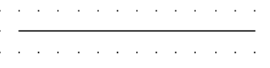
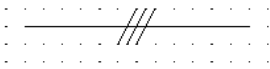
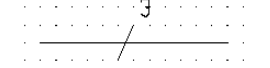
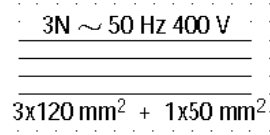

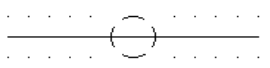
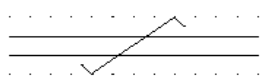
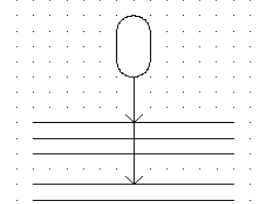
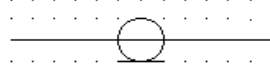
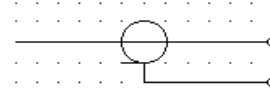
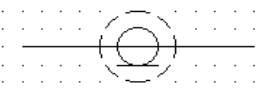

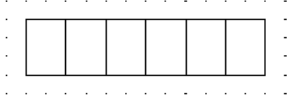

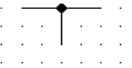
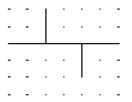
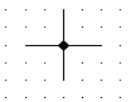
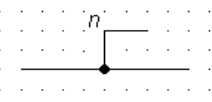
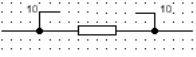
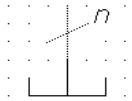
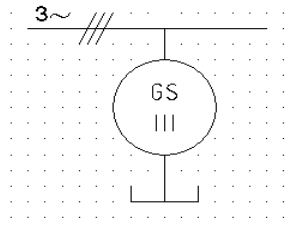
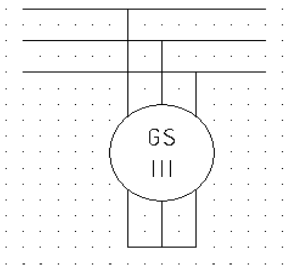


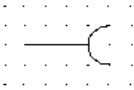

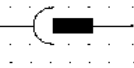
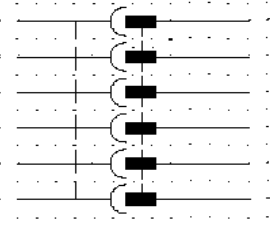
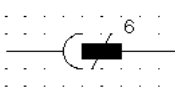
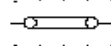
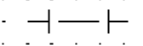
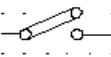


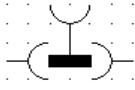
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Connection, General Symbol Alternative: Conductor; Cable; Line; Transmission Path; Telecommunication Line.	Levels are in place indicating the type of conductor: Power_Cable,
	Group of Connections (Number of Connections Indicated)(form 1)	3 Phases / 3 Connections
	Group of Connections (Number of Connections Indicated) (form 2)	3 Phases / 3 Connections
	3-Phase Circuit	Additional Information may be indicated
	Flexible Connection	Used as trailing cable symbology
	Screened Conductor	
	Twisted Connection	Two connections shown
	Conductors in a Cable	Five conductors, two of which marked by arrowheads are in one cable.
	Coaxial Pair	
	Coaxial Pair Connected to Terminals	
	Coaxial Pair with screen	

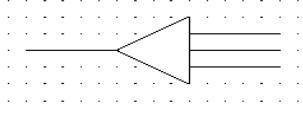
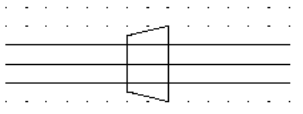
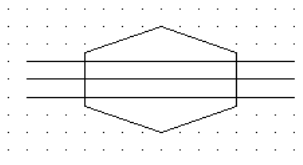
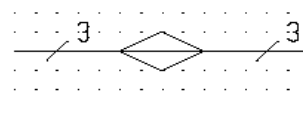
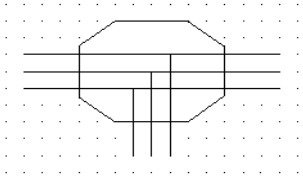
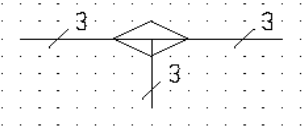
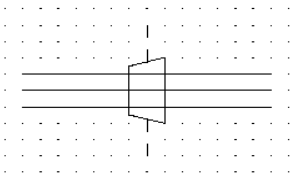
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Terminal	
	Terminal Strip	
	T-Connection (form 1)	
	T-Connection (form 2)	Shown with junction symbol.
	Double junction of conductors (form 1)	
	Double junction of conductors (form 2)	
	Branching	
	Neutral Point	
	Neutral point of a generator (single-line representation)	
	Neutral point of a generator (multi-line representation)	



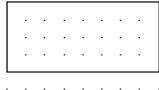


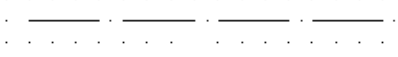
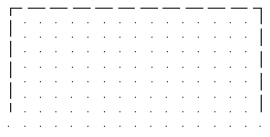






## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Contact, female(of a socket or plug) Socket	
	Contact, male (of a socket or plug) Plug	
	Plug and socket	
	Plug and socket, multipole (multi-line representation)	
	Plug and socket, multipole (multi-line representation)	
	Connecting link, closed Test terminal, twin stud type (form 1)	
	Connecting link, closed (form2)	
	Connecting link, open	
	Plug and socket-type connector, male-male U-link	
	Plug and socket-type connector, male-female U-link	
	Plug and socket-type connector, male-male with socket access	

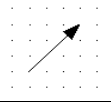
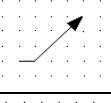
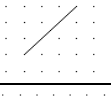
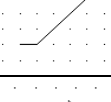
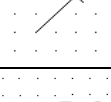
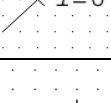
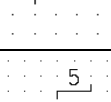
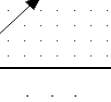
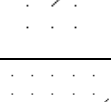
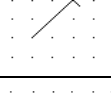
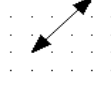
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Cable sealing end (multi-core cable)	
	Cable sealing end (one-core cable)	
	Straight-through joint box (multi-line representation)	
	Straight-through joint box (single-line representation)	
	Junction box (multi-line representation)	
	Junction box (single-line representation)	
	Pressure-tight bulkhead cable gland	

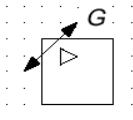
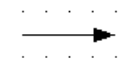



