

H04Q

SELECTING (switches, relays, selectors [H01H](#); wireless communication networks [H04W](#))

Definition statement

This place covers:

Methods, circuits, or apparatus for selectively establishing a connection between a desired number of stations (normally two), or between a main station and a desired number of substations (normally one) for the purpose of transferring information via this connection after it has been established; and

Selective calling arrangements over connections already established.

As the scope of [H04Q](#) covers a diversity of subject matter, the user is referred to the IPC definitions for the main groups of [H04Q](#).

The following list is intended to assist the user:

- Details of selecting apparatus arrangements, see definition for group [H04Q 1/00](#).
- Selecting arrangements, see definition for group [H04Q 3/00](#).
- For subscriber stations connected by the same line to the exchange, see definition for group [H04Q 5/00](#).
- Arrangements in telecontrol or telemetry systems for selectively calling a substation from a main station, see definition for [H04Q 9/00](#).
- Selecting arrangements for multiplex systems, see definition for group [H04Q 11/00](#).

References

Limiting references

This place does not cover:

| | |
|--------------------------------------|----------------------|
| Electric switches; Relays; Selectors | H01H |
| Wireless communication networks | H04W |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------------|
| Cables; Conductors | H01B |
| Installation of communication cables or lines | H02G |
| Electronic switches | H03K 17/00 |
| Transmission in general | H04B |
| Broadcast communication | H04H |
| Multiplex communication | H04J |
| Transmission of digital information | H04L |
| Telephonic communication | H04M |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| | |
|-------------------|---|
| Satellite | A kind of exchange the operation of which depends upon control signals received from a supervisory exchange. |
| Subscriber | General term for terminal equipment, e.g. telephone for public use. |
| Substation | Subscriber or monitoring equipment which may connect a single subscriber to a line without choice as to subscriber. |
| Switching centres | Include exchanges and satellites. |

H04Q 1/00

Details of selecting apparatus or arrangements

Definition statement

This place covers:

- Constructional details of selecting apparatuses or arrangements, especially and only used for telecommunications applications. Examples of such arrangements are frames, mounting racks. Examples of such details are doors, panels, pivoting parts;
- Distribution frames, provided or not with patch panels and terminal blocks;
- Methods for detection and sensing of connection of patch cables into patch panels;
- Details of cabling management for the above mentioned arrangements;
- Devices used as interface to network subscribers;
- Electrical details of selecting apparatuses, such as testing circuits for telephone line or subscriber line and arrangements for signalling troubles in unoccupied sub exchanges.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|---|
| Cables; Conductors | H01B |
| Details of selector switches | H01H 63/00 |
| Installation of communication cables or lines | H02G |
| Multiplex systems providing for calling or supervisory signals | H04J 1/00 , H04J 3/12 |
| Telephone substation equipment | H04M 1/00 |
| Current supply arrangements for telephone systems | H04M 19/00 |

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

| | |
|-----|-------------------------|
| MDF | main distribution frame |
|-----|-------------------------|

H04Q 1/028

{Subscriber network interface devices}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|-----------------------------|
| Lines interfacing in the subscriber set | H04M 1/0293 |
|---|-----------------------------|

H04Q 1/06

Cable ducts or mountings specially adapted for exchange installations

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------|
| Installation of electric cables or lines, or of combined optical and electric cables or lines | H02G |
|---|----------------------|

H04Q 1/116

{lightning or EMI protection, e.g. shielding or grounding}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------------|
| Suppression of noise or interference in transmission systems | H04B 15/00 |
|--|----------------------------|

H04Q 1/28

Current-supply circuits or arrangements for selection equipment at exchanges

Definition statement

This place covers:

This is a subgroup of [H04Q 1/18](#) for electrical details of selecting apparatus or arrangements. Its scope is clear from the title. It is basically for consultation only as it is little used nowadays.

Relationships with other classification places

Testing circuits are covered by [H04Q 1/20](#).

