Leaders in Industrial Automation
Control Engineering and
IIoT Enablement

Industrial Automation Commonly-Used Terms

A Glossary of Industrial Automation and Control Terms

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A

Accelerating Time: See Time, Accelerating

Across the Line Starter: A device consisting of a contactor and overload relays to start-stop a motor from rest to normal speed and to protect motor from overload.

Action Device: See Device, Output

Actuator: The cam, arm or similar mechanical piece used to operate the contacts in a device.

Air (used as prefix): When applied to a device which interrupts an electric circuit, indicates that the interruption occurs in air.

Ambient Conditions: The condition of the atmosphere adjacent to the electrical apparatus. The specific reference may apply to temperature, contamination, humidity, etc.

Ambient Temperature: See Temperature, Ambient.

Ambient Temperature Compensated: A device, such as an overload relay, which is not affected by the temperature surrounding it.

Ampacity: The current carrying capacity of a conductor. Ampacity is expressed in Amperes.

Ampere: A unit of measure describing the rate of current flow in an electrical conductor. One ampere is equal to a charge flow rate of one coulomb per second.

Anti Plugging Protection: The effect of a control function or device which operates to prevent application of counter-torque by the motor until the motor speed has been reduced to an acceptable value.

Apparatus: A set of control devices used to accomplish the intended control function.

Application Tests: See Tests, Application.

Automatic: Self acting, operated by its own mechanism (i.e.: a change in pressure or temperature).

Automatic Reset: See Reset, Automatic.

Automatic Starter: See Starter, Automatic.

Auto Transformer Starter: See Starter, Auto Transformer.

Auxiliary Contact: (In a switching device): Control circuit contact that functions with the movement of the main circuit contacts.

Auxiliary Device: Any electrical device other than motors and motor starters necessary to fully operate the machine or equipment.

B

Bifurcated Contact:	Contact with a slot cut down the center to provide improved fidelity by increasing the number of available current paths.
Block Diagram:	A diagram showing the relationship of separate sub-units (blocks) in a control system.
Brake, Magnetic:	A friction brake which is controlled by electro magnetic means.
Branch Circuit:	The portion of an electrical system which starts from and includes the disconnect, and ends with the load.
Break of a Circuit-Opening Device:	The minimum distance between the stationary and movable contacts when these contacts are in the open position.
Bus:	A set of power supply leads or a conductor providing for multiple connections.

C

Cam Operated Switch: See Switch, Cam Operated.

Captive Screw: Screw type fastener that is retained in some manner when unscrewed and cannot easily be separated from the part it secures.

Circuit Breaker: A device designed to open and close a circuit by non automatic means, and to open the circuit automatically on a predetermined overload of current, without injury to itself when properly applied within its rating. (NEC-NFPA No.70)

Circuit Interrupter: A non automatic, manually operated device designed to open, under abnormal conditions, a current-carrying circuit without injury to itself.

Closed Circuit Transition: See Transition, Closed Circuit.

Combination Starter: A magnetic starter with a manually operated disconnecting means built into the same enclosure. Most combination starters also include a short circuit protection device.

Compensator: A manually operated reduced voltage starter.

Component: The smallest element of a circuit (i.e.: resistor, capacitor, transistor or integrated circuit).

Conduit, Flexible Metal: A flexible raceway of circular cross section specially constructed for the purpose of the pulling in or the withdrawing of wires or cables after the conduit and its fittings are in place.

Conduit, Flexible Non Metallic: A flexible raceway of circular cross section specially constructed for the purpose of the pulling in or the withdrawing of wires or cables after the conduit and its fittings are in place.

Conduit, Rigid Metal: A raceway specially constructed for the purpose of the pulling in or the withdrawing of wires or cables after the conduit and its fittings are in place. Made of metal pipes of standard weight and thickness permitting the cutting of standard threads.

Conduit Box: See Motor Junction Box.

Connector: A plug or receptacle for electrically interconnecting one or more cables or electronic circuits.

Contact Block: The plastic housing which contains contacts, an actuating plunger and wiring terminals.

Contacts: Connecting points which, when actuated, complete or interrupt a circuit.