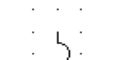




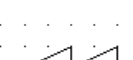


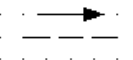
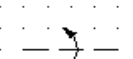
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Triode thyristor, type unspecified	
	Object Equipment: Device, Functional unit, Component, Function (form 1)	
	Object Equipment: Device, Functional unit, Component, Function (form 2)	
	Object Equipment: Device, Functional unit, Component, Function (form 3)	
	Envelope (form 2)	
	Boundary	
	Shield	
	Protection against unintentional direct contact, general symbol	
	Alternating Current (form 1)	Replacing S00067
~ 50 Hz	Alternating current (indication of frequency)	Shown for alternating current of 50 Hz.
	Alternating Current (Indication of frequency range: low) Different frequency ranges. Relatively low frequencies (power frequencies or sub-audio frequencies)	
	Alternating Current (indication of frequency range: medium) Different frequency ranges. Medium frequencies (audio)	
	Alternating Current (indication of frequency range: high) Different frequency ranges. Relatively high frequencies (super audio, carrier)	
	Rectifier current with alternating component	

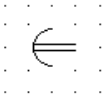
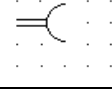
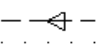
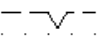

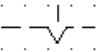
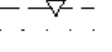

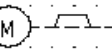
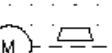

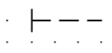
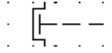
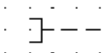
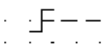
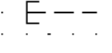
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
+	Positive polarity	
-	Negative polarity	
N	Neutral	
M	Mid-wire	
	Adjustability, general symbol	
	Adjustability, non-linear	
	Variability, general symbol	
	Variability, non-linear	
	Adjustability, pre-set	
	Pre-set adjustability	
	Action in steps	
	Adjustability step by step	5 steps shown.
	Continuous variability	
	Continuous variability pre-set Pre-set adjustment, continuously variable	
	Automatic control	

## IEC 60617 SYMBOLS

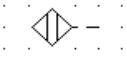
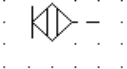
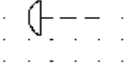
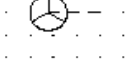
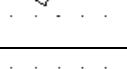
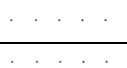
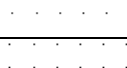
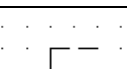
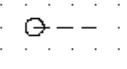
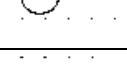
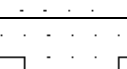
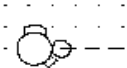


IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Amplifier with automatic gain control	
	Rectilinear motion (unidirectional) Force; Unidirectional, in the direction of the arrowhead	
	Rectilinear motion (bidirectional) Force	
	Oscillating motion	
	Thermal effect	
	Electromagnetic effect	
	Magnetostrictive effect	
	Radiation, electromagnetic, non-ionizing Light	
	Step function, positive going	
	Step function, negative going	
	Saw-tooth wave	
	Facsimile	
	Link Mechanical link, pneumatic link, hydraulic link, optical link, functional link, radio link	
	Mechanical link (force or motion) Link, mechanical ; Mechanical link with indication of direction of force or motion	
	Mechanical link (rotation) Link, mechanical; Mechanical link with indication of direction of rotation.	

## IEC 60617 SYMBOLS


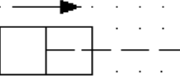




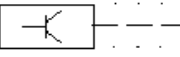
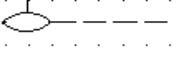
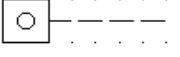
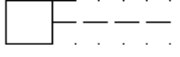
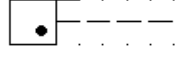
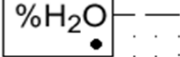
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Delayed action Action, delayed (form 1)	
	Delayed action Action, delayed (form 2)	
	Automatic return	
	Detent Non-automatic return; Return, non-automatic; Device for maintaining a given position	
	Detent, disengaged	
	Detent, engaged	
	Mechanical interlock Interlock, mechanical; Mechanical interlock between two devices	
	Brake	
	Brake, applied Electric motor with brake applied.	
	Brake, released Electric motor with brake released	
	Gearing	
	Actuator, manual, general symbol	
	Actuator, manual (Protected) Manual actuator protected against unintentional operation	
	Actuator (operated by pulling)	
	Actuator (operated by pulling)	
	Actuator (operated by pushing)	




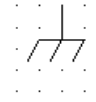
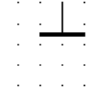
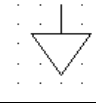


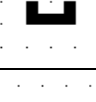
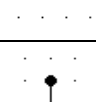
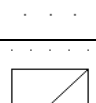
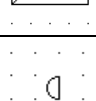
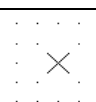
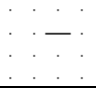


## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Actuator (operated by proximity effect)	
	Actuator (operated by touching)	
	Actuator, emergency Emergency actuator, type "mushroom-head"	
	Actuator (operated by handwheel)	
	Actuator (operated by pedal)	
	Actuator (operated by lever)	
	Actuator (operated by removable handle)	
	Actuator (operated by key)	
	Actuator (operated by crank)	
	Actuator (operated by roller)	
	Actuator (operated by cam)	
	Actuator (operated by cam/cam profile)	
	Actuator (operated by cam/profile plate)	
	Actuator (operated by cam and roller)	

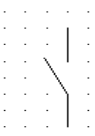
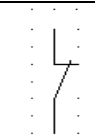

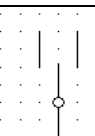
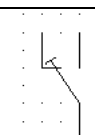






## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Actuator (operated by stored mechanical energy)	
	Actuator (actuated by pneumatic or hydraulic power/single action) Single acting actuator	
	Actuator (actuated by pneumatic or hydraulic power/double action) Double acting actuator	
	Actuator (actuated by electromagnetic effect)	
	Actuator (operated by electric motor)	
	Actuator (operated by electric clock)	
	Actuator (semiconductor) Semiconductor actuator	
	Actuator (actuated by liquid level)	
	Actuator (actuated by a counter)	
	Actuator (actuated by fluid flow)	
	Actuator (actuated by gas flow)	
	Actuator (actuated by relative humidity)	

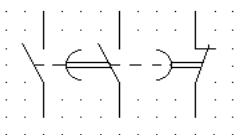
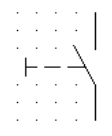

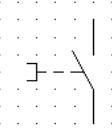
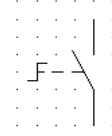
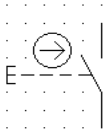
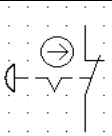

