are able to intercommunicate in an extremely simple manner. This highly efficient and simple intercommunication system is of particular advantage also to medium-sized works and offices since no call numbers or switchboards are necessary, and each person sets up his own connection. The names of the persons served by the system are clearly arranged under the transparent dial. The red indicator is merely moved to the name of the party required and the calling key in the centre then depressed. The other party is thus called and the complete connection is set up when the called party lifts his handset. An important advantage of this arrangement is that the dial remains in its last setting, indicating the person last called or, when the call is not answered, reminding one, without imposing any tax on the memory, that the call has still to be made.

Since the necessary current is supplied through a mains unit or a battery with charging accessories, these rotary line selector systems require practically no maintenance. In spite of their marked efficiency and reliability, these systems are so simple and need such little care that they fully meet the very severe requirements frequently imposed on telephone installations for overseas works and organisations.



SMALL-TYPE CORDLESS EXCHANGES

**The exchange
for small systems with
small traffic**

*F*or a modified type of our home conversers which, similar to the one shown on page 5, can be fitted in the simplest manner, we have developed the cordless lamp-indicator switchboard to serve as an exchange. Naturally, the various stations can also be equipped with the usual type of C. B. telephones.

Private residences with several stations, or small establishments, hospitals, hotels and hostelrys can use this system to advantage, provided there is a person to operate the simple exchange.

In the case of the cordless lamp indicator switchboard bronze spiral springs are arranged behind the connecting panel. The connections are set up by the insertion of rustproof plugs.

Ringing as well as the termination of a call are indicated by the lighting of small signalling lamps. At the same time, an acoustic signal is given by an alarm bell which can be cut in and out at will.

The exchange is arranged for central-battery operation. It can be supplied with capacity for 10, 20, or 30 subscriber lines. The switchboard is so arranged that it can either be set up on a table or mounted on a wall.



CORDLESS DROP-INDICATOR SWITCHBOARD FOR SIMPLE TELEPHONE INSTALLATIONS

The exchange for small systems without extensive requirements

*T*he cordless drop-indicator switchboard is another type of our small exchanges. In this case magneto-operated L. B. sets are used as telephone stations. With this system little attention need be given to the condition of the line system. It is preferably used where the telephone stations lie far apart and where the maintenance of the line system causes difficulties.

As in the case of the lamp-indicator board, operation of the exchange is extremely simple and requires no specially trained staff. Drop indicators take the place of incandescent lamps, all other operating elements corresponding to those of the cordless lamp indicator board, both in point of construction and operation. The cordless drop-indicator switchboard is supplied with capacity for 5, 10, 20, or 30 subscriber lines.

THE AUTOMATIC CONNECTION

on the Call-Finder or on the Preselector Principle of two stations is effected as follows:—

1. As soon as a subscriber lifts his handset, a call-finder starts up, sets itself on his line and connects him to the final selector.

When the preselector system is used, the subscriber's preselector starts up, as soon as the handset is lifted, and hunts for the first idle final selector or group selector.

2. He then dials the number of the wanted station. By this means the final selector is directed to the line contact of the wanted subscriber. Thereupon the pole-changer immediately supplies current for calling the subscriber, whose bell is rung if he is free; otherwise the calling party receives the busy signal.