Contacts, Maintained: Contacts which, when actuated, remain in the operated position. See Normally Open and Normally Closed.

Contacts, Momentary: Contacts which, after actuating, return to their original position. See Normally Open and Normally Closed.

C

Contact Wear: The total thickness of material which may be worn away before the contacts cease to perform adequately.

Contactor: A device used to energize and de-energize an electric power circuit.

Continuous Rating: See Rating, Continuous.

Control, Remote: The capability of controlling an electric load or motor from some point away from the immediate area of the load or motor.

Control, Separate: A control circuit which has its own incoming power supply, which is not associated with the incoming lines for the power circuit.

Control, Three Wire: A control circuit which uses an auxiliary contact to “seal in” a momentary push button. This keeps power flowing to the control coil even after the push button is released. This circuit will provide Low Voltage Protection.

Control Circuit, Two Wire: A control circuit which uses a maintained contact to energize or de-energize the control coil. This circuit will provide Low Voltage Release.

Control Circuit: A circuit which carries the signals directing the performance of the controller. This circuit contains pilot devices such as push buttons, selector and limit switches, timers, pilot lights and magnetic coils of relays, starters and contactors.

Control Circuit Transformer: See Transformer, Control.

Control Circuit Voltage: The voltage provided for operating the coil of a magnetic device.

Control Compartment: A space within the base, frame or column of a machine used for mounting a control panel.

Control Cutout Switch: See Switch, Control Cutout.

Control Power Transformer: See Transformer, Control.

Control Transformer: See Transformer, Control.

Controller: A device, or group of devices, which serves to govern, in some predetermined manner, the electrical power delivered to the apparatus to which it is connected.

Controller, Definite Purpose: An application oriented controller with ratings and operating characteristics which are directly related to specific service conditions and definite types of applications.

Controller, Drum: An electric controller which is made of stationary contacts which are connected in the circuit by the rotation of a rotary group of movable contacts.

Controller, General Purpose: Any controller having ratings, characteristics, and mechanical construction for use under usual service conditions in accordance with NEMA standards for industrial Control and Systems.

C

Controller, Manual:	An electric controller having all of its basic functions performed by devices which are operated by hand.
Current:	The flow of electrons in a conductor.
Current Dropout:	See Dropout, Voltage or Current.
Current Relay:	See Relay, Current.
Current Sealing:	See Sealing, Voltage or Current.

D

Decelerating Time: See Time, Decelerating.

De-Energized Position: The state of a device with no applied voltage or current.

Definite Purpose Controller: See Controller, Definite Purpose.

Device, Input: A device which initiates a signal and executes a control function (i. e.: push button, limit switch or photoelectric switch).

Device, Logic: A device which controls a function by determining the status of other devices and making a decision on that status (i.e.: control relay, timing relay or overload relay).

Device, Output: A device which accepts a signal and executes a control function (i.e.: motor starter, pilot light or solenoid).

Dielectric Tests: See Tests, Dielectric.

Disconnecting Means: A device whereby the current-carrying conductors of a circuit can be disconnected from their source of supply.

Disconnect Switch: See Switch, Motor Circuit.

Double Pole (In a switch): Two electrically isolated circuits that pass through a single switch. Both poles are controlled by a common actuator.

Double Throw: Two different closed contact positions are available for each pole.

Dropout, Voltage or Current: The voltage or current at which a device will return to its de-energized position.

Drum Controller: See Controller, Drum

Drum Switch: See Switch, Drum.

Dynamic Braking: A system of braking in which the motor is used as a generator, and the kinetic energy of the motor and driven machinery is employed as actuating means of exerting a retarding force.

E

Electro Mechanical (Electro Magnetic):	Any device which uses electrical energy to produce magnetic energy, which in turn results in mechanical motion (i.e.: magnetic starters, solenoids or motors).
Electronic Control:	Control circuits in which the major portion of the control is performed by solid state electronic circuitry.
Elementary (Schematic) Diagram:	A diagram using symbols and a plan of connections to illustrate in simple form the scheme of control.
Enclosure:	The case, box or structure surrounding the electrical equipment, which protects it from contamination. The degree of tightness is usually specified.
Enclosure, Large:	A large enclosure or compartment is one which accommodates a panel having 1500 square inches or more of area.
Enclosure, Small:	A small enclosure or compartment is one which accommodates a panel having less than 1500 square inches of area.
External Control Devices:	All control devices mounted external to the control panel.