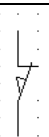
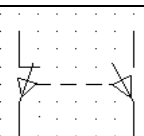
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Earth, general symbol Earthing, general symbol; Ground (US), general symbol; Grounding (US), general symbol	
	Functional equipotential bonding Functional bonding conductor; Functional bonding terminal	
	Functional equipotential bonding Functional bonding conductor; Functional bonding terminal Simplified form	
	Protective equipotential bonding Protective bonding conductor; Protective bonding terminal	
	Fault Indication of assumed fault location	
	Flashover Break-through	
	Permanent Magnet Magnet, permanent	
	Movable contact Sliding contact	
	Test point indicator	
	Converter, general symbol Power converter; Signal converter; Measuring transducer; Repeater	
	Contactor function	
	Circuit breaker function	
	Disconnecter (isolator) function	
	Switch-disconnector function Isolating-switch function	

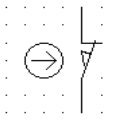
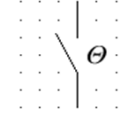
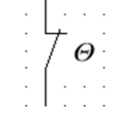
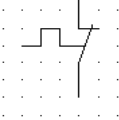
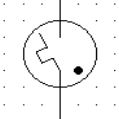
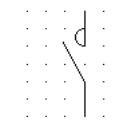
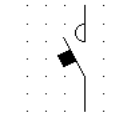
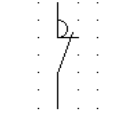
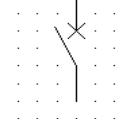
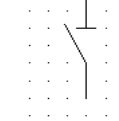
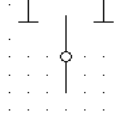
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Make contact, general symbol, switch, general symbol	
	Break contact	
	Change-over break before make contact	
	Change-over contact with off-position	
	Change-over make before break contact, both ways (form 1)	
	Change-over make before break contact, both ways (form 1)	
	Make contact delayed closing	
	Make contact delayed opening	
	Make contact, delayed opening	
	Break contact, delayed closing	
	Make contact, delayed	

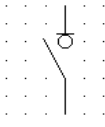
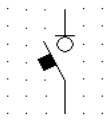
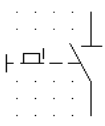
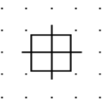
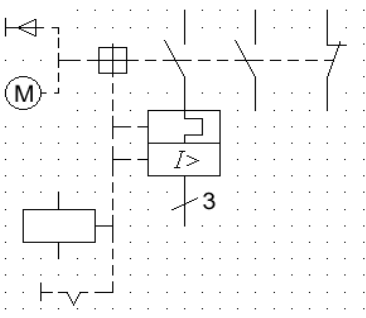
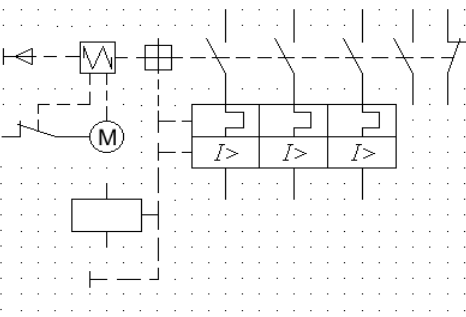
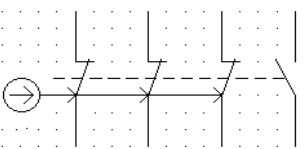
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Contact assembly	
	Switch, manually operated, general symbol	
	Switch, manually operated, push-button, automatic return	
	Switch, manually operated, pulling, automatic return	
	Switch, manually operated, turning, stay-put	
	Switch, manually operated with positive operation, push-button, automatic return Alarm switch	
	Switch, emergency stop	
	Position switch, make contact	
	Position switch, break contact	
	Position switch assembly	



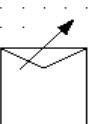



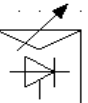
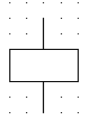
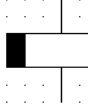
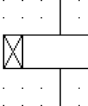
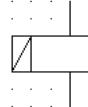
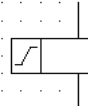
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Position switch, break contact, positive operation Limit switch	
	Temperature sensitive switch, make contact	
	Temperature sensitive switch, break contact	
	Thermal switch, self-operating, break contact Bimetal break contact	
	Gas discharge tube with thermal element Starter for fluorescent lamp	
	Contactor; Main make contact of a contactor	
	Contactor with automatic tripping	
	Contactor, main break contact of a contactor	
	Circuit Breaker	
	Disconnect, Isolator	
	Two-way disconnect, Two-way isolator	

## IEC 60617 SYMBOLS

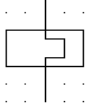
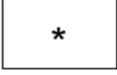




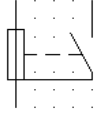
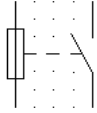
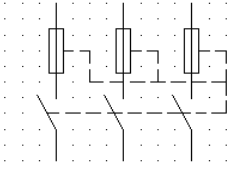



IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Switch-disconnector, On-load isolating switch	
	Switch-disconnector, automatic release, On-load isolating switch, automatic release	
	Disconnecting device, Isolator	
	Trip-free mechanism	
	Trip-free mechanism, application	
	Mechanical switching device, three-pole	
	Switch with positive opening	

## IEC 60617 SYMBOLS

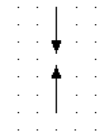
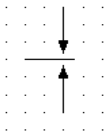
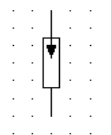
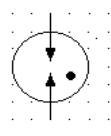
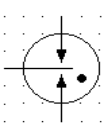
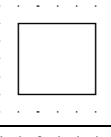
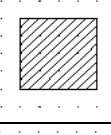
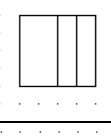
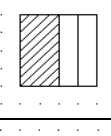
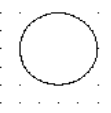
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Motor starter, general symbol	
	Starter operating in steps	
	Starter-regulator	
	Direct-on-line starter, reversing	
	Star-delta starter	
	Starter with auto-transformer	
	Starter-regulator with thyristor	
	Operating device, general symbol; Relay coil, general symbol Operating coil of a selector (form 1)	
	Relay coil of a slow-releasing relay	
	Relay coil of a slow-operating relay	
	Relay coil of a remanent relay (form 1)	
	Relay coil of a remanent relay (form 2)	



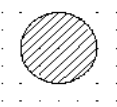
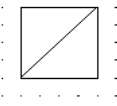
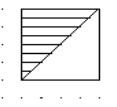
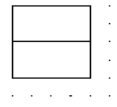
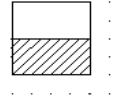
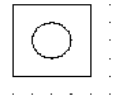
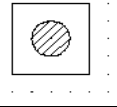
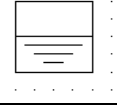
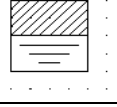
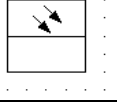
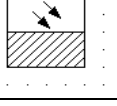
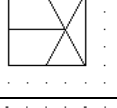
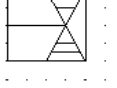
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Operating device of a thermal relay	
	Measuring relay, Device related to a measuring relay	
	Voltage failure to frame; Frame potential in case of fault	
	Earth fault current	
	Fuse, general symbol	
	Fuse ; strike fuse	With mechanical linkage.
	Fuse with alarm contact	
	Fuse with separate alarm	
	Three-pole switch with striker fuses	
	Fuse-switch	
	Fuse-disconnector; Fuse isolator	
	Fuse switch-disconnector; On-load isolating fuse switch	

## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Spark gap	
	Spark gap, double	
	Surge diverter; Lightning arrester	
	Protective gas discharge tube	
	Protective gas discharge tube, symmetric	
	Generating station, planned	
	Generating station, in service or unspecified	
	Combined electric and heat generated station, planned	
	Combined electric and heat generating station, in service or unspecified	
	Substation, planned	


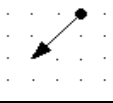
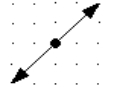

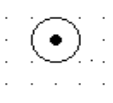
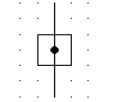
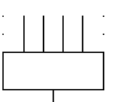
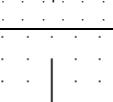
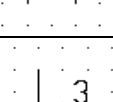

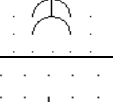
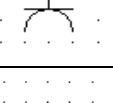
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Substation, in service or unspecified	
	Hydroelectric generating station, planned	
	Hydroelectric generating station, in service or unspecified	
	Thermoelectric generating station, planned coal thermoelectric generating station; lignite thermoelectric generating station; oil thermoelectric generating station; gas thermoelectric generating station	
	Thermoelectric generating station, in service or unspecified thermoelectric generating station coal; thermoelectric generating station lignite; thermoelectric generating station oil; thermoelectric generating station gas	
	Nuclear energy generating station, planned	
	Nuclear energy generating station, in service or unspecified	
	Geothermic generating station, planned	
	Geothermic generating station, in service or unspecified	
	Solar generating station, planned	
	Solar generating station, in service or unspecified	
	Wind generator station, planned	
	Wind generator station, in service or unspecified	







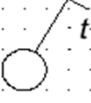

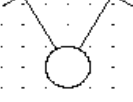
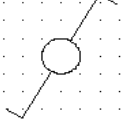
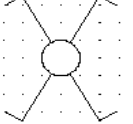

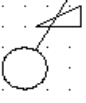
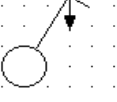
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Underground Line	
	Submarine Line	
	Overhead Line	
	Line with a duct; Line within a pipe	Additional info. may be shown above the line representing the duct route.
	Line within a six-way-duct	Additional info. may be shown above the line representing the duct route.
	Manhole for underground chamber	Additional info. may be shown above the line representing the duct route.
	Head end with local antenna	
	Directional Coupler, General Symbol	
	Neutral conductor	The symbol could be replaced by letter symbols in IEC 60445
	Protective conductor	The symbol could be replaced by letter symbols in IEC 60445
	Combined protective & neutral conductor	The symbol could be replaced by letter symbols in IEC 60445
	3-phase wiring with neutral conductor & protective conductor	The symbol could be replaced by letter symbols in IEC 60445

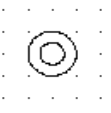
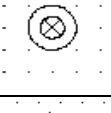
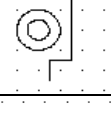

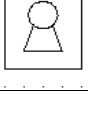
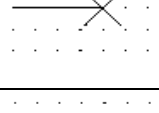
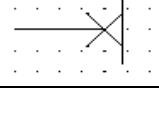
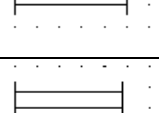
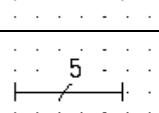
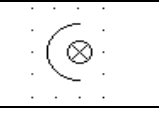
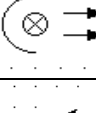

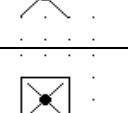


## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Wiring going upwards	If the arrow is pointing to the top border (edge) of the drawing sheet, the wiring goes upward.
	Wiring going downwards	If the arrow is pointing towards the bottom border (edge) of the drawing sheet, the wiring goes downward
	Wiring passing through vertically	
	Box, General symbol	
	Connection box; Junction box	
	Consumers terminal, Service entrance equipment	
	Distribution centre	
	Socket outlet (power) general symbol	
	Multiple socket outlet (power)	Form 1
	Multiple socket outlet (power)	Form 2
	Socket outlet (power) with protective contact	
	Socket outlet (power) with sliding shutter	

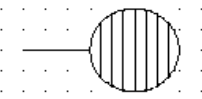

## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Socket outlet (power) with single-pole switch	
	Socket outlet (power) with interlocked switch	
	Socket outlet (power) with isolating transformer	
	Socket outlet (telecommunications), general symbol	Designations in accordance with relevant IEC or ISO standards to show different type connections & outlet symbols:
	Switch, general symbol	
	Switch with pilot light	
	Period limiting switch, single-pole	
	2 pole switch	
	Multiposition single pole switch	
	2 way single pole switch	
	Intermediate switch	Equivalent circuit diagram 
	Dimmer	
	Pull-cord single pole switch	

## IEC 60617 SYMBOLS

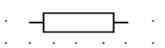
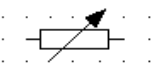
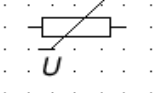
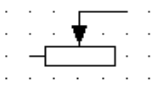
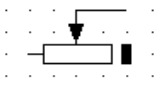
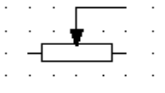
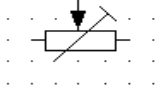
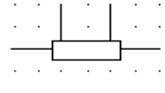
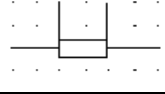
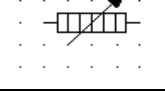
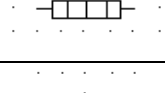
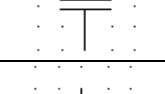

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Push-button	
	Push-button with indicator lamp	
	Push-button protected against unintentional operation	Protection can be by means of a break-glass cover
	Time switch	
	Key-operated switch Watchman's system device	
	Lighting outlet position	
	Lighting outlet on wall	
	Luminaire, general symbol; Fluorescent lamp, general symbol	
	Luminaire with many fluorescent tubes.	
	Luminaire with many fluorescent tubes.	
	Projector, general symbol	
	Spot light	
	Flood light	
	Emergency lighting luminaire on special circuit	
	Self-contained emergency lighting luminaire	

# IEC 60617 SYMBOLS

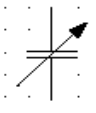
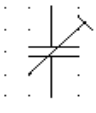
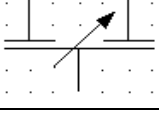
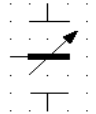
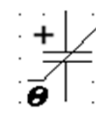
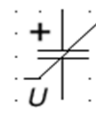
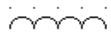
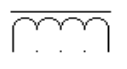
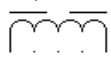


