A61N  ELECTROTHERAPY; MAGNETOTHERAPY; RADIATION THERAPY; ULTRASOUND THERAPY (measurement of bioelectric currents A61B; surgical instruments, devices or methods for transferring non-mechanical forms of energy to or from the body A61B 18/00; anaesthetic apparatus in general A61M; incandescent lamps H01K; infra-red radiators for heating H05B)

NOTE
In this subclass, the following term is used with the meaning indicated: In this subclass, the following term is used with the meaning indicated:
• “therapy” implies that the treatment, when it aims at destroying sick or abnormal cells, is performed within the limits of healthy cell life, the destruction thereof being undesired, contrary to that which takes place with instruments, devices or methods covered by group A61B 18/00.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   A61N 1/34 covered by A61N 1/36021, A61N 1/36071
   A61N 2/04 covered by A61B 2/02
   A61N 5/067 covered by A61N 5/06
   A61N 5/08 covered by A61N 5/06
   A61N 2/08 covered by A61N 2/06
   A61N 5/073 covered by A61N 5/06, A61N 2005/073
   A61N 2/08 covered by A61N 2/06
   A61N 5/073 covered by A61N 5/06

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00 Electrotherapy; Circuits therefor (A61N 2/00 takes precedence; irradiation apparatus A61N 5/00)
1/02 Details
1/025 [Digital circuitry features of electrotherapy devices, e.g. memory, clocks, processors]
1/04 Electrodes (electrosurgical electrodes A61B 18/14)
1/0404 [for external use (A61N 1/06 takes precedence)]
1/0408 [Use-related aspects]
1/0412 [Specially adapted for transcutaneous electroporation, e.g. including drug reservoirs]
1/0416 [Anode and cathode]
1/042 [Material of the electrode]
1/0424 [Shape of the electrode]
1/0428 [Specially adapted for iontophoresis, e.g. AC, DC or including drug reservoirs]
1/0432 [Anode and cathode]
1/0436 [Material of the electrode]
1/044 [Shape of the electrode]
1/0444 [Membrane]
1/0448 [Drug reservoir]
1/0452 [Specially adapted for transcutaneous muscle stimulation [TMS]]
Arrangements or circuits for monitoring, protecting, controlling or indicating [(for external stimulators A61N 1/3603; for implantable neurostimulators A61N 1/36128; for heart stimulators A61N 1/37; for defibrillators A61N 1/3925)]

WARNING

Group A61N 1/08 is impacted by reclassification into group A61N 1/3603

Groups A61N 1/08 and A61N 1/3603 should be considered in order to perform a complete search.

2001/083 . . . [Monitoring integrity of contacts, e.g. by impedance measurement]

WARNING

Group A61N 2001/083 is impacted by reclassification into group A61N 1/3603.

Groups A61N 2001/083 and A61N 1/3603 should be considered in order to perform a complete search.

Magnetic resonance imaging [MRI] compatible leads]

Applying static electricity (applying ionised gases or vapours A61N 1/44)

Leading-off electric charges, e.g. by earthing (carrying-off electrostatic charges, in general H05F 3/00)

Screening or neutralising undesirable influences from (or using,) atmospheric or terrestrial radiation or fields (using atmospheric electricity or earth currents H05F 3/00)

Applying electric currents by contact electrodes

continuous direct currents

for promoting a biological process]

Electromedical belts [, e.g. neck chains, armbands]

with built-in power source

Electromedical brushes; Electromedical massage devices [(massage devices in general A61H; Combs)]

Apparatus for applying thermoelectric currents

Apparatus for iontophoresis, [i.e. transfer of media in ionic state by an electromotoric force into the body], or cataphoresis

Alternating or intermittent currents (applying electric fields by inductive or capacitive coupling A61N 1/40; microwave apparatus A61N 5/02)

[Electromedical belts]

[Electromedical brushes, combs, massage devices]

[Interference currents, i.e. treatment by several currents summed in the body]

[for iontophoresis, i.e. transfer of media in ionic state by an electromotoric force into the body (electrodes for external use A61N 1/0428)]

[for promoting growth of cells, e.g. bone cells]
[for enhancing the absorption properties of tissue, e.g. by electroporation]

[for improving the appearance of the skin, e.g. facial toning or wrinkle treatment]

for stimulation

WARNING

Group A61N 1/36 is impacted by recategorization into group A61N 1/36002. Groups A61N 1/36 and A61N 1/36002 should be considered in order to perform a complete search.