3. The called subscriber completes the connection when he lifts his handset.

4. On the replacement of the handsets the connection is automatically broken.



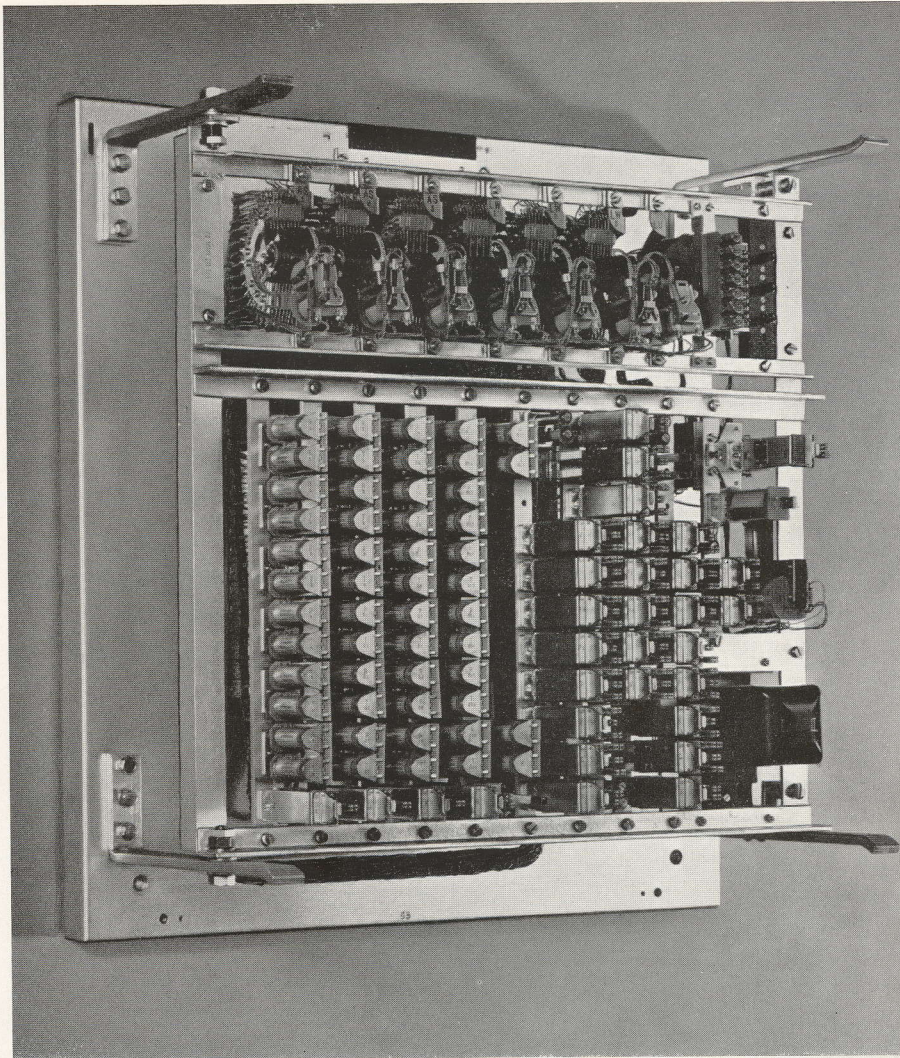
CALL - FINDERS

Small Automatic Equipments for a Maximum of 25 Subscribers

*The right telephone
system for every concern*

A telephone system must be exactly suited to the concern it serves, for then business proceeds more rapidly, and with greater efficiency especially if the system is automatic. The systems we have installed up to the present have a total of more than 4 million lines and include a considerable number of small-type equipments for 10, 15 or 25 subscribers which perform their duties just as well as the large ones. They are also the product of 60 years' experience in telephone engineering. Our smallest automatic exchange, which is constructed on the call-finder principle, contains all elements necessary for the setting up of connections for a maximum of 10 stations. These elements are mounted in a dustproof tropical cabinet, which has dimensions of only $60 \times 64 \times 30$ cm (appr. $23\frac{1}{2} \times 25\frac{1}{4} \times 11\frac{3}{4}$ in.), and for which a place can easily be found anywhere.

The 24-volt operating voltage is supplied by an accumulator battery, which is fed from the mains via a rectifier, and thus no special maintenance is required. The number of call-finders and final selectors to be installed depends on the number of calls that are to be made simultaneously. Here again there is the possibility of exactly adapting the system to the concern or establishment it has to serve. The small automatic equipment is supplied for a maximum of 10 subscribers and also in the same type for 15 and 25 subscribers.