Signalling circuits are covered by [H04Q 1/30](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|-----------------------------|
| Power supply means for computers | G06F 1/26 |
| Systems for transmission via power distribution lines | H04B 3/54 |
| Current supply arrangements over Ethernet | H04L 12/10 |
| Generation of signalling current at the telephone sub station | H04M 1/505 |
| Subscriber line interface circuits (SLIC) | H04M 3/005 |
| Over voltage protection in line interface circuits | H04M 3/18 |
| Subscriber line supervision circuits e.g. off hook detection | H04M 3/2272 |
| Current supply arrangements for telephone systems | H04M 19/00 |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| | |
|---------|---|
| BORSCHT | Battery, Over voltage, Ringing, Signalling, Coding, Hybrid, Testing |
| SLIC | Subscriber Line Interface Circuit |
| CPE | Customer Premise Equipment: any phone equipment (key systems, PBX's, answering machines, etc.) which reside on the customers premises |
| DTMF | Dual Tone Multi Frequency |

H04Q 1/30

Signalling arrangements; Manipulation of signalling currents (multiplex systems providing for calling or supervisory signals [H04J 1/14](#), [H04J 3/12](#))

Definition statement

This place covers:

This is a subgroup of [H04Q 1/18](#) for electrical details of selecting apparatus or arrangements. It covers arrangements for providing signalling currents to telephone substations from Central Office Exchange.

This group covers the arrangements at the exchanger for providing signalling current to substation. A SLIC should provide the so called BORSCHT (Battery, Over voltage, Ringing, Signalling, Coding, Hybrid, Testing) functions: this group covers the "S" function. SLIC in general covered by [H04M 3/005](#). Over voltage covered by [H04M 3/18](#). Off hook detection covered by [H04M 3/2272](#)

Subgroups [H04Q 1/32](#) - [H04Q 1/50](#) define the type of signalling involved. Their scope is clear from the title and nevertheless are nowadays very little used. The only relevant subgroup still active is [H04Q 1/4575](#) that covers DTMF signalling.

Relationships with other classification places

If the current supply refer to the selecting equipment part of the exchange then this aspect is covered by [H04Q 1/28](#). Testing circuits are covered by [H04Q 1/20](#).

References

Limiting references

This place does not cover:

| | |
|---|---------------------------|
| For line selectors providing transfer of routing digits | H04Q 3/12 |
| Multiplex systems to multiplex communication systems | H04J 1/14 |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|-----------------------------|
| Power supply means for computers | G06F 1/26 |
| Systems for transmission via power distribution lines | H04B 3/54 |
| Current supply arrangements over Ethernet | H04L 12/10 |
| Telephone substation equipment | H04M 1/00 |
| Generation of signalling current at the telephone substation | H04M 1/505 |
| Subscriber line interface circuits (SLIC) | H04M 3/005 |
| Over voltage protection in line interface circuits | H04M 3/18 |
| Subscriber line supervision circuits e.g. off hook detection | H04M 3/2272 |
| Current supply arrangements for telephone systems | H04M 19/00 |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| | |
|---------|---|
| BORSCHT | Battery, Over voltage, Ringing, Signalling, Coding, Hybrid, Testing |
| SLIC | Subscriber Line Interface Circuit |
| CPE | Customer Premise Equipment: any phone equipment (key systems, PBX's, answering machines, etc.) which reside on the customers premises |
| DTMF | Dual Tone Multi Frequency |

H04Q 1/54

Amplifier switched-on automatically in dependence on automatically-selected lines

Definition statement

This place covers:

This is a subgroup of [H04Q 1/18](#) for electrical details of selecting apparatus or arrangements. Its scope is clear from the title. It is basically for consultation only as it is little used nowadays.

Relationships with other classification places

Testing circuits are covered by [H04Q 1/20](#).

Signalling circuits are covered by [H04Q 1/30](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|-----------------------------|
| Power supply means for computers | G06F 1/26 |
| Systems for transmission via power distribution lines | H04B 3/54 |
| Current supply arrangements over Ethernet | H04L 12/10 |
| Generation of signaling current at the telephone substation | H04M 1/505 |
| Subscriber line interface circuits (SLIC) | H04M 3/005 |
| Over voltage protection in line interface circuits | H04M 3/18 |
| Subscriber line supervision circuits e.g. off hook detection | H04M 3/2272 |
| Current supply arrangements for telephone systems | H04M 19/00 |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| | |
|---------|---|
| BORSCHT | Battery, Over voltage, Ringing, Signalling, Coding, Hybrid, Testing |
| SLIC | Subscriber Line Interface Circuit |
| CPE | Customer Premise Equipment: any phone equipment (key systems, PBX's, answering machines, etc.) which reside on the customers premises |
| DTMF | Dual Tone Multi Frequency |

H04Q 1/56

Balancing circuitry switched-on automatically in dependence on automatically-selected lines

Definition statement

This place covers:

This is a subgroup of [H04Q 1/18](#) for electrical details of selecting apparatus or arrangements. Its scope is clear from the title. It is basically for consultation only as it is little used nowadays.

