

H04Q

SELECTING (switches, relays, selectors [H01H](#); electronic switches [H03K 17/00](#))

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
Multiplex communication	H04J
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
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 {for establishing connections among stations for the purpose of transferring information via these connections}

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

Limiting references

This place does not cover:

Constructional details common to different types of electric apparatus	H05K 7/186
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Informative references

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

Special locks for drawers	E05B 65/46
Distribution frames-cassettes	G02B 6/4452
Distribution frames char. by the way of extraction or insertion of the cassette: pivoting, sliding, rotating	G02B 6/4455
Enclosures	G06F 1/181
Method or arrangements for sensing record carriers	G06K 7/00
Record carriers for use with machines and with at least a part designed to carry digital markings	G06K 19/0723
Means for guiding or retaining wires or cables connected to terminal blocks	H01R 9/2416
Terminal blocks providing connection to wires or cables	H01R 12/00
Details of coupling devices	H01R 13/00
Frameworks, boards, panels, desks, casings	H02B 1/00

Glossary of terms

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

Patch panels	panel, typically rack mounted, that houses cable connections.
Distribution frame	passive device which terminates cables, allowing arbitrary interconnections to be made

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

IDC	means two-dimensional
MDF	main distribution frame
RFID	radio frequency identification
DSLAM	digital subscriber line access multiplexer
FTT+	fiber to the +
MDU	main distribution unit
FDT	fiber drop terminal

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

Limiting references

This place does not cover:

Current supply arrangements over Ethernet	H04L 12/10
Generation of signalling current at the telephone sub station	H04M 1/505
Current supply arrangements for telephone systems	H04M 19/00

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
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

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](#), [H04Q 3/12](#); telephone substation equipment [H04M 1/00](#))

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:

Current supply arrangements over Ethernet	H04L 12/10
Telephone substation equipment	H04M 1/00
Generation of signalling current at the telephone sub station	H04M 1/505
Current supply arrangements for telephone systems	H04M 19/00

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
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

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**Limiting references**

This place does not cover:

Current supply arrangements over Ethernet	H04L 12/10
Generation of signalling current at the telephone sub station	H04M 1/505
Current supply arrangements for telephone systems	H04M 19/00

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

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

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

Limiting references

This place does not cover:

Current supply arrangements over Ethernet	G06L 12/10
Generation of signalling current at the telephone sub station	H04M 1/505
Current supply arrangements for telephone systems	H04M 19/00

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
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

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.

Relationships with other classification places

Switches, relays, selectors are classified in [H01H](#). Electronic switches are classified in [H03K 17/00](#).

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
Multiplex communication	H04J
Wireless communications networks	H04W

Special rules of classification

In groups [H04Q 3/0016](#) - [H04Q 3/0095](#) classification using [H04Q 3/00](#) CPC symbols only. In all other groups CPC symbols of [H04Q 2213/13-H04Q2213/13999](#)) are used for additional information.

Groups [H04Q 3/02](#) - [H04Q 3/495](#) corresponds to old technology into which no further documents are to be classified.

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 3/526**{Optical switching systems}****Definition statement**

This place covers:

This group is no longer in use to classify new documents.

References**Limiting references**

This place does not cover:

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

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
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H04Q 3/528**{Details}****Definition statement**

This place covers:

This group is no longer in use to classify new documents.

H04Q 5/00**Selecting arrangements wherein two or more subscriber stations are connected by the same line to the exchange****Glossary of terms**

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

DC	direct current
AC	alternating current

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

Limiting references

This place does not cover:

Tariff metering apparatus -Remote reading of utility meter	G01D 4/002
Mechanical means for transferring the output of a sensing member (sensor itself)	G01D 5/00
Indicating or recording devices	G01F 15/06
Indicating or measuring liquid level - Particular electronic circuits for digital processing equipment	G01F 23/0069
Electric program-control systems (Factory/installation-sensors connected to control centers via databus)	G05B 19/02
Record carriers for use with machines - Constructional details - for no contact communication (RFID)	G06K 19/07749
Transmission systems for measured values, control or similar signal (Remote control)	G08C

Informative references

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

Detecting, measuring or recording for diagnostic purposes	A61B 5/00
Devices for measuring, signalling, controlling, or distributing tyre pressure or temperature - transmitting signals from a wheel unit to a vehicle mounted receiver	B60C 23/0408
Electric circuits specially adapted for vehicles, not otherwise provided for	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
Registering or indicating the working of vehicles - communicating information to a remotely located station	G07C 5/008
Individual entry or exit registers	G07C 9/00

Home automation networks	H04L 12/2803
Transmission control procedure - sensor networks	H04L 29/08558
Telephonic communication systems adapted for combination with other electrical systems	H04M 11/00
Power saving arrangements	H04W 52/02
Network topologies - Sensor networks	H04W 84/18

Glossary of terms

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

RFID	Radio Frequency IDentification
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H04Q 11/00

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

Relationships with other classification places

Switches, relays, selectors are classified in [H01H](#). Electronic switches are classified in [H03K 17/00](#).

References

Limiting references

This place does not cover:

Multiplex communication	H04J
Wireless communications networks	H04W

Special rules of classification

In groups [H04Q 11/0428](#) - [H04Q 11/0471](#) further classification of invention information is made using CPC symbols of **H04Q213/000-H04Q999/00**.

In all groups CPC symbols of [H04Q 2213/13-H04Q2213/13999](#) are used for additional information.

Broadband documents are classified in [H04Q 11/0478](#).

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:

ISDN	Integrated Services Digital Network
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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;
- [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

Limiting references

This place does not cover:

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
The transmission and reception of optical signals per se	H04B 10/00
SONET/SDH networks	H04J 3/00
WDM networks	H04J 14/02
Non reconfigurable add-and-drop multiplexing	H04J 14/04
Fibre channel networks and 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.