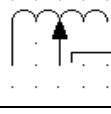
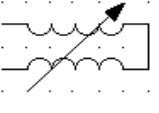
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Water heater	
	Time clock, time recorder	









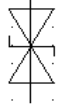

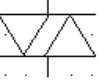


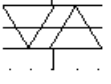
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Resistor, general symbol	
	Resistor, adjustable	
	Resistor, voltage dependant Varistor	
	Resistor with movable contact	
	Resistor with movable contact and off position	
	Potentiometer with movable contact	
	Potentiometer with movable contact and pre-set adjustment	
	Resistor with fixed tapings	
	Resistor with separate current and voltage	
	Carbon-pile resistor	
	Heating element	
	Capacitor, general symbol	
	Capacitor, polarized Electrolytic capacitor	

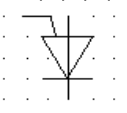
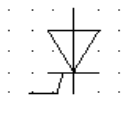
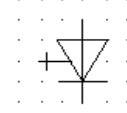
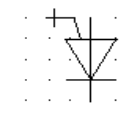
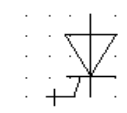
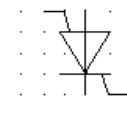
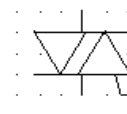
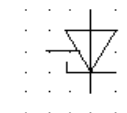
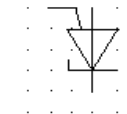
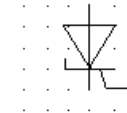
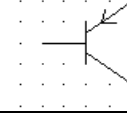
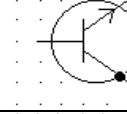
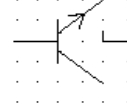
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Capacitor, adjustable	
	Capacitor with pre-set adjustment	
	Capacitor, differential	
	Capacitor, split and adjustable	
	Capacitor, temperature dependent and polarised	
	Capacitor, voltage dependent and polarised Semiconductor capacitor	
	Coil, general symbol; Winding, general symbol Inductor; Choke	
	Inductor with magnetic core	
	Inductor with gap in magnetic core	
	Inductor, continuously variable	
	Inductor with fixed tapplings	
	Inductor with maveable contact, variable in steps	
	Variometer	

## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Semiconductor diode, general symbol	
	Light emitting diode (LED), general symbol	
	Temperature sensing diode	
	Variable capacitance diode Varactor	
	Tunnel diode Esaki diode	
	Breakdown diode, unidirectional Zener diode; Voltage regulator diode	
	Breakdown diode, bidirectional	
	Backward diode (unitunnel diode)	
	Bidirectional diode	
	Reverse blocking diode thyristor	
	Reverse conducting diode thyristor	
	Bidirectional diode thyristor; Diac	

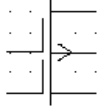
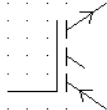
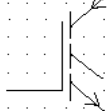
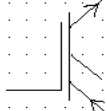







## IEC 60617 SYMBOLS





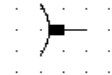
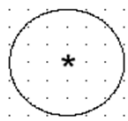
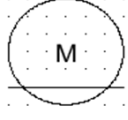
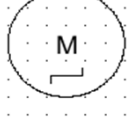
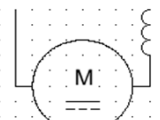
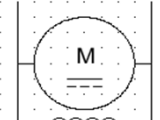
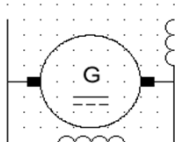
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Reverse blocking triode thyristor, N-gate (anode-side controlled)	
	Reverse blocking triode thyristor, P-gate (cathode-side controlled)	
	Turn-off thyristor, gate not specified	
	Turn-off triode thyristor, N-gate (anode-side)	
	Turn-off triode thyristor, P-gate (cathode-side controlled)	
	Reverse blocking thyristor, tetrode type	
	Bidirectional triode thyristor; Triac	
	Reverse conducting triode thyristor, gate not specified	
	Reverse conducting triode thyristor, N-gate (anode-side controlled)	
	Reverse conducting triode thyristor, P-gate (cathode-side controlled)	
	PNP transistor	
	NPN transistor with collector connected to the envelope	
	NPN avalanche transistor	

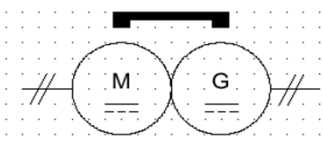
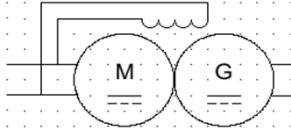
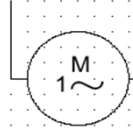
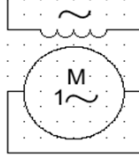
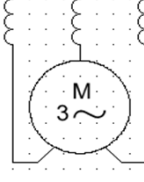



## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Unijunction transistor with P-type base	
	Unijunction transistor with N-type base	
	NPN transistor with transverse biased base	
	PNIP transistor with connection to the intrinsic region	
	PNIN transistor with connection to the intrinsic region	
	Junction field effect transistor with N-type channel	The gate and source connections shall be drawn in line.
	Junction field effect transistor with P-type channel	The gate and source connections shall be drawn in line.
	Insulated gate field effect transistor IGFET enhancement type, single gate, P-type channel without substrate connection	
	Insulated gate field effect transistor IGFET enhancement type, single gate, N-type channel without substrate connection	
	Insulated gate field effect transistor IGFET enhancement type, single gate, P-type channel with substrate connection brought out	
	Insulated gate field effect transistor IGFET enhancement type, single gate, N-type channel with substrate internally connected to source	
	Insulated gate field effect transistor IGFET, depletion type, single gate, N-type channel without substrate connection	
	Insulated gate field effect transistor IGFET, depletion type, single gate, P-type channel without substrate connection	

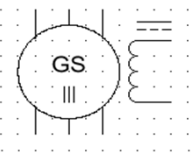
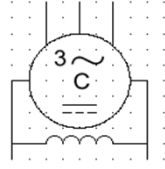
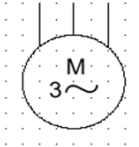
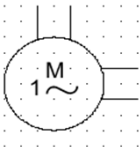
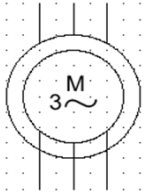
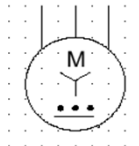
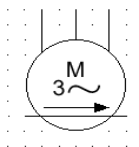
## IEC 60617 SYMBOLS