*Siemens & Halske telephone
equipments are tested in a trop-
ical room under the most severe
climatic conditions*

CALL - F I N D E R S

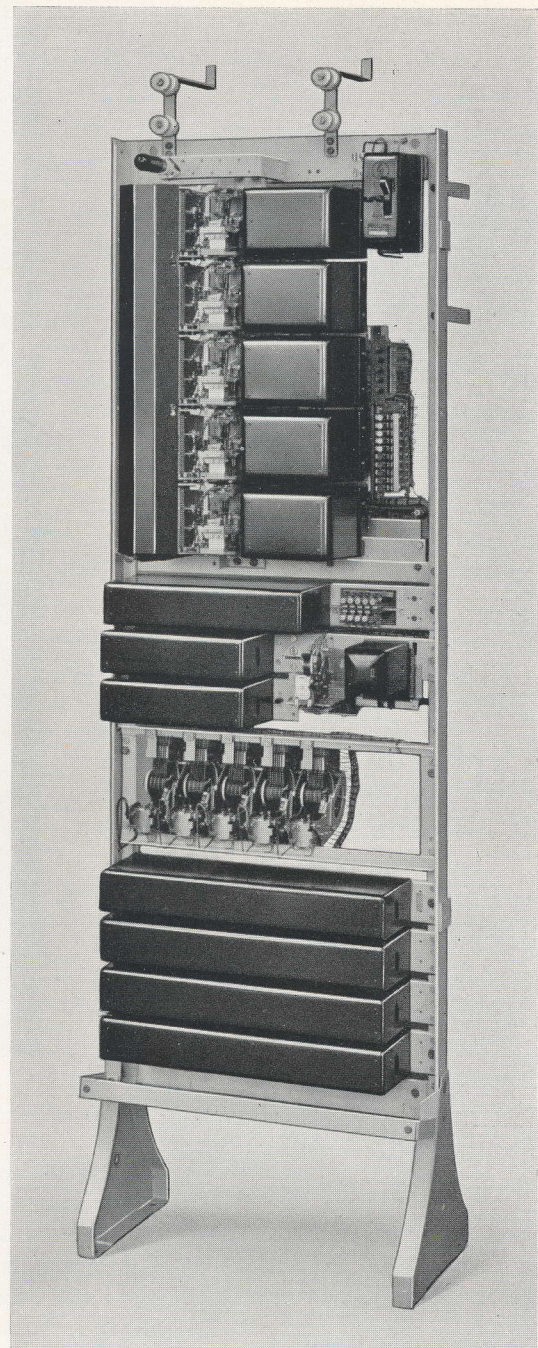
Automatic Private Exchanges for more than 25 Subscribers

For telephone systems with more than 25 subscribers, our selector rack for 50 subscribers is employed. When installing an automatic system, it is desirable to commence with this 50-line selector rack in every case where extensions are expected sooner or later. The 50-line selector rack accommodates all the apparatus in sections for 20, 30, 40, up to a maximum of 50 subscribers. Its dimensions have been so arranged that but small space is required for installation. By the addition of further rack units the automatic exchange may be extended as desired. The Siemens & Halske automatic telephone systems here described are characterised by:—

1. Permanent readiness for service,
2. Automatic setting up of connections,
3. Secrecy of conversations,
4. Modern apparatus, simple to operate,
5. Ready adaptability to all operating conditions,
6. Need for little attention and maintenance.