F

Fail Safe Operation: An electrical system so designed that the failure of any component in the system will prevent unsafe operation of the controlled equipment.

Fault Withstandability: See Withstandability, Fault.

Feeder: The circuit conductors between the service equipment, or the generator switchboard of an isolated plant, and the branch circuit disconnect switch.

Flexible Metal Conduit: See Conduit, Flexible Metal.

Flexible Non-Metallic Conduit: See Conduit, Flexible Non Metallic.

Float Switch: See Switch, Float.

Foot Switch: See Switch, Foot.

Frequency: The measurement, in cycles per second (Hz), of the AC current flowing in a circuit.

Fuse: An overcurrent protective device with a circuit opening fusible member which is heated and severed by passage of overcurrent through it.

G

General Purpose Controller: See Controller, General Purpose.

General Use Switch: See Switch, General Use.

Grounded: Connected to earth or to some conducting body which serves in place of the earth.

Grounded Circuit: A circuit in which one conductor or point (usually the neutral or neutral point of transformer or generator windings) is intentionally grounded (earthed) either solidly or through a grounding device.

Grounding Conductor: A conductor which, under normal conditions, carries no current; but serves to connect exposed metal surfaces to an earth ground, to prevent hazards in case of breakdown between current-carrying parts and exposed surfaces. The conductor, if insulated, is colored green, with or without a yellow stripe on it.

Guarded: Covered, shielded, fenced, enclosed or otherwise protected by means of suitable covers or casings, barriers, rails or screens, mats or platforms to remove the likelihood of dangerous contact or approach by persons or objects to a point of danger.

Industrial Internet of Things (IIoT): The industrial internet is a term that refers to the integration of complex physical machinery with networked sensors and software.

IEC Starter: Any magnetic starter constructed to meet the standards of the International Electrotechnical Commission.

Inching: See Jogging.

Increment Starter: See Starter, Increment (Network).

Inrush Current: The maximum current draw of an inductive device that occurs at the moment the device is energized.

Instantaneous: A qualified term applied to the closing of a circuit that has no delay purposely introduced in its action.

Interconnecting Diagram: A diagram showing all terminal blocks in the complete system with each terminal identified.

Interconnecting Wire: Connections between sub-assemblies, panels, chassis and remotely mounted devices. Does not necessarily apply to internal connections of the units.

Interlock: A device actuated by the operation of some other device which it is directly associated, to govern succeeding operations of the same or allied devices. Note: interlocks may be either electrical or mechanical.

Intermittent Duty: A requirement or service that demands operation for alternative intervals of (1) load and no-load; or (2) load and rest; or (3) load, no-load, and rest; such alternate intervals being definitely specified.

International Electrotechnical Commission (IEC): Commission founded to establish standards for electrical products with the intent of encouraging international trade.

International Rated Control: Devices designed to conform to IEC standards.

Internet of Things (IoT): The ongoing development of the Internet in which everyday objects have network connectivity, allowing them to send and receive data.

Interrupting Capacity: The highest current at rated voltage that a device can interrupt.

Inverse Time: See Time, Inverse.

Isolating Switch: See Switch, Isolating.

Isolating Transformer: See Transformer, Isolating.

J

Jogging (Inching): The quickly repeated closure of the circuit to start a motor from rest for the purpose of accomplishing small movements of the driven machine. Usually used for positioning purposes.

Joint: A connection between two or more conductors.

K

Knockout: A portion of an enclosure or cabinet so fashioned that it may be removed readily by hammer, screwdriver and pliers. Often used as a path to thread electrical wires into the enclosure.

L

Latching Relay: See Relay, Latching.

Legend Plate: Small plate used to identify the function of operator controls, indicating lights, etc.

Limit Switch: See Switch, Limit.

Locked Rotor Amps: See Locked Rotor Current.