Cancer treatment, e.g. tumour

WARNING

Group A61N 1/36002 is incomplete pending recategorization of documents from group A61N 1/36.

Groups A61N 1/36002 and A61N 1/36 should be considered in order to perform a complete search.

[of motor muscles, e.g. for walking assistance]

[of urogenital or gastrointestinal organs, e.g. for incontinence control]

[of respiratory organs]

[External stimulators, e.g. with patch electrodes (external pacemakers A61N 1/3625)]

WARNING

Group A61N 1/36014 is impacted by recategorization into groups A61N 1/3603, A61N 1/36031 and A61N 1/36034. All groups listed in this Warning should be considered in order to perform a complete search.

[with leads or electrodes penetrating the skin]

(for treatment of pain)

(for treating a mental or cerebral condition)

(for aversion therapy)

[Control systems]

WARNING

Group A61N 1/3603 is incomplete pending recategorization of documents from groups A61N 1/08, A61N 2001/083 and A61N 1/36014. All groups listed in this Warning should be considered in order to perform a complete search.

[adapted for vagal stimulation (A61N 1/36114 takes precedence)]

[adapted for stimulating afferent nerves]
A61N

1/3606 . . . . . . {adapted for a particular treatment}

WARNING

Group A61N 1/3606 is impacted by reclassification into group A61N 1/36062.
Groups A61N 1/3606 and A61N 1/36062 should be considered in order to perform a complete search.

1/36062 . . . . . . {Spinal stimulation}

WARNING

Group A61N 1/36062 is incomplete pending reclassification of documents from group A61N 1/3606.
Groups A61N 1/36062 and A61N 1/3606 should be considered in order to perform a complete search.

1/36064 . . . . . . {Epilepsy}

1/36067 . . . . . . {Movement disorders, e.g. tremor or Parkinson disease (stimulating motor muscle A61N 1/36003)}

1/36071 . . . . . . {Pain}

1/36075 . . . . . . {Headache or migraine}

1/36078 . . . . . . {Inducing or controlling sleep or relaxation (non-implantable stimulator A61M 21/00)}

1/36082 . . . . . . {Cognitive or psychiatric applications, e.g. dementia or Alzheimer's disease}

1/36085 . . . . . . {Eating disorders or obesity}

1/36089 . . . . . . {Addiction or withdrawal from substance abuse such as alcohol or drugs}

1/36092 . . . . . . {Mental training}

1/36096 . . . . . . {Mood disorders, e.g. depression, anxiety or panic disorder}

1/361 . . . . . . {Phantom sensations, e.g. tinnitus}

1/36103 . . . . . . {Neuro-rehabilitation; Repair or reorganisation of neural tissue, e.g. after stroke}

1/36107 . . . . . . {Sexual dysfunction (stimulating genital organs A61N 1/36007)}

1/3611 . . . . . . {Respiration control (stimulating respiratory organs A61N 1/3601)}

1/36114 . . . . . . {Cardiac control, e.g. by vagal stimulation (stimulating the heart A61N 1/362)}

1/36117 . . . . . . {for treating hypertension}

1/36121 . . . . . . {Production of neurotransmitters; Modulation of genes expression}

1/36125 . . . . . . {Details of circuitry or electric components}

1/36128 . . . . . . {Control systems}

1/36132 . . . . . . {using patient feedback}

1/36135 . . . . . . {using physiological parameters}

WARNING

Group A61N 1/36135 is impacted by reclassification into group A61N 1/3614.
Groups A61N 1/36135 and A61N 1/3614 should be considered in order to perform a complete search.

1/36139 . . . . . . {with automatic adjustment}

1/3614 . . . . . . {based on impedance measurement}

WARNING

Group A61N 1/3614 is incomplete pending reclassification of documents from group A61N 1/36135.
Groups A61N 1/3614 and A61N 1/36135 should be considered in order to perform a complete search.