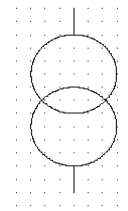
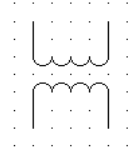
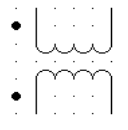
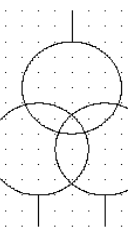
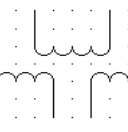
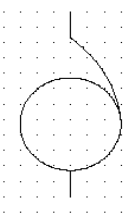
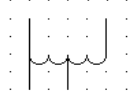
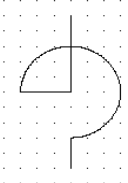
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Insulated gate field effect transistor IGFET, depletion type, two gates, P-type channel with substrate connection brought out	In the case of multiple gates, the primary gate and the source connection shall be drawn in line.
	Insulated-gate bipolar transistor (IGBT) enhancement type, P channel	
	Insulated-gate bipolar transistor (IGBT) enhancement type, N channel	
	Insulated-gate bipolar transistor (IGBT) depletion type, P channel	
	Insulated-gate bipolar transistor (IGBT) depletion type, N channel	
	Light dependent resistor (LDR); Photo resistor	
	Photodiode	
	Photovoltaic cell	
	Phototransistor	
	Hall generator with four connections	
	Magnetoresistor	

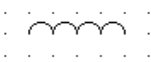
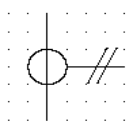
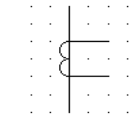
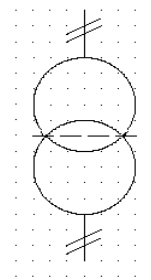
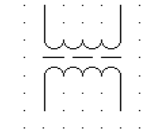
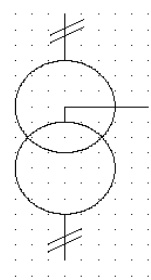

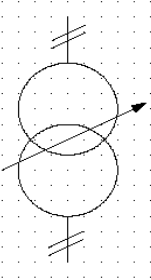
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Three-phase winding, delta	
	Three-phase winding, open delta	
	Three-phase winding, star	
	Three-phase winding, star, with neutral brought out	
	Brush (on slip-ring or commutator)	
	Machine, general symbol Rotary converter; Generator; Synchronous generator; Motor; Synchronous motor	
	Linear motor, general symbol	
	Stepping motor, general symbol	
	Series motor, DC	
	Shunt motor, DC	
	Generator, DC, compound excited (short shunt)	


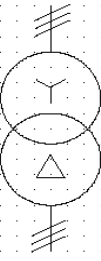
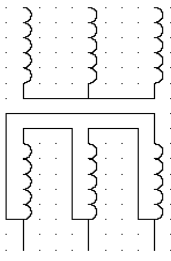
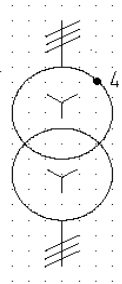
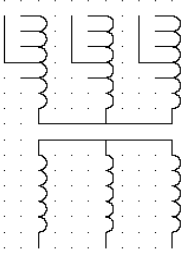
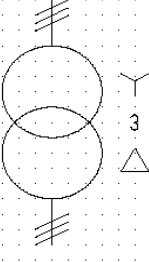
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Rotary converter, DC/DC with common permanent magnet field	
	Rotary converter, DC/DC with common excitation winding	
	Series motor, single-phase	
	Repulsion motor, single-phase	
	Series motor, three-phase	
	Synchronous generator, three-phase with permanent magnet	
	Synchronous motor, single-phase	
	Synchronous generator, three-phase, star connected, neutral brought out	

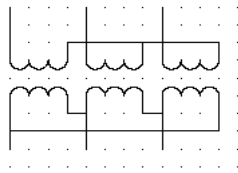
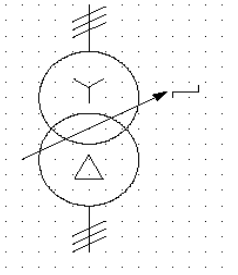
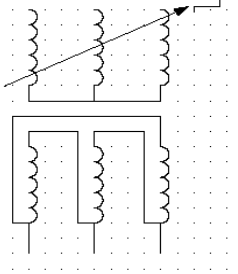
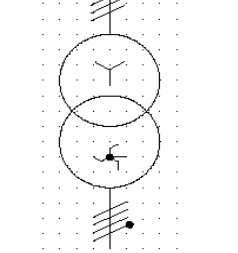
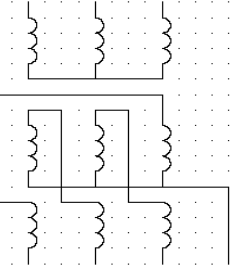
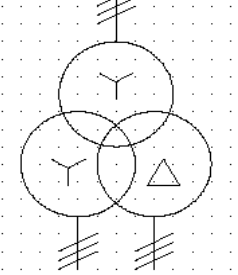


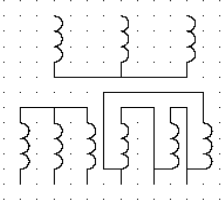
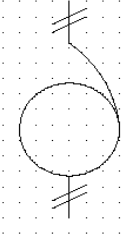


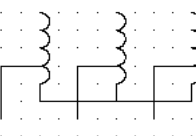
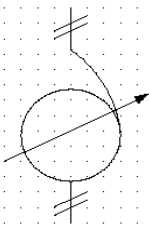

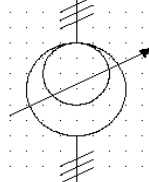
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Synchronous generator, three-phase, both ends of each phase winding brought out	
	Synchronous rotary converter, three-phase, shunt-excited	
	Induction motor, three-phase, squirrel cage	
	Induction motor, single-phase, squirrel-cage	
	Induction motor, three-phase, with wound rotor	
	Induction motor, three-phase, star-connected	
	Linear induction motor, three-phase	

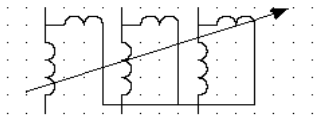
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Transformer with two windings, general symbol (form 1)	
	Transformer with two windings, general symbol (form 2)	
	Transformer with two windings (and instantaneous voltage polarity indicators) (form 2)	
	Transformer with three windings, general symbol (form 1)	
	Transformer with three windings, general symbol (form 2)	
	Auto-transformer, general symbol (form 1)	
	Auto-transformer, general symbol (form 2)	
	Reactor, general symbol Choke (form 1)	

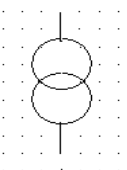
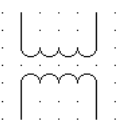
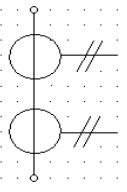