*Siemens & Halske telephone equipments are provided with
a tropical finish*

*Call-Finder System, 24 volts. Call-Finder and Final Selector Rack, equipped
for 50 Subscribers. Scale 1:10 approx.*



PRESELECTORS

Connections are set up Automatically
and most Rapidly

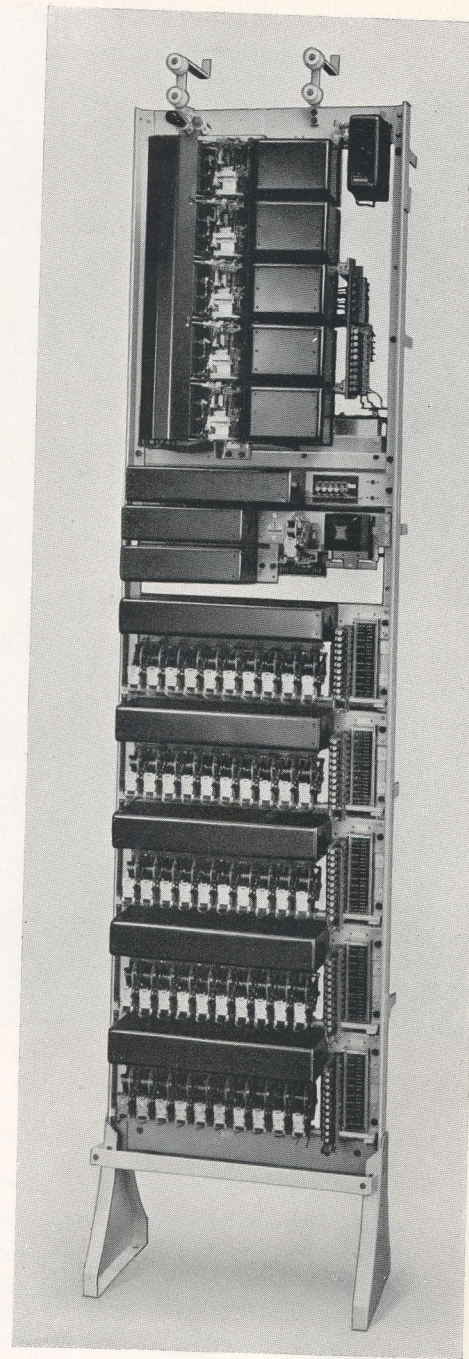
The Siemens preselector system satisfies the severest requirements with respect to call frequency, since a preselector is allotted to every subscriber. For this reason the preselector principle is preferred in the larger telephone systems. The development of the preselector to its present form has made the construction of large telephone systems an economic proposition.

Generally speaking, the calling of a subscriber is effected by the same process as in the call-finder system previously described, with the one special difference in the first operating stage.

When the calling party lifts his handset, his preselector sets itself in operation automatically and positions its wipers on the first free contact, i.e., on the first free connecting line. Then, by rotating the dial, any desired subscriber's instrument can be called via the final selector.

The difference between the preselector system and the call-finder system lies in the fact that the former can deal with even the heaviest traffic.

*Preselector System, 24 volts. Preselector and Final-selector Rack, equipped for 50 Subscribers.
Scale 1:12*



A single key gives access to a large number of connections

SIEMENS NEHA SYSTEM (Private Extension System)

The NEHA System satisfies all practical requirements

An Automatic Extension Telephone System operating in conjunction with the Public Telephone System

The fundamental principle on which all Siemens automatic telephone systems have been built up is the complete and perfect adaptation of the smallest as well as the largest types of exchanges to all conditions of traffic. *The NEHA Automatic Extension Telephone System is the most perfect telephone system yet evolved.* A single key opens up every avenue to a host of communication channels. From every NEHA instrument calls can be transmitted directly to the public exchange without being handled at a switchboard which is provided only for the incoming public traffic. During an exchange call enquiries can be made at every other extension. Every exchange call can be retransmitted from one extension to another without the aid of the operator. If the switchboard is unattended exchange calls are automatically retransmitted to a specified extension. The secrecy of intercommunication is completely maintained. Cutting in from the switchboard is indicated by special means. Privileged parties can, however, listen in to a conversation as witnesses and, if necessary, also take part.