Locked Rotor Current: Steady state current taken from the line with the rotor locked and with rated voltage (and rated frequency in the case of alternating current motors) applied to the motor.

Logic Device: See Device, Logic.

Low Voltage Release: See Undervoltage Release or Control, Two Wire.

Low Voltage Protection: See Protection, Low Voltage or Control, Three Wires.

M

Magnetic Brake: See Brake, Magnetic.

Magnetic Control Relay: See Relay.

Magnetic Device: See Electro Mechanical.

Magnetic Overload Relay: See Relay, Magnetic Overload.

Magnetic Starter: A starter actuated by electro magnetic means.

Maintained Contacts: See Contacts, Maintained.

Make Rating: See Rating, Make.

Manual Controller: See Controller, Manual.

Manual Reset: See Reset, Manual.

Master Control Relay: See Relay, Master Control.

Master Switch: See Switch, Master.

Master Terminal Box: The main enclosure on the equipment containing terminal blocks for the purpose of terminating conductors for the control enclosure. (Normally associated with equipment requiring a separately mounted control enclosure.)

Momentary Contacts: See Contacts, Momentary.

Motor Circuit Protector: A magnetically operated device that disconnects the power supply from the motor branch circuit in the event of a fault current.

Motor Circuit Switch: See Switch, Motor Circuit.

Motor Control Center: A physical grouping of combination starters in one assembly. A motor control center consists of a steel structure to contain the combination starters, as well as wiring troughs, internal wiring and electrically conductive bus bars.

Motor Junction (Conduit) Box: An enclosure on a motor used for the purpose of terminating a conduit run and joining the motor to power conductors.

N

Network Starter:	See Starter, Increment (Network).
Non-Automatic:	The implied action will not occur of its own accord and requires personal intervention for its control.
Non-Reversing:	A control function which provides for operation in one direction only.
Normally Closed:	Indicates that the switch contacts are closed when the switch is in its normal state. The normal state is the same as when the device is laying on a shelf or held in your hand.
Normally Open:	Indicates that the switch contacts are open when the switch is in its normal state. The normal state is the same as when the device is laying on a shelf or held in your hand.

O

Off Delay: A time interval introduced after a function has been completed. See Time Delay.

Off Delay Timer: An electronic or electro mechanical device which is used to produce an Off Delay function.

On Delay: A time interval introduced after a function has been started. See Time Delay.

On Delay Timer: An electronic or electro mechanical device which is used to produce an On Delay function.

Open Circuit Transition: See Transition, Open Circuit.

Open Phase Relay: See Relay, Open Phase.

Operating Overload: An overcurrent condition to which an electrical apparatus may be subjected in the course of operation. (Note 1: The maximum operating overload is considered to be six times normal full load current for alternating current industrial motors and control apparatus; four times normal full load current for direct current industrial motors and control apparatus used for reduced voltage starting; and ten times normal full load current for direct current industrial motors and control used for full voltage starting.) (Note 2: It should be understood that the overloads are currents that may persist for a very short time only, usually a matter of seconds.)

Operator's Control Station (Push Button Station): A unit assembly of one or more externally operable push button switches, sometimes including other pilot devices (i.e.: indicating lights or selector switches) in a suitable enclosure.

Outline Drawing: Drawing showing approximate overall shape with no detail.

Output Device: See Device, Output.

Overcurrent: In an electrical or electronic circuit, that current which will cause an excessive or dangerous temperature in the conductor or conductor insulation.

Overcurrent Protective Device: A device operative on excessive current which causes and maintains the interruption of power in the circuit.

Overlapping Contacts: Combinations of two sets of contacts, actuated by a common means, each set closing in one of two positions, and so arranged that the contacts of one set opens after the contacts of the other set have been closed.

Overload Condition: See Operating Overload.

Overload Protection: See Protection, Overload.

Overload Relay: See Relay, Overload.

Overspeed Protection: See Protection, Overspeed.

Overvoltage Protection: See Protection, Overvoltage.

P

Part Winding Starter: See Starter, Part Winding.

Phase Sequence Reversal: The reversal of the normal phase sequence of the power supply. For example, the interