

## SECTION H — ELECTRICITY

## H04 ELECTRIC COMMUNICATION TECHNIQUE

**H04M TELEPHONIC COMMUNICATION** (circuits for controlling other apparatus via a telephone cable and not involving telephone switching apparatus G08)

**Note(s)**

1. This subclass covers :
  - telephonic communication systems combined with other electrical systems;
  - testing arrangements specially adapted for telephonic communication systems.
2. In this subclass, the following terms or expressions are used with the meanings indicated:
  - "subscriber" is a general term for terminal equipment, e.g. telephones for public use;
  - "substation" means subscriber or monitoring equipment which may connect a single subscriber to a line without choice as to subscriber;
  - "satellite" is a type of exchange the operation of which depends upon control signals received from a supervisory exchange;
  - "switching centres" includes exchanges and satellites.

**Subclass index**

## TELEPHONIC SYSTEMS

Combined; party-line systems; prepayment systems.....11/00, 13/00, 17/00

## EQUIPMENT AND ARRANGEMENTS

Equipment.....1/00

Exchanges: automatic; manual.....3/00, 5/00

Interconnection arrangements: centralised; non-centralised.....7/00, 9/00

Monitoring and control; supply arrangements.....15/00, 19/00

SUBJECT MATTER NOT PROVIDED FOR IN OTHER GROUPS OF THIS SUBCLASS.....99/00

<p><b>1/00 Substation equipment, e.g. for use by subscribers</b> (subscriber services or facilities provided at exchanges H04M 3/00; prepayment telephone coin boxes H04M 17/00; current supply arrangements H04M 19/08) [1, 7]</p>	<p>1/18</p> <p>1/19</p>	<ul style="list-style-type: none"> <li>• • Telephone sets specially adapted for use in ships, mines, or other places exposed to adverse environment (H04M 1/19 takes precedence)</li> <li>• • Arrangements of transmitters, receivers, or complete sets to prevent eavesdropping, to attenuate local noise or to prevent undesired transmission; Mouthpieces or receivers specially adapted therefor (circuit arrangements for preventing eavesdropping H04M 1/68; telephone cabinets E04H 1/14)</li> </ul>
<p>1/02 • Constructional features of telephone sets</p>	<p>1/20</p>	<ul style="list-style-type: none"> <li>• • Arrangements for preventing acoustic feedback (H04M 1/62 takes precedence)</li> </ul>
<p>1/03 • • Constructional features of telephone transmitters or receivers, e.g. telephone hand-sets [2]</p>	<p>1/21</p>	<ul style="list-style-type: none"> <li>• • Combinations with auxiliary equipment, e.g. with clocks or memoranda pads</li> </ul>
<p>1/04 • • Supports for telephone transmitters or receivers</p>	<p>1/215</p>	<ul style="list-style-type: none"> <li>• • • by non-intrusive coupling means, e.g. acoustic couplers [7]</li> </ul>
<p>1/05 • • • specially adapted for use on head, throat or breast</p>	<p>1/22</p>	<ul style="list-style-type: none"> <li>• • Illumination; Arrangements for improving the visibility of characters on dials</li> </ul>
<p>1/06 • • • Hooks; Cradles</p>	<p>1/23</p>	<ul style="list-style-type: none"> <li>• • Construction or mounting of dials or of equivalent devices; Means for facilitating the use thereof (by improving visibility H04M 1/22)</li> </ul>
<p>1/08 • • • • associated with switches operated by the weight of the receiver or hand-set</p>	<p>1/24</p>	<ul style="list-style-type: none"> <li>• Arrangements for testing</li> </ul>
<p>1/10 • • • • associated with switches operated by magnetic effect due to proximity of receiver or hand-set</p>	<p>1/247</p>	<ul style="list-style-type: none"> <li>• Telephone sets including user guidance or feature selection means facilitating their use [7]</li> </ul>
<p>1/11 • • Supports for sets, e.g. incorporating armrests</p>	<p>1/253</p>	<ul style="list-style-type: none"> <li>• Telephone sets using digital voice transmission [7]</li> </ul>
<p>1/12 • • • Adjustable supports, e.g. extensible</p>	<p>1/26</p>	<ul style="list-style-type: none"> <li>• Devices for calling a subscriber (H04M 1/66 takes precedence) [1, 7]</li> </ul>
<p>1/13 • • • • pantographic</p>	<p>1/27</p>	<ul style="list-style-type: none"> <li>• • Devices whereby a plurality of signals may be stored simultaneously [2]</li> </ul>
<p>1/14 • • • with resilient means to eliminate extraneous vibrations</p>		
<p>1/15 • • Protecting or guiding telephone cords [5]</p>		
<p>1/17 • • Hygienic or sanitary devices on telephone equipment (for mouthpieces or earpieces H04R 1/12) [2]</p>		