1/36142 . . . . . . {for improving safety}

1/36146 . . . . . . {specified by the stimulation parameters}

1/3615 . . . . . . {Intensity}

1/36153 . . . . . . {Voltage (A61N 1/3616 takes precedence)}

WARNING

Group A61N 1/36153 is impacted by reclassification into group A61N 1/3616.
Groups A61N 1/36153 and A61N 1/3616 should be considered in order to perform a complete search.

1/36157 . . . . . . {Current (A61N 1/3616 takes precedence)}

WARNING

Group A61N 1/36157 is impacted by reclassification into group A61N 1/3616.
Groups A61N 1/36157 and A61N 1/3616 should be considered in order to perform a complete search.

1/3616 . . . . . . {Voltage density or current density}

WARNING

Group A61N 1/3616 is incomplete pending reclassification of documents from groups A61N 1/36153 and A61N 1/36157.
Groups A61N 1/3616, A61N 1/36153, and A61N 1/36157 should be considered in order to perform a complete search.
1/362 . . . . . . Heart stimulators (heart defibrillators A61N 1/37)

**WARNING**

Group A61N 1/362 is impacted by reclassification into group A61N 1/3629.

Groups A61N 1/362 and A61N 1/3629 should be considered in order to perform a complete search.

1/3621 . . . . . [for treating or preventing abnormally high heart rate]
1/3622 . . . . . [comprising two or more electrodes cooperating with different heart regions]
1/3624 . . . . . [occurring in the atrium, i.e. atrial tachycardia]
1/3625 . . . . . [External stimulators]
1/3627 . . . . . [for treating a mechanical deficiency of the heart, e.g. congestive heart failure or cardiomyopathy]
1/3628 . . . . . [using sub-threshold or non-excitatory signals]
1/3629 . . . . . [in combination with non-electric therapy]

**WARNING**

Group A61N 1/3629 is incomplete pending reclassification of documents from group A61N 1/362.

Groups A61N 1/3629 and A61N 1/362 should be considered in order to perform a complete search.

1/365 . . . . . controlled by a physiological parameter, e.g. heart potential {evoked response A61N 1/371}]
1/36507 . . . . . [controlled by gradient or slope of the heart potential]
1/36514 . . . . . [controlled by a physiological quantity other than heart potential, e.g. blood pressure (controlled by two or more physical parameters A61N 1/3685)]
1/36521 . . . . . [the parameter being derived from measurement of an electrical impedance]
1/36528 . . . . . [the parameter being measured by means of ultrasound]
1/36535 . . . . . [controlled by body position or posture]
1/36542 . . . . . [controlled by body motion, e.g. acceleration]
1/3655 . . . . . [controlled by body or blood temperature]
1/36557 . . . . . [controlled by chemical substances in blood]
1/36564 . . . . . [controlled by blood pressure]
1/36571 . . . . . [controlled by blood flow rate, e.g. blood velocity or cardiac output]
1/36578 . . . . . [controlled by mechanical motion of the heart wall, e.g. measured by an accelerometer or microphone]
1/36585 . . . . . [controlled by two or more physical parameters]
1/36592 . . . . . [controlled by the heart rate variability]
1/368 . . . . . comprising more than one electrode cooperating with different heart regions \( (\text{A61N } 1/3622, \text{A61N } 1/3627\text{ take precedence})\)
1/3682 . . . . . [with a variable atrioventricular delay]
1/3684 . . . . . [for stimulating the heart at multiple sites of the ventricle or the atrium]

**WARNING**

Group A61N 1/3684 is impacted by reclassification into groups A61N 1/36842 and A61N 1/36843.

Groups A61N 1/3684, A61N 1/36842 and A61N 1/36843 should be considered in order to perform a complete search.

1/36842 . . . . . [Multi-site stimulation in the same chamber]

**WARNING**

Group A61N 1/36842 is incomplete pending reclassification of documents from group A61N 1/3684.

Groups A61N 1/36842 and A61N 1/3684 should be considered in order to perform a complete search.

1/36843 . . . . . [Bi-ventricular stimulation]

**WARNING**

Group A61N 1/36843 is incomplete pending reclassification of documents from group A61N 1/3684.

Groups A61N 1/36843 and A61N 1/3684 should be considered in order to perform a complete search.

1/3686 . . . . . [configured for selecting the electrode configuration on a lead \( (\text{A61N } 1/3688\text{ takes precedence})\)]
1/3688 . . . . . [configured for switching the pacing mode, e.g. from AAI to DDD]
1/37 . . . . . Monitoring; Protecting
1/3702 . . . . . [Physiological parameters \( (\text{A61N } 1/365\text{ takes precedence; evoked response A61N } 1/371)\)]
Circuits specially adapted therefor, e.g. for sensitivity control

Pacemaker parameters (stimulation threshold A61N 1/371)

for power depletion

Capture, i.e. successful stimulation

Auto-capture, i.e. automatic adjustment of the stimulation threshold

Atrial capture

with reduction of residual polarisation effects

Monitoring of or protection against external electromagnetic fields or currents

Arrangements in connection with the implantation of stimulators

Microstimulators, e.g. implantable through a cannula

Means for communicating with stimulators

characterised by the communication link, e.g. acoustic or tactile

Circuits for electromagnetic coupling

Shape or location of the implanted or external antenna

Aspects of the external programmer

providing test stimulations

User interfaces, e.g. input or presentation means

Details of algorithms or data aspects of communication system, e.g. handshaking, transmitting specific data or segmenting data

Pacemakers

Brain implants

Intravascular implants

Anchoring of the implants, e.g. fixation

Alerting the patient

Changing the program; Upgrading firmware

characterised by the modulation technique

(characterised by means for reducing power consumption during telemetry)

(characterised by communication with experts in remote locations using a network)

Communication to several implantable medical devices within one patient

Means for testing medical devices within the package prior to implantation

Pacemaker or defibrillator security, e.g. to prevent or inhibit programming alterations by hackers or unauthorised individuals

Details of casing-lead connections

Feedthroughs

Casings with electrodes thereon, e.g. leadless stimulators

WARNING

Group A61N 1/375 is impacted by reclassification into groups A61N 1/37512, A61N 1/37514, A61N 1/37516 and A61N 1/37518.

All groups listed in this Warning should be considered in order to perform a complete search.

Brain implants

Intravascular implants

Anchoring of the implants, e.g. fixation

Details of casing-lead connections

Feedthroughs

Casings with electrodes thereon, e.g. leadless stimulators

Group A61N 1/37512 is incomplete pending reclassification of documents from group A61N 1/375.

Groups A61N 1/37512 and A61N 1/375 should be considered in order to perform a complete search.

Group A61N 1/37514 is incomplete pending reclassification of documents from group A61N 1/375.

Groups A61N 1/37514 and A61N 1/375 should be considered in order to perform a complete search.

Group A61N 1/37516 is incomplete pending reclassification of documents from group A61N 1/375.

Groups A61N 1/37516 and A61N 1/375 should be considered in order to perform a complete search.

Group A61N 1/37518 is incomplete pending reclassification of documents from group A61N 1/375.

Groups A61N 1/37518 and A61N 1/375 should be considered in order to perform a complete search.
1/3962 . . . . . . . {in combination with another heart therapy}

**WARNING**

Group A61N 1/3962 is impacted by reclassification into groups A61N 1/39622 and A61N 1/39624.

Groups A61N 1/39622 and A61N 1/39624 should be considered in order to perform a complete search.

1/39622 . . . . . . . [Pacing therapy]

**WARNING**

Group A61N 1/39622 is incomplete pending reclassification of documents from group A61N 1/3962.

Groups A61N 1/39622 and A61N 1/3962 should be considered in order to perform a complete search.

1/39624 . . . . . . . [Pain reduction therapy]

**WARNING**

Group A61N 1/39624 is incomplete pending reclassification of documents from group A61N 1/3962.

Groups A61N 1/39624 and A61N 1/3962 should be considered in order to perform a complete search.

