

## Glossary of Terms common in UK electrical work

(See later for table of voltage and table of cables)

Term	Description
A/C	Air Conditioning
AC	Alternating Current
ACB	Air Circuit Breaker (typically larger than a MCCB)
ATS	Automatic Transfer Switch (typically for mains to backup supply such as a generator)
BBB	Big Blue Book (informal name for the 18 <sup>th</sup> edition of BS7671:2018 wiring regulations for the UK due to its blue cover and A4 size, other versions were yellow, green, etc).
BC	Bayonet Cap (type of light socket, was UK standard)
BPG	Best Practice Guide (free guidance notes by Electrical Safety Council)
BS	British Standard. Official standards for goods and services in the UK as issued by the BSI (often based on other body's work, such as the IET for wiring, etc)
BS88	British standard covering fuses
BSI	British Standards Institution
BZP	Bright Zinc Plating
CCC	Current-Carrying Capacity
CCTV	Closed-circuit Television (generic term now for video monitoring)
CNE	Common Neutral Earth (the N & E conductor in TN-C systems)
CP	Competent Person (someone with recognised knowledge and experience, here in electrical engineering)
CPC	Circuit Protective Conductor (informally referred to as the "Earth wire" even though it is not usually <b>directly</b> connected to the Earth point).
CPS	Competent Person Scheme (organisations that maintain a register of CP and to make it easier to establish competency, for example NICEIC or SELECT)
CSA	Cross Sectional Area Canadian Standards Association
CU	Consumer Unit (distribution board for domestic electrics)
DB	Distribution Board
DC	Direct Current
DIN	Deutsches Institut für Normung (German standards body, like the BSI in the UK) often used as a shorthand way to reference engineering products originating in Germany such as the mounting rail system used for most MCBs, etc.
DNO	Distribution Network Operator (provider of electrical power infrastructure in the UK)
DP	Dual Pole (2-pole)
EAWR	Electricity at Work Regulations (see <a href="https://www.hse.gov.uk/pubns/priced/hsr25.pdf">https://www.hse.gov.uk/pubns/priced/hsr25.pdf</a> )
ELV	Extra Low Voltage
EM	Electro-Magnetic
EMC	Electro-Magnetic Compatibility (ability of equipment to operate in, and not unduly pollute, a given radio environment)
ES	Edison Screw (type of light socket, was USA standard)
ESQCR	Electricity Safety, Quality and Continuity Regulations
EU	European Union
FCU	Fused Connection Unit
FE	Functional Earth (e.g. for EMC filter or fault monitoring)
GDT	Gas Discharge Tube (type of SPD)
GFCI	Ground Fault Circuit Interrupter (American term for RCD)

Term	Description
GN1...8	Guidance Notes number 1 to 8 (publications by the IET elaborating on the wiring regulations)
GS38	UK guidance on safe electrical test equipment (see <a href="https://www.hse.gov.uk/pubns/priced/gs38.pdf">https://www.hse.gov.uk/pubns/priced/gs38.pdf</a> )
HRC	High Rupture Capacity (of a fuse, typically using a sand-filled ceramic body)
LRC	Low Rupture Capacity (typically glass)
HV	High Voltage
HVAC	Heating, Ventilation and Air Conditioning
I&T	Inspection and Test
IEC	International Electrotechnical Commission (often used as short hand for connectors based on those standards, e.g. the “kettle lead” in the UK)
IEE	Institution of Electrical Engineers, they became the IET in 2006.
IEEE	Institute of Electrical and Electronics Engineers, the USA professional body for electrical/electronic engineers.
IET	Institution of Engineering and Technology Formed in 2006 from two separate institutions: the Institution of Electrical Engineers (IEE) and the Institution of Incorporated Engineers.
IR	Insulation Resistance (of electrical testing) Infrared (of light)
ISITEE	In-Service Inspection and Testing of Electrical Equipment (was PAT before 5 <sup>th</sup> edition)
IT	Information Technology (computers and related equipment) Isolé-Terre (of power supply, from the French for isolated from Earth) where there is no low-impedance connection to the Earth. Typically used only in medical systems or ships where it is important to survive a single-fault condition and where competent (electrically speaking) monitoring is always present.
LED	Light Emitting Diode
LSZH	Low Smoke Zero Halogen (generally referring to cable that does not produce toxic fumes under fire conditions, unlike traditional PVC, now a requirement in certain installations)
LV	Low Voltage
MCB	Miniature Circuit Breaker
MCCB	Moulded Case Circuit Breaker (larger and higher current capability than MCBs)
MES	Medium Edison Screw (type of lamp base)
MICC	Mineral Insulated Copper Clad (type of cable famous for long life and high temperature capability, formally the norm for alarm and critical control systems)
MOV	Metal Oxide Varistor (type of SPD)
MV	Medium Voltage (typically 1-35kV)
NFPA	National Fire Protection Association (original authors of the USA’s wiring standard)
NICEIC	National Inspection Council for Electrical Installation Contracting (one of several CPS)
OCPD	Over Current Protective Device (typically a fuse or MCB/MCCB used to limit the duration of any fault current).
OSG	IET On-Site guide (A5 size publication summarising key points from the wiring regulations)
PAT	Portable Appliance Testing (now ISITEE, but still in use even though the “portable” aspect has been dropped to extent coverage to heated towel rails, etc.)
PBJ	Polybutyl Jute (type of cable insulation seen on older supply cables, though not as prone to perishing as VIR)
PC	Personal Computer (generic term, but generally based on the x86 processor family)