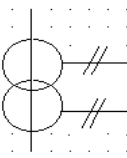
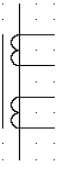
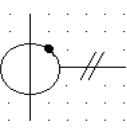
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Reactor, general symbol Choke (form 2)	
	Current transformer, general symbol (form 1)	
	Current transformer, general symbol (form 2)	
	Transformer with two windings and screen (form 1)	
	Transformer with two windings and screen (form 2)	
	Transformer with centre tap on one winding (form 1)	
	Transformer with centre tap on one winding (form 2)	
	Transformer with variable coupling (form 1)	

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	<p>Transformer with variable coupling (form 2)</p>	
	<p>Three-phase transformer, connection star-delta (form 1)</p>	
	<p>Three-phase transformer, connection star-delta (form 2)</p>	
	<p>Three-phase transformer with four taps, connection: star-star (form 1)</p>	
	<p>Three-phase transformer with four taps, connection: star-star (form 2)</p>	
	<p>Three-phase bank of single-phase transformers, connection star-delta (form 1)</p>	

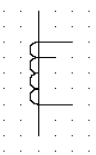
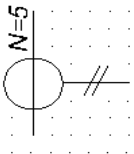
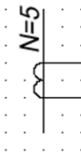
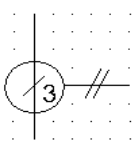
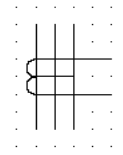
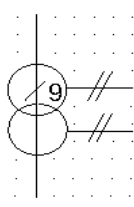
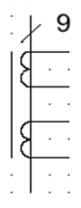
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	<p>Three-phase bank of single-phase transformers, connection star-delta (form 2)</p>	
	<p>Three-phase transformer with tap changer (form 1)</p>	
	<p>Three-phase transformer with tap changer (form 2)</p>	
	<p>Three-phase transformer, connection star-zigzag with the neutral brought out (form 1)</p>	
	<p>Three-phase transformer, connection star-zigzag with the neutral brought out (form 2)</p>	
	<p>Three-phase transformer, connection star-star-delta (form 1)</p>	

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	<p>Three-phase transformer, connection star-star-delta (form 2)</p>	
	<p>Auto-transformer, single-phase (form 1)</p>	
	<p>Auto-transformer, single-phase (form 2)</p>	
	<p>Auto-transformer, three-phase, connection star (form 1)</p>	
	<p>Auto-transformer, three-phase, connection star (form 2)</p>	
	<p>Auto-transformer, single-phase with voltage regulation (form 1)</p>	
	<p>Auto-transformer, single-phase with voltage regulation (form 2)</p>	
	<p>Three-phase induction regulator (form 1)</p>	









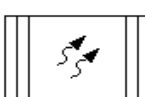

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	<p>Three-phase induction regulator (form 2)</p>	

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Voltage transformer Measuring transformer (form 1)	
	Voltage transformer Measuring transformer (form 2)	
	Current transformer with two cores with one secondary winding on each core (form 1)	
	Current transformer with two cores with one secondary winding on each core (form 2)	
	Current transformer with two secondary windings on one core (form 1)	
	Current transformer with two secondary windings on one core (form 2)	
	Current transformer with one secondary winding with one tap (form 1)	

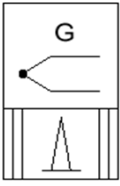
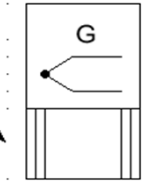
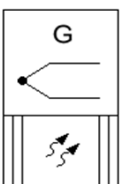
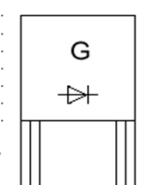
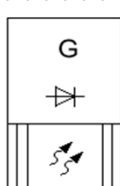
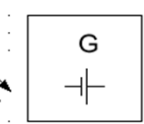
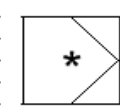



IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	<p>Current transformer with one secondary winding with one tap (form 2)</p>	
	<p>Current transformer with five passages of a conductor acting as a primary winding (form 1)</p>	
	<p>Current transformer with five passages of a conductor acting as a primary winding (form 2)</p>	
	<p>Pulse or current transformer with three threaded primary conductors (form 1)</p>	
	<p>Pulse or current transformer with three threaded primary conductors (form 2)</p>	
	<p>Pulse or current transformer with two secondary windings on the same core (form 1)</p>	
	<p>Pulse or current transformer with two secondary windings on the same core (form 2)</p>	


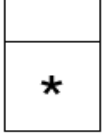

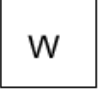
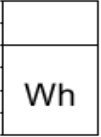
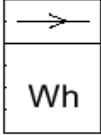
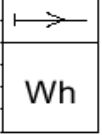
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	DC/DC converter Chopper	
	Rectifier	
	Rectifier in full wave (bridge) connection	
	Inverter	
	Rectifier/inverter	
	Primary cell	
	Static generator, general symbol	
	Heat source, general symbol	
	Radio-isotope heat source	
	Combustion heat source	

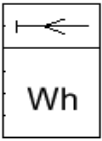
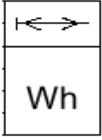
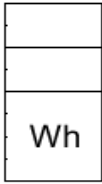
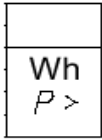
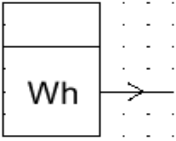
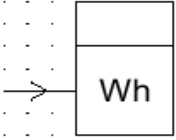
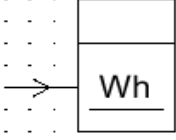
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Thermoelectric generator, with combustion heat source	
	Thermoelectric generator with non ionizing radiation heat source	
	Thermoelectric generator with radio-isotope heat source	
	Thermionic diode generator with non-ionizing heat source	
	Thermionic diode generator with radio-isotope heat source	
	Photovoltaic generator	
	Closed-loop controller	
	Indicating instrument, genral symbol	

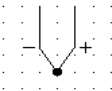
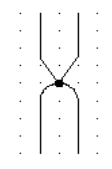
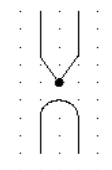
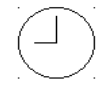


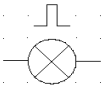

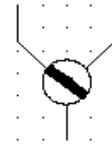


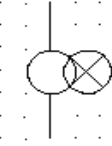
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Recording instrument, general symbol	
	Intergrading instrument, general symbol Energy meter	
	Voltmeter	
	Recording wattmeter	
	Watt-hour meter	
	Watt-hour, measuring energy transmitted in one direction only	
	Watt-hour meter, counting the energy flow from the busbar	

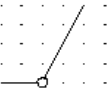
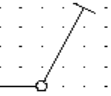



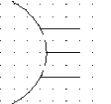
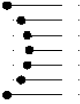
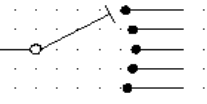
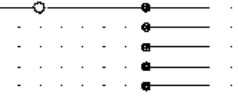
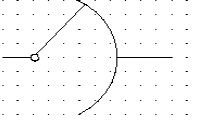
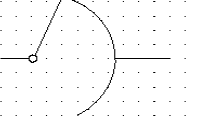
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Watt-hour meter, counting the energy flow towards the busbars	
	Watt-hour meter, counting in both energy flow directions	
	Multi-rate watt-hour meter	
	Excess watt-hour meter	
	Watt-hour meter with transmitter	
	Slave watt-hour mater (repeater)	
	Slave watt-hour meter (repeater) with printing device	

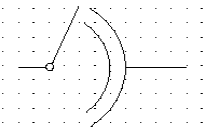
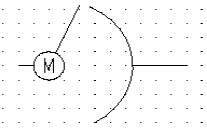
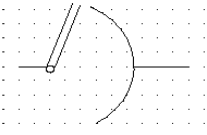
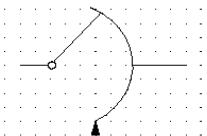
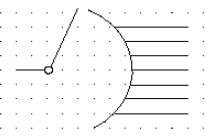
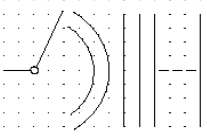
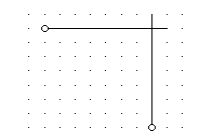
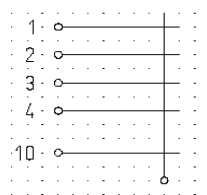
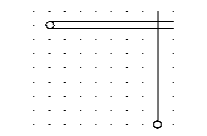
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Thermocouple	
	Thermocouple with non-insulated heating element	
	Thermocouple with insulated heating element	
	Clock, general symbol secondary clock	
	Clock with contact	
	Lamp, general symbol lamp, general symbol; signal lamp, general symbol	
	Signal lamp, flashing type	
	Indicator, electromechanical; annunciator element	
	Electromechanical position indicator	
	Siren	
	Buzzer	
	Signalling lamp energized by a built-in transformer	

## IEC 60617 SYMBOLS


IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Selector wiper, non-bridging	The small circle representing the hinge point may be open or filled in.
	Selector wiper, bridging	The small circle representing the hinge point may be open or filled in.
	Arc or bank of single-motion selector	
	Arc or bank of two-motion selector	
	Selector arc with one special position	An example of a special position is the home position.
	Selector bank or level	The groups of outlets or contacts may be shown in a line instead of in an arc
	Selector level showing individual outlets or contacts	The individual outlets or contacts may be shown in a line instead of in an arc
	Selector level with bridging wiper	
	Selector level with non-bridging wiper	
	Single-motion selector, non-homing	
	Single-motion selector, homing	

## IEC 60617 SYMBOLS


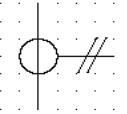
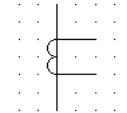
IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Two-motion selector, homing	
	Selector, motor driven, homing	
	Selector for four-wire switching, homing	
	Single-motion selector, set	The selector is set via marked bank contact(s), non homing
	Single-motion homing selector with individual outlets	The individual outlets could also be groups of outlets.
	Two-motion selector showing levels	
	Crossbar selector, general symbol	
	Crossbar selector, single connecting unit	
	Crossbar selector, four-wire switching	





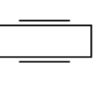
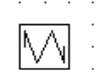
*IEC 60617 SYMBOLS*

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Antenna, general symbol	






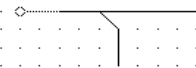
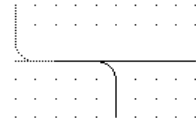
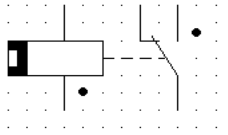



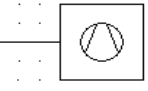
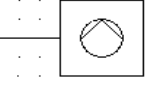
# IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Battery of primary or secondary cells	
	Pulse transformer (form 1)	
	Pulse transformer	

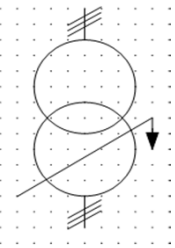
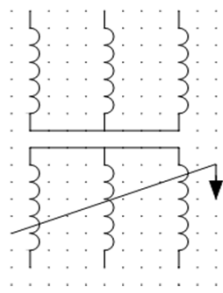
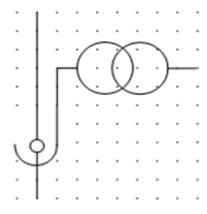
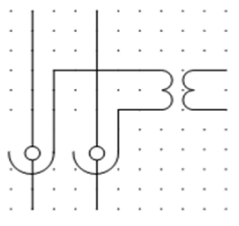

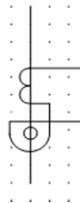
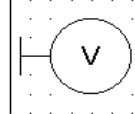
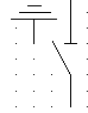
## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Direct current	
DC	Direct current	
	Alternating current	
AC	Alternating current (form 2)	
	Piezo-electric effect	
	Spring-operated device	

## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Functional earthing; Functional grounding (US) Functional earthing conductor; Functional earthing terminal	For the definition of functional earthing, see IECV 195-01-13.
	Functional equipotential bonding Functional bonding conductor; Functional bonding terminal	For the definition of functional equipotential bonding, see IECV 195-01-16".
	Functional equipotential bonding Functional bonding conductor; Functional bonding terminal	For the definition of functional equipotential bonding, see IECV 195-01-16".
	Capacitor, lead-through Capacitor, feed-through	
	Multiple-function switching device Control and protective switching device (CPS); Reversing CPS	
	Directed connection	
	Point of access to a bundle	
	Polarized relay, stable positions	Shown with 2 stable positions
	Acoustic signalling device, general symbol Horn; Bell; Single-stroke bell; Whistle	
	Combined electric and heat generated station, planned	
	Combined electric and heat generating station, in service or unspecified	
	Fan	The symbol is shown with wiring. The symbol applies symbol 2302 of ISO 14617.
	Pump	The symbol is shown with wiring. The symbol applies symbol 2301 of ISO 14617.

## IEC 60617 SYMBOLS

IEC SYMBOL	IEC DESCRIPTION	COMMENTS
	Phase-shifting transformer, three-phase (form 1)	
	Phase-shifting transformer, three-phase (form 2)	
	Bushing type voltage transformer (form 1)	
	Bushing type voltage transformer (form 2)	
	Bushing type current transformer (form 1)	
	Bushing type current transformer (form 2)	
	Simplicity voltage detector	
	Combined disconnector and earthing switch	Individual actuator equipment may be added.