A host of auxiliary apparatus can be connected to the NEHA System, such as a Director's Instrument, Secretary and Dictation Instruments, Staff Locating Systems, Engaged Door Signals, Conference Instruments, etc., as are frequently required in up-to-date organisations. Some of the most important of these systems are described on pp. 22, 23 and 24. In the case of small NEHA Installations current may be drawn from the lighting mains; no batteries are then necessary, thus limiting maintenance and attendance to a minimum. These are only a few of the many outstanding advantages of the NEHA System, which in every case can be perfectly adapted in regard to directions and volume of traffic to the particular requirements of any office or works.

Siemens NEHA Telephone Systems are supplied in the following types:

1. For 1 or 2 exchange lines and up to 10 extensions, as NEHA Relay Switchboards.
2. For 2 to 5 exchange lines and up to 25 extension lines, as NEHA Rotary Selector Exchanges.
3. For 5 up to any number of exchange lines and any number of extension lines as NEHA Two-motion Selector Exchanges (Large NEHA System).

Only a few examples of the NEHA System can be dealt with in the limited space available here, and all interested in these highly efficient telephone systems are therefore requested to send for our Special Descriptive Literature.





NEHA exchange for 1 exchange line and 10 extensions with central station

**For 1 or 2 exchange lines and up to
10 extension lines**

NEHA RELAY SYSTEMS

*T*hese NEHA systems have been evolved in order to provide small offices and organisations with a telephone installation which would operate with the same speed and efficiency and have the same adaptability as the more comprehensive installations. From considerations of simplicity and economy, relays, which operate with exactly the same reliability as switches, have been incorpor-



ated in these systems. As shown in the illustration, one of these equipments can be accommodated quite inconspicuously in any suitable position, as it takes up little space. The operator who has merely to retransmit incoming calls can undertake this task as an auxiliary duty. The necessary current supply is derived through a mains unit or from a battery with charging accessories, maintenance of the whole system being thus negligible. These small systems can also be supplied for a smaller number of extension lines (from 6 upwards) and later extended to 10 extensions by the addition of but a few relays.



NEHA Selector Exchange for 5 exchange lines and up to 25 extensions



Operator's Position of a NEHA Private Exchange equipped with 3 exchange lines and capable of connecting up a maximum of 25 extensions

NEHA SELECTOR SYSTEMS

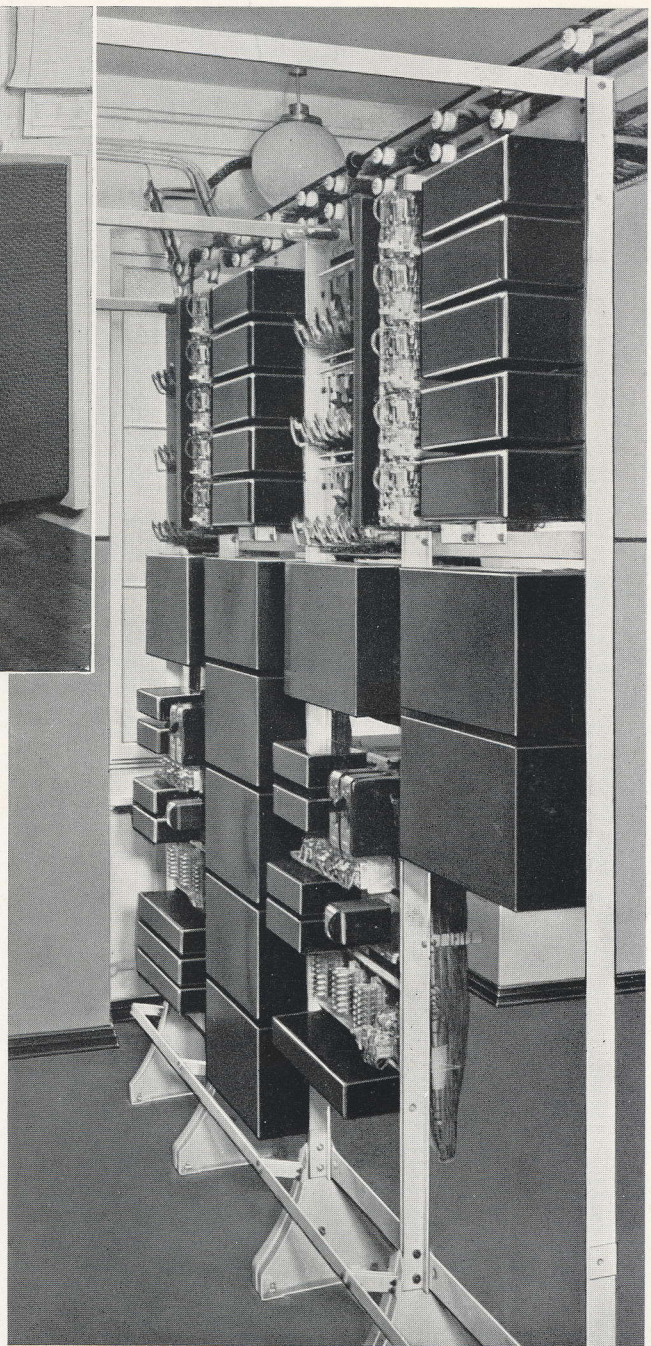
With 2 to 5 exchange lines and up to 25 extensions