Relationships with other classification places

Testing circuits are covered by [H04Q 1/20](#).

Signalling circuits are covered by [H04Q 1/30](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------------|
| Power supply means for computers | G06F 1/26 |
| Systems for transmission via power distribution lines | H04B 3/54 |
| Current supply arrangements over Ethernet | H04L 12/10 |
| Generation of signalling current at the telephone substation | H04M 1/505 |

| | |
|--|-----------------------------|
| Subscriber line supervision circuits e.g. off hook detection | H04M 3/2272 |
| Current supply arrangements for telephone systems | H04M 19/00 |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| | |
|---------|---|
| BORSCHT | Battery, Over voltage, Ringing, Signalling, Coding, Hybrid, Testing |
| SLIC | Subscriber Line Interface Circuit |
| CPE | Customer Premise Equipment: any phone equipment (key systems, PBX's, answering machines, etc.) which reside on the customers premises |
| DTMF | Dual Tone Multi Frequency |

H04Q 3/00

Selecting arrangements ([H04Q 5/00](#) - [H04Q 11/00](#) take precedence)

Definition statement

This place covers:

Selecting arrangements to which subscribers are connected via wired circuit-based links.

References

Limiting references

This place does not cover:

| | |
|---|----------------------------|
| Selecting arrangements wherein two or more subscriber stations are connected by the same line to the exchange | H04Q 5/00 |
| Arrangements in telecontrol or telemetry systems for selectively calling a substation from a main station, in which substation desired apparatus is selected for applying a control signal thereto or for obtaining measured values therefrom | H04Q 9/00 |
| Selecting arrangements for multiplex systems | H04Q 11/00 |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------------|
| Signalling arrangements | H04Q 1/30 |
| Multiplex communication | H04J |
| Intermediate storage means for telegraphic communication | H04L 13/08 |
| Subscriber services provided at exchanges | H04M 3/42 |
| Wireless communications networks | H04W |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| | |
|------------|------------------------------|
| Narrowband | Transmission of up to 2 Mbps |
|------------|------------------------------|

| | |
|-----------|---------------------------|
| Broadband | Transmission above 2 Mbps |
|-----------|---------------------------|

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

| | |
|-------|-------------------------------------|
| BCSM | Basic call state model |
| SIBBS | Service-independent building blocks |
| PBX | Private branch exchange |

H04Q 3/0025

{Provisions for signalling}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|---------------------------|
| Circuitry specially adapted for provisions for signalling | H04Q 1/30 |
|---|---------------------------|

H04Q 3/005

{Personal communication services, e.g. provisions for portability of subscriber numbers}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|---------------------------|
| Subscriber services provided at exchanges | H04M 3/42 |
|---|---------------------------|

H04Q 3/526

{Optical switching systems}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|------------------------------|
| Optical cross connects, their architectures, operation, maintenance and control, as well as their optical buffering and optical signal processing means. | H04Q 11/0005 |
| Optical coupling means having switching means | G02B 6/28 |
| Physical details of controlling the light using movable or deformable optical means | G02B 26/00 |
| Physical details of light controlling devices | G02F 1/00 |

H04Q 3/542**{Logic circuits or arrangements therefor}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

| | |
|---------------------------|----------------------------|
| Logic circuits in general | H03K 19/00 |
|---------------------------|----------------------------|

H04Q 5/00**Selecting arrangements wherein two or more subscriber stations are connected by the same line to the exchange****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---------------------------|
| For establishing connections among stations for the purpose of transferring information via these connections | H04Q 1/00 |
|---|---------------------------|

H04Q 9/00**Arrangements in telecontrol or telemetry systems for selectively calling a substation from a main station, in which substation desired apparatus is selected for applying a control signal thereto or for obtaining measured values therefrom****Definition statement***This place covers:*

Monitoring/supervising of remote device/systems.