Term	Description
PCB	Printed Circuit Board Polychlorinated Biphenyl (highly toxic oil formally in capacitors, transformers, etc, now banned)
PE	Protective Earth (i.e. CPC)
PEFC	Prospective Earth Fault Current
PFC	Prospective Fault Current (typically from phase to earth, but sometimes referring to the highest of the PEFC and PSCC values)
PIR	Passive Infrared (movement detector based on heat)
PME	Protective Multiple Earthing (the combined E & N in TN-C-S systems)
PoE	Power over Ethernet
PPE	Personnel Protective Equipment
PSCC	Prospective Short-Circuit Current
PTC	Positive Thermal Coefficient, a device who's resistance increases with temperature (in particular from self-heating)
PVC	Polyvinyl Chloride (common type of insulation)
QS	Quantity Surveyor
RCBO	Residual Current Breaker with Overload protection (MCB & RCD combined)
RCD	Residual Current Device
RCCB	Residual Current Circuit Breaker
RFC	Ring Final Circuit (common arrangement in the UK for 13A sockets)
RX	Receiver
SELECT	Scottish trade association for the electrical contracting industry (one of several CPS)
SF6	Sulphur Hexafluoride (gas used in high voltage switchgear)
SP	Single Pole
SPD	Surge Protection Device
SWA	Steel Wire Armour
T&E	Twin and Earth (flat sheathed cable used for fixed mains electricity with 2 insulated current carrying conductors and a bare earth conductor)
TN-C	A combined protective earth & neutral conductor fulfils the functions of both a PE and an N conductor. Used for some power distribution but not permitted for final installations in the UK due to the safety risk of an open PEN fault.
TN-C-S	A supply arrangement using TN-C to the supply point of the installation, at which point N & E are separated for TN-S within the installation. Commonly used in the UK where this system is also known as protective multiple earthing. Similar systems in Australia and New Zealand are designated as multiple earthed neutral, and in North America as multi-grounded neutral.
TN-S	The protective earth and neutral are separate conductors that are connected together only near the power source, where that connect to the Earth
TPN	Three Phase and Neutral
TRS	Tough Rubber Sheath (often, but not exclusively, referring to H07RN-F cable)
TT	Terre-Terre, power supply arrangement where the local Earth (terre in French) is used for protective grounding both at the source and at the end user.
TX	Transformer (power engineering) Transmitter (radio or IT)
UL	Underwriters Laboratory (American standard)
UPS	Uninterruptable Power Supply
UV	Ultra Violet

Term	Description
VIR	Vulcanised Indian Rubber (type of cable insulation in common use from around 1910 to the 1960s when PVC took over, often seen to perish and become unsafe after 20 years or so)
XLPE	Cross-linked polyethylene

## Table of Voltages

Electricians and power engineers tend to look at anything below 1kV as “low voltage” as that is usually the final supply to the appliances that utilise the power. This is different to what electronic engineers would consider “low”, or the more general public expectation of a *safe* low voltage!