*I*n addition to relays, the widely-approved Siemens Automatic Selector Switches are used in these systems in the same way as in public telephone systems for setting up connections. Although an installation of this size is able to handle with every efficiency a heavy volume of traffic at great speed, the exchange can be readily accommodated in any convenient position, since all the selector units are enclosed in a sheet-metal cabinet of comparatively small dimensions. The handling of calls by the operator, who has to retransmit incoming calls, has been much simplified and is limited to operating the small number of switches, so that even in these systems monitoring can be undertaken as an auxiliary duty. The handling of calls in fact entails very little work since each incoming call is retransmitted immediately, even when the party called is engaged on another call. The incoming call is then stored until the party speaking is disengaged, when it is automatically released. By adopting a systematic layout for the line and pilot lamps the operator is provided with a simple and reliable check of all existing connections and calls waiting.

A battery with charging equipment is used as a current supply, thus limiting maintenance to a minimum. Naturally, these systems can be initially equipped with a small number of extensions, which can be later increased by the addition of a few relays.



*NEHA Private Exchange
for 10 exchange lines and 90 extensions*



NEHA Selector Exchange for 10 exchange lines and 90 extensions

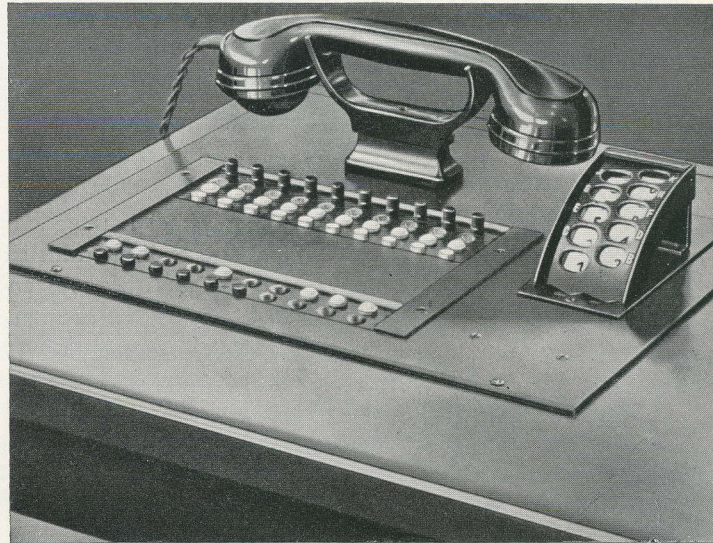
NEHA TELEPHONE SYSTEMS

with 5 and more exchange lines and an unlimited number of extensions.

The extreme simplification in construction and operation achieved by the NEHA system is demonstrated best in large installations, such as the one illustrated, which is designed for 10 exchange lines and 90 extensions. Although this latter installation is able to handle with great speed the heavy telephone traffic of a large organisation, monitoring has been so simplified that one operator can comfortably attend to all the necessary duties while at the same time being occupied in other work. The only duty falling on the operator is the retransmission of incoming calls, for which purpose two rows of 10 keys each are provided at the service station. Extension lines are connected up by merely pressing on the two ringing keys corresponding to the number called. If the party called is already engaged, the call is stored until the number is disengaged, when it is automatically released. This reduces the work of the operator to a minimum and makes supervision very simple, since with the aid of calling and pilot lamps she can readily check at any time the numbers engaged and the calls stored.

All selector switches and relays required for setting up connections are arranged systematically in a rack which takes up little space. Current is furnished by a battery with charging unit.

NEHA systems, which are supplied for any required number of extension lines, are of similar construction for more than 10 exchange lines and over 90 extension lines. The monitoring equipment in the larger installations is incorporated in a desk and a straight-pull calling device takes the place of the usual dial; the desk can handle all calls for up to 20 exchange lines. If the number of exchange lines exceeds 20, several desks of this kind are joined up.



*NEHA Desk Exchange
for 20 exchange lines and any number of subscribers*



The equipment for privileged subscribers

Principal and Secretary System

This system is intended for the purpose of reducing the demands made on the principal and to lighten his labours. In addition to the normal devices the main instrument also contains the keys and supervisory lamps for an extension line, a house line, a direct line to the secretary, a listening equipment for the secretary — and this can be brought into operation only by the principal — two rotary keys for switching over the extension line and the house line to the secretary's instrument, as required, an on-and-off switch for a door-blocking signal and three keys for messenger summoning purposes. The associated secretary's instrument is similarly equipped with the corresponding keys and lamps. Naturally, other types can also be provided freeing the principal of work which can be done by other members of the staff.



The Conference System

The conference system has been developed as an auxiliary equipment for a switch exchange and serves to connect several parties together for the purpose of a telephone conference. All those participating in the conference listen to speech and reply at their normal instruments. Only the instrument belonging to the conference convener differs from the normal telephone instruments. The existing line network is also utilised. Moreover, several convener instruments can be installed in one conference system. When convening a telephone conference the keys provided on the convener instrument for parties regularly taking part in conferences are each pressed both for switching in and for switching out, and the relevant signal lamps then light up for the switching-in or for the busy supervision. The convener is also able to enter an existing house connection by means of his intervention key and under certain circumstances to break down such a connection in favour of the conference by means of his disconnecting key. In addition to the regular conference members, any other party connected to the house exchange can be summoned to the conference via the dial with the help of a special connecting key provided for the purpose. With the aid of the devices described it is also possible to let one or more parties listen in to an exchange call. In place of the usual handset, the convener of the conference may also use a loudspeaking telephone which combines microphone and loudspeaker.

STAFF LOCATING SYSTEMS

Where is the Manager?

In every organisation there are persons who, when required, must be urgently located if absent from their offices.

By means of the Staff Locator System, a simple auxiliary with which every telephone can be equipped, up to 27 persons can be located with the minimum delay. Lamp indicators on which up to 27 combinations of coloured lamps can be obtained are provided for calling purposes, being suitably placed at all important points. The particular combination of colours allocated to the person wanted becomes illuminated on dialling.



1. He is wanted urgently, and is somewhere in the office or works. It is an easy matter to locate him with the aid of the Siemens Staff Locator. With this system it is merely necessary to dial a special search number and wait a moment on the telephone.



2. In the meantime the person sought is warned that he is wanted through a luminous indicator and, if desired, also a characteristic acoustic signal, which is perceptible at all important points in the office or works.



3. He has merely to go to the nearest telephone and dial the answering code number to be automatically put into communication with the person seeking him.