## H04M

- 1/272 • • • with provision for storing only one subscriber number at a time, e.g. by keyboard or dial [2]
- 1/274 • • • with provision for storing more than one subscriber number at a time [2]
- 1/2745 • • • • using static electronic memories, i.e. memories whose operation does not require relative movement between storage means and a transducer, e.g. chips [7]
- 1/275 • • • • • implemented by means of portable electronic directories [7]
- 1/2755 • • • • • whose contents are provided by optical scanning [7]
- 1/276 • • • • using magnetic recording, e.g. on tape [2]
- 1/278 • • • • using punched cards or tapes [2]
- 1/30 • • Devices which can set up and transmit only one digit at a time
- 1/31 • • • by interrupting current to generate trains of pulses; by periodically opening and closing contacts to generate trains of pulses [2]
- 1/315 • • • • Clutches, spring assemblies, speed regulators, e.g. centrifugal brakes (H04M 1/32-H04M 1/40 take precedence) [3]
- 1/32 • • • • Locking setting devices during transmission to prevent interference by user
- 1/34 • • • • Lost-motion or other arrangements for ensuring a pause between successive digit transmissions
- 1/38 • • • • Pulses transmitted by a movement variably limited by the setting of a stop
- 1/40 • • • • wherein the setting-operation short-circuits or open-circuits the transmitting mechanism during a variable part of a cycle
- 1/50 • • • by generating or selecting currents of predetermined frequencies or combinations of frequencies [2]
- 1/515 • • by generating or selecting signals other than trains of pulses of similar shape, or signals other than currents of one or more different frequencies, e.g. generation of dc signals of alternating polarity, coded pulses or impedance dialling [2]
- 1/52 • • Arrangements wherein a dial or the like is mechanically coupled to a line selector
- 1/53 • • Generation of additional signals, e.g. additional pulses [2]
- 1/54 • • • Arrangements wherein a dial or the like generates identifying signals, e.g. in party-line systems [2]
- 1/56 • Arrangements for indicating or recording the called number at the calling subscriber's set
- 1/57 • Arrangements for indicating or recording the number of the calling subscriber at the called subscriber's set (at the operator set in a manual exchange H04M 5/20) [2]
- 1/58 • Anti-side-tone circuits
- 1/60 • including speech amplifiers
- 1/62 • • Constructional arrangements
- 1/64 • Automatic arrangements for answering calls; Automatic arrangements for recording messages for absent subscribers; Arrangements for recording conversations (centralised dictation systems H04M 11/10) [1, 7]
- 1/65 • • Recording arrangements [2, 7]
- 1/652 • • • Means for playing back the recorded messages by remote control over a telephone line (H04M 1/658 takes precedence) [7]
- 1/654 • • • Telephone line monitoring circuits therefor, e.g. ring detectors [7]
- 1/656 • • • for recording conversations [7]
- 1/658 • • • Means for redirecting recorded messages to other extensions or equipment [7]
- 1/66 • with means for preventing unauthorised or fraudulent calling (verifying user identity or authority in secret or secure digital communications H04L 9/32) [1, 7]
- 1/663 • • Preventing unauthorised calls to a telephone set [7]
- 1/665 • • • by checking the validity of a code [7]
- 1/667 • • Preventing unauthorised calls from a telephone set (H04M 1/677 takes precedence) [7]
- 1/67 • • • by electronic means [7]
- 1/673 • • • • the user being required to key in a code [7]
- 1/675 • • • • the user being required to insert a coded card, e.g. a smart card carrying an integrated circuit chip [7]
- 1/677 • • Preventing the dialling or sending of predetermined telephone numbers or selected types of telephone numbers, e.g. long distance numbers [7]
- 1/68 • Circuit arrangements for preventing eavesdropping
- 1/70 • • Lock-out or secrecy arrangements in party-line systems
- 1/72 • Substation extension arrangements; Cordless telephones, i.e. devices for establishing wireless links to base stations without route selecting [1, 7]
- 1/723 • • using two or more extensions per line (H04M 1/725 takes precedence) [7]
- 1/725 • • Cordless telephones [7]
- 1/727 • • • Identification code transfer arrangements [7]
- 1/73 • • • Battery saving arrangements [7]
- 1/733 • • • with a plurality of base stations connected to a plurality of lines [7]
- 1/737 • • • characterised by transmission of electromagnetic waves other than radio waves, e.g. infra-red waves [7]
- 1/738 • Interface circuits for coupling substations to external telephone lines (H04M 1/78 takes precedence) [7]
- 1/74 • • with means for reducing interference; with means for reducing effects due to line faults
- 1/76 • • Compensating for differences in line impedance
- 1/78 • Circuit arrangements in which low-frequency speech signals proceed in one direction on the line, while speech signals proceeding in the other direction on the line are modulated on a high-frequency carrier signal [2]
- 1/80 • Telephone line holding circuits [7]
- 1/82 • Line monitoring circuits for call progress or status discrimination [7]
- 3/00 Automatic or semi-automatic exchanges**
- 3/02 • Calling substations, e.g. by ringing (selective calling H04Q)
- 3/04 • • the calling signal being supplied from the final selector
- 3/06 • • the calling signal being supplied from the subscriber's line circuit
- 3/08 • Indicating faults in circuits or apparatus
- 3/10 • • Providing fault- or trouble-signals
- 3/12 • • Marking faulty circuits "busy"; Enabling equipment to disengage itself from faulty circuits
- 3/14 • • Signalling existence of persistent "off-hook" condition
- 3/16 • with lock-out or secrecy provision in party-line systems

- 3/18 • with means for reducing interference; with means for reducing effects due to line faults
- 3/20 • with means for interrupting existing connections; with means for breaking-in on conversations
- 3/22 • Arrangements for supervision, monitoring or testing
- 3/24 • • with provision for checking the normal operation
- 3/26 • • with means for applying test signals
- 3/28 • • • Automatic routine testing
- 3/30 • • • • for subscribers' lines
- 3/32 • • • • for lines between exchanges
- 3/34 • • • Testing for cross-talk
- 3/36 • • Statistical metering, e.g. recording occasions when traffic exceeds capacity of trunks
- 3/38 • Graded-service arrangements, i.e. some subscribers prevented from establishing certain connections (queuing arrangements H04Q 3/64)
- 3/40 • Applications of speech amplifiers
- 3/42 • Systems providing special services or facilities to subscribers (specially adapted for wireless communication networks H04W 4/00)
- 3/424 • • Arrangements for automatic redialling (at the subscriber's set H04M 1/27) [7]
- 3/428 • • Arrangements for placing incoming calls on hold [7]
- 3/432 • • Arrangements for calling a subscriber at a specific time, e.g. morning call service [7]
- 3/436 • • Arrangements for screening incoming calls [7]
- 3/44 • • Additional connecting arrangements for providing access to frequently-wanted subscribers, e.g. abbreviated dialling (at the subscriber's set H04M 1/27; automatic redialling H04M 3/424) [1, 7]
- 3/46 • • Arrangements for calling a number of substations in a predetermined sequence until an answer is obtained
- 3/48 • • Arrangements for recalling a calling subscriber when the wanted subscriber ceases to be busy
- 3/487 • • Arrangements for providing information services, e.g. recorded voice services or time announcements [7]
- 3/493 • • • Interactive information services, e.g. directory enquiries [7]
- 3/50 • • Centralised arrangements for answering calls; Centralised arrangements for recording messages for absent or busy subscribers (H04M 3/487 takes precedence; centralised dictation systems H04M 11/10) [1, 7]
- 3/51 • • • Centralised call answering arrangements requiring operator intervention [7]
- 3/52 • • • • Arrangements for routing dead number calls to operators
- 3/523 • • • • with call distribution or queuing [7]
- 3/527 • • • Centralised call answering arrangements not requiring operator intervention [7]
- 3/53 • • • Centralised arrangements for recording incoming messages [7]
- 3/533 • • • • Voice mail systems [7]
- 3/537 • • • • Arrangements for indicating the presence of a recorded message [7]
- 3/54 • • Arrangements for diverting calls for one subscriber to another predetermined subscriber
- 3/56 • • Arrangements for connecting several subscribers to a common circuit, i.e. affording conference facilities (video conference systems H04N 7/15)
- 3/58 • • Arrangements for transferring received calls from one subscriber to another; Arrangements affording interim conversations between either the calling or the called party and a third party (substation line holding circuits H04M 1/80) [1, 7]
- 3/60 • Semi-automatic systems, i.e. systems in which the numerical selection of the outgoing line is under the control of an operator
- 3/62 • • Keyboard equipment
- 3/64 • • Arrangements for signalling the number or class of the calling line to the operator (between operators in inter-exchange working H04M 5/18)
- 5/00 Manual exchanges** (substation equipment in general H04M 1/00)
- 5/02 • Constructional details (jacks, jack-plugs H01R 24/58)
- 5/04 • Arrangements for indicating calls or supervising connections for calling or clearing
- 5/06 • • affording automatic call distribution
- 5/08 • using connecting means other than cords
- 5/10 • using separate plug for each subscriber
- 5/12 • Calling substations, e.g. by ringing
- 5/14 • Applications of speech amplifiers
- 5/16 • with means for reducing interference; with means for reducing effects due to line faults
- 5/18 • Arrangements for signalling the class or number of called or calling line from one exchange to another
- 5/20 • • Arrangements for indicating the numbers of the incoming lines
- 7/00 Arrangements for interconnection between switching centres**
- 7/02 • for compensating differences of ground potential
- 7/04 • for compensating differences of line impedance
- 7/06 • using auxiliary connections for control or supervision
- 7/08 • for phantom working
- 7/10 • for two-way working, i.e. calls may be set-up in either direction over the same connection
- 7/12 • for working between exchanges having different types of switching equipment, e.g. power-driven and step by step or decimal and non-decimal
- 7/14 • in systems involving main and subordinate switching centres (current supply source at subordinate switching centre charged from main exchange H04M 19/06)
- 7/16 • in systems employing carrier frequencies
- 9/00 Arrangements for interconnection not involving centralised switching**
- 9/02 • involving a common line for all parties
- 9/04 • involving a separate line for each pair of parties
- 9/06 • involving combinations of interconnecting lines
- 9/08 • Two-way loud-speaking telephone systems with means for conditioning the signal, e.g. for suppressing echoes for one or both directions of traffic
- 9/10 • • with switching of direction of transmission by voice frequency
- 11/00 Telephonic communication systems specially adapted for combination with other electrical systems**
- 11/02 • with bell or annunciator systems
- 11/04 • with alarm systems, e.g. fire, police or burglar alarm systems
- 11/06 • Simultaneous speech and data transmission, e.g. telegraphic transmission over the same conductors