Collecting data from sensors

Apparatus comprising RFID in combination with sensors.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|----------------------------|
| Toy vehicles | A63H 17/00 |
| Electric circuits specially adapted for vehicles | B60R 16/02 |
| Applications of remote control devices for cranes | B66C 13/40 |
| Electric permutation locks | E05B 49/00 |
| Electric programme-control systems | G05B 19/02 |
| Input and output arrangements for digital data processing | G06F 3/00 |
| Individual entry or exit registers | G07C 9/00 |

| | |
|--|----------------------------|
| Transmission systems for measured values, control signal | G08C |
| Circuit arrangements for providing remote control of switching means in a power distribution network | H02J 13/00 |
| Remote-control of tuned circuits | H03J 9/00 |
| Data switching networks | H04L 12/00 |
| Telephonic communication systems adapted for combination with other electrical systems | H04M 11/00 |
| Receiver circuitry of television systems | H04N 5/44 |

H04Q 11/00

Selecting arrangements for multiplex systems (multiplex systems [H04J](#))

References

Limiting references

This place does not cover:

| | |
|-------------------|----------------------|
| Multiplex systems | H04J |
|-------------------|----------------------|

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|----------------------------------|----------------------|
| Wireless communications networks | H04W |
|----------------------------------|----------------------|

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| | |
|------------|------------------------------|
| Narrowband | Transmission of up to 2 Mbps |
| Broadband | Transmission above 2 Mbps |

H04Q 11/0001

{using optical switching}

Definition statement

This place covers:

- Optical cross connects, their architectures, operation, maintenance and control, as well as their optical buffering and optical signal processing means;
- Optical signal distribution, networking, network architectures, operation, maintenance and control, wherein the optical nature of the signal is relevant to the network layers extending above the physical and data link layers;
- Networking equipment of optical distribution networks such as passive optical networks, insofar as it is relevant to the planning, design, operation, administration and maintenance of the optical distribution network (e.g. optical network units details).

Relationships with other classification places

- [H04J 14/02](#) covers wavelength division optical multiplex systems, neither group takes precedence above the other for classification;

Relationships with other classification places

- [H04L 12/56](#) covers packet switching systems in general. In packet switching networks where the optical property of the signal is relevant, groups from the [H04L 12/56](#) can be used to complement the classification where relevant;
- [H04L 41/00](#) covers the management of networks in general. When the subject-matter deals with the management of optical network, where it is relevant that the network is, groups from the [H04L 41/00](#) can be used to complement the classification where relevant;
- [H04J 3/00](#) covers time division multiplex systems in general, including SONET/SDH.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|--|
| Optical coupling means having switching means | G02B 6/28 |
| Physical details of controlling the light using movable or deformable optical means | G02B 26/00 |
| Physical details of light controlling devices | G02F 1/00 |
| Transmission and reception of optical signals per se | H04B 10/00 |
| SONET/SDH networks | H04J 3/00 , H04J 14/02 |
| Non reconfigurable add-and-drop multiplexing | H04J 14/04 |
| Fibre channel networks switches | H04L 49/357 |

Special rules of classification

All Indexing Codes within the group are used as an indexing system, therefore all codes should be given when relevant.

H04Q 11/0003

{Details}

Definition statement

This place covers:

Details not classified in the groups [H04Q 11/0005](#) and [H04Q 11/0062](#), for example:

- The construction, usage and control of optical packet buffers for optical routing and switching;
- Arrangements to compress optical packets in the time domain;
- Optical packet header processing arrangements for optical routing and switching.

H04Q 11/0005

{Switch and router aspects}

Definition statement

This place covers:

Optical cross connects, their architectures, operation, maintenance and control.

H04Q 11/0062

{Network aspects}

Definition statement

This place covers:

- Optical signal distribution, networking, network architectures, operation, maintenance and control, wherein the optical nature of the signal is relevant to the network layers extending above the physical and data link layers;
- Networking equipment of optical distribution networks such as passive optical networks, insofar as it is relevant to the planning, design, operation, administration and maintenance of the optical distribution network (e.g. optical network units details).

H04Q 11/0066

{Provisions for optical burst or packet networks}

Definition statement

This place covers:

- Optical burst switching networking, network architectures, operation, maintenance and control;
- Optical networking, network architectures, operation, maintenance and control, insofar as special arrangements or techniques for processing the optical packets in the optical signal are used.

H04Q 11/0071

{Provisions for the electrical-optical layer interface}

Definition statement

This place covers:

Interaction between the electrical and optical part of the network insofar as special arrangements or techniques are used that take advantage of the optical nature of the signals within the optical network.