1/3968 . . . . . . . {Constructional arrangements, e.g. casings (A61N 1/375 takes precedence)}
1/3975 . . . . . . . {Power supply (A61N 1/378 takes precedence)}
1/3981 . . . . . . . [High voltage charging circuitry]
1/3987 . . . . . . . [characterised by the timing or triggering of the shock]
1/3993 . . . . . . . [User interfaces for automatic external defibrillators]

1/40 . Applying electric fields by inductive or capacitive coupling (microwave apparatus A61N 5/00); [Applying radio-frequency signals]
1/403 . . . . . {for thermotherapy, e.g. hyperthermia}
1/406 . . . . . {using implantable thermoseeds or injected particles for localized hyperthermia (preparations of seeds and particles A61K 41/0052)}

1/44 . Applying ionised fluids {ion generators H01I 37/00}
1/445 . . . . . [Hydro-eleectric baths]

2/00 Magnetotherapy

2/002 . . . . . {in combination with another treatment}
2/004 . . . . . {specially adapted for a specific therapy}
2/006 . . . . . {for magnetic stimulation of nerve tissue}
2/008 . . . . . {for pain treatment or analgesia}
2/02 . . . . . {using magnetic fields produced by coils, including single turn loops or electromagnets (A61N 2/12 takes precedence)}
A61N

Radiation therapy (ultrasound therapy A61N 7/00; devices or apparatus applicable to both therapy and diagnosis A61B 6/00)

5/00

2005/002 . . . [Cooling systems]
2005/005 . . . [for cooling the radiator]
2005/007 . . . [for cooling the patient]
5/01 . . . Devices for producing movement of radiation source during therapy ((A61N 5/1077 takes precedence))
5/02 . . . using microwaves
5/022 . . . {Apparatus adapted for a specific treatment}
5/025 . . . [Warming the body, e.g. hyperthermia treatment]
2005/027 . . . {using a phased array}
5/04 . . . Radiators for near-field treatment
5/045 . . . {specially adapted for treatment inside the body}
5/06 . . . using light
5/0601 . . . {Apparatus for use inside the body}
2005/0602 . . . [treatment of blood vessels]
5/0603 . . . [for treatment of body cavities]
2005/0604 . . . [Lungs and/or airways]
5/0605 . . . [Ear]
5/0606 . . . [Mouth]
5/0607 . . . [Nose]
5/0608 . . . [Rectum]
5/0609 . . . [Stomach and/or esophagus]
5/061 . . . [Bladder and/or urethra]
5/0611 . . . [Vagina]
2005/0612 . . . {using probes penetrating tissue; interstitial probes}
5/0613 . . . {Apparatus adapted for a specific treatment}
5/0614 . . . [Tanning]
2005/0615 . . . {using UV light sources having a specific spectrum}
5/0616 . . . [Skin treatment other than tanning]
5/0617 . . . [Hair treatment]
5/0618 . . . [Psychological treatment]
5/0619 . . . [Acupuncture]
5/062 . . . {Photodynamic therapy, i.e. excitation of an agent]
5/0621 . . . [Hyperbilirubinemia, jaundice treatment]
5/0622 . . . [Optical stimulation for exciting neural tissue]
5/0624 . . . {for eliminating microbes, germs, bacteria on or in the body}
5/0625 . . . [Warming the body, e.g. hyperthermia treatment]
2005/0626 . . . {Monitoring, verifying, controlling systems and methods}
2005/0627 . . . [Dose monitoring systems and methods]
2005/0628 . . . {including a radiation sensor]
2005/0629 . . . [Sequential activation of light sources]
2005/063 . . . {comprising light transmitting means, e.g. optical fibres]
2005/0631 . . . [using crystals]
2005/0632 . . . {Conventional aspects of the apparatus}
2005/0633 . . . {Arrangements for lifting or hinging the frame which supports the light sources]
Monitoring, verifying, controlling systems and within the treatment head

with spatial modulation of the radiation beam for verifying the position of the patient with modulated radiation therapy or IMRT using a multi-leaf collimator, e.g. for intensity scanning or raster scanning

Scanning the radiation beam, e.g. spot using a library of previously administered radiotherapy

with multiple repetitions of the scanning pattern

with a multi-leaf collimator, e.g. for intensity modulated radiation therapy or IMRT

with movement of the radiation head during application of radiation, e.g. for intensity modulated arc therapy or IMAT

Monitoring, verifying, controlling systems and methods

for verifying the position of the patient with respect to the radiation beam

using a laser alignment system

using an active marker (markers in general A61B 90/39)

using positron emission tomography [PET] single photon emission computer tomography [SPECT] imaging

using a portal imaging system

using magnetic resonance imaging [MRI]

by projecting a visible image of the treatment field

monitoring flexing of the patient support or the radiation treatment apparatus

using ultrasound imaging

using cameras imaging the patient

[Intracavitary radiation therapy]

[Treatment of resected cavities created by surgery, e.g. lumpectomy]

[Gynaecological radiation therapy]

[Treatment of the eye, e.g. for "macular degeneration"]

[with multiple channels for guiding radioactive sources]

[Sources therefor]

[Radioactive fluid]

[Generators, e.g. X-ray tubes]

[Means for creating a row of seeds, e.g. spacers]

[Seeds]

[Wires]

[Interstitial radiation therapy]

[using radiation sources applied onto the body]

[Radioactive dressings]

[Treatment planning systems]

[using a specific method of dose optimization]

[Genetic optimization methods]

[Monte Carlo type methods; particle tracking]

[Simulated annealing]

[Leaf sequencing algorithms]

[taking into account the movement of the target, e.g. 4D-image based planning]

[taking into account previously administered plans applied to the same patient, i.e. adaptive radiotherapy]

[using functional images, e.g. PET or MRI]

[using a library of previously administered radiation treatment applied to other patients]

[with spatial modulation of the radiation beam within the treatment head]

[Scanning the radiation beam, e.g. spot scanning or raster scanning]

[with multiple repetitions of the scanning pattern]

[using a multi-leaf collimator, e.g. for intensity modulated radiation therapy or IMRT]

[with movement of the radiation head during application of radiation, e.g. for intensity modulated arc therapy or IMAT]

[Monitoring, verifying, controlling systems and methods]

[for verifying the position of the patient with respect to the radiation beam]

[using a laser alignment system]

[using an active marker (markers in general A61B 90/39)]

[using positron emission tomography [PET] single photon emission computer tomography [SPECT] imaging]

[using a portal imaging system]

[using magnetic resonance imaging [MRI]]

[by projecting a visible image of the treatment field]

[monitoring flexing of the patient support or the radiation treatment apparatus]

[using ultrasound imaging]

[using cameras imaging the patient]

[using an x-ray imaging system having a separate imaging source]

[using virtual X-ray images, e.g. digitally reconstructed radiographs [DRR]]

[maintaining the position when the patient is moved from an imaging to a therapy system]

[for adjusting radiation treatment in response to monitoring]

[Beam adjustment]

[in real time, i.e. during treatment]

[Gating the beam as a function of a physiological signal]

[Target adjustment, e.g. moving the patient support]

[in real time, i.e. during treatment]

[for verifying the dose delivered by the treatment plan]

[taking into account movement of the target]

[Details of the control system, e.g. user interfaces]

[for testing, calibrating, or quality assurance of the radiation treatment apparatus]

[using a dummy object placed in the radiation field, e.g. phantom]

[Beam delivery systems]

[Fixed beam systems]

[Sharing a beam by multiple treatment stations]

[Rotating beam systems with a specific mechanical construction, e.g. gantries]

[having multiple beam rotation axes]

[Robot arm beam systems]

[for delivering multiple intersecting beams at the same time, e.g. gamma knives]

[characterised by the type of particles applied to the patient]

[Ions; Protons]

[generated by laser radiation]

[Electrons]

[Neutrons]

[Kilovoltage or orthovoltage range photons]

[Details]

[Shielding, protecting against radiation]

[Elements inserted into the radiation path within the system, e.g. filters or wedges]

[Elements inserted into the radiation path placed on the patient, e.g. bags, bolus, compensators]

[Means for immobilizing the patient]

[Enhancing the effect of the particle by an injected agent or implanted device]
(Skin treatment)

[using microbubbles]

[intra-cavitary]

[interstitial]

(using the same transducer for therapy and imaging)

[Beam shaping elements]

[Lenses]

[Concave transducers]

[Reflectors]

[using multiple frequencies]

[with multiple treatment transducers]

[Scanning transducers]

[Beam steering]

[with moving parts, e.g. transducers, lenses, reflectors]

(by modifying an excitation signal)

Localised ultrasound hyperthermia (hyperthermia in general A61F 7/00)

[intracavitary]

[interstitial]

[with multiple foci created simultaneously]