## H04M

- 11/08 • specially adapted for optional reception of entertainment or informative matter
- 11/10 • with dictation recording and playback systems
- 13/00 Party-line systems** (substation equipment H04M 1/00; exchange equipment H04M 3/00, H04M 5/00; metering arrangements H04M 15/36)
- 15/00 Arrangements for metering, time-control or time-indication**
  - 15/02 • Severing connection after a predetermined time
  - 15/04 • Recording calls in printed, perforated, or other permanent form
  - 15/06 • • Recording class or number of calling party or called party
  - 15/08 • Metering calls to called party
  - 15/10 • Metering calls from calling party
  - 15/12 • • Discriminative metering
  - 15/14 • • • according to class of calling party
  - 15/16 • • • according to connection obtained
  - 15/18 • • • according to duration of call
  - 15/20 • • • Operator's time recording or indicating arrangements
  - 15/22 • • • according to time of day
  - 15/24 • • • preventing metering of tax-free calls to certain lines, e.g. to fire or ambulance stations
  - 15/26 • • with a meter at the exchange controlled by an operator
- 15/28 • with meter at substation
- 15/30 • • the meter not being controlled from an exchange
- 15/32 • Metering arrangements for satellites or concentrators which connect one or more exchange lines with a group of local lines
- 15/34 • Metering arrangements for private branch exchanges
- 15/36 • Metering arrangements for party-lines
- 15/38 • Metering by apparatus other than mechanical step-by-step counter type
- 17/00 Prepayment telephone systems** (using a coded card to authorise calls from a telephone set H04M 1/675) [**1, 7**]
- 17/02 • Coin-freed or check-freed systems
- 19/00 Current supply arrangements for telephone systems** (for selecting equipment H04Q 1/28)
  - 19/02 • providing ringing current or supervisory tones, e.g. dialling tone or busy tone
  - 19/04 • • the ringing-current being generated at the substations
  - 19/06 • in which current supply sources at subordinate switching centres are charged from the main exchange
  - 19/08 • with current supply sources at the substations (generating ringing current H04M 19/04) [**1, 7**]
- 99/00 Subject matter not provided for in other groups of this subclass [2006.01]**