Term	Description	Voltage Range
ELV	Extra Low Voltage	Usually below 50V AC or 120V ripple-free DC. Often considered safe, except for wet or agricultural locations where 24V AC is often the limit.
SELV	Separated Extra-Low Voltage	An ELV supply that is isolated to “class II” double-insulated standards
PELV	Protected Extra-Low Voltage	An ELV supply that is isolated to “class I” appliance standards so requires a safety earth connection
FELV	Functional Extra-Low Voltage	An ELV supply that is not safely isolated so should be treated as ‘live’
RLV	Reduced Low Voltage	UK building sites and similar high-risk locations typically have portable tools and lighting using 110V (yellow connectors) where single-phase is centre-tapped so 55V to earth, and three-phase is 63V to earth.
LV	Low Voltage	Below 1000V AC or 1500V DC
MV	Medium Voltage	1kV to 35kV
HV	High Voltage	Above LV, or 35kV to 230kV if more specific
EHV	Extra High Voltage	230kV or more

## Table of Cables

There are far too many cables in use to consider here, so this is just a few of the most common types that might be useful. Cables are often given a generic name (e.g. SWA) describing their construction or use-case, they may have the old Cable Makers’ Association codes (e.g. 6242Y), more recently the harmonised cable codes (e.g. H07RN-F), or a standard they are based on (e.g. BS6231).

Unfortunately the generic names often encompass a wide range of cable options, as do many standards where there are several tables of types defined. The old codes have some structure to them (voltage code, 2-number type, number insulated cores, insulation type letter) but without a cheat-sheet are otherwise indecipherable, and while the harmonised codes are precise, again they need an extensive table to understand all of the options.

<https://www.electriciansforums.net/threads/cable-codes-reference-sheet.181044/>

[http://www.batt.co.uk/upload/files/harmonisedcodes\\_1233852348.pdf](http://www.batt.co.uk/upload/files/harmonisedcodes_1233852348.pdf)

Name / Code	Description	Common Use
SWA BS5467 (PVC) BS6724 (LSZH)	One or more insulated conductors, surrounded by the steel wire armouring, and then an overall tough plastic outer.	Fixed wiring, can be buried direct in the ground (though duct makes life easier to change later). Indoor for sub-main cables as no RCD protection needed (even if buried in walls less than 50mm from the surface).
TUFF SHEATH Hi-Tuff NYY-J	PVC insulated copper (single or coarse stranded) with a hard overall PVC sheath (like SWA but without armour).	Fixed wiring where a robust cable is needed, but the additional mechanical protection of SWA is not. To be compliant with UK wiring regulations this has to be in appropriate ducting if buried.
Flexishield BS8436 (UK) IS 273 (Ireland)	Stranded insulated conductors along with a stranded bare drain wire as CPC, surrounded by aluminium foil and tough overall plastic outer.	Fixed indoor wiring where no RCD protection for buried cables below 50mm, laboratories for low noise, outdoor and agriculture use as moderately rodent-resistant.
TRS H07RN-F	Fine stranded conductors with rubber insulation, overall rubber sheath.	Outdoor general use where no major risk of mechanical damage such as lighting. Flexes in wet or oily areas such as power tools in garage, etc. Cables supported by catenary with significant wind flexing.
T&E 6242Y (PVC) 6242B (LSZH)	Twin insulated conductors (3-core also available) with bare reduced-size CPC, overall sheath. <b>Not UV resistant.</b>	Default for UK indoor fixed wiring. While the PVC version is 70C max, the LSZH version is rated to 90C so can be used with some hot appliances like cookers that rarely move.
6491X (PVC) 6491B (LSZH)	Single or stranded copper with overall insulating layer.	Fixed wiring in trunking or conduit.
6181Y	Single core (generally stranded) conductor, PVC primary insulation, and an overall protective sheath.	Fixed wiring with exposed single conductor such as meter tails.
Tri-rated BS6231	Single fine stranded conductor with overall insulating cover. The “tri-rated” name comes from being compliant with BS (UK), UL (USA), and CSA (Canada) standards.	Control panels where assemblies must flex for maintenance access, fixed wiring in trunking or conduit, switchgear assemblies, etc. Much easier to wrangle the larger sizes than 6491X, etc, and rated to 105C (if surrounding parts are), but usually need ferrule for termination.
3183Y H05VV-F	Fine stranded conductors, PVC insulated, with PVC outer sheath. Typically white, black, or orange outer colours available, but generally <b>not</b> UV resistant.	General purpose indoor cable for appliance flex, extension leads, etc.
Arctic flex 3183A	Fine stranded conductors, PVC insulated, with PVC outer sheath. Often blue or yellow outer colour.	General purpose flex for indoor and some outdoor use, often flexible to -15C and usable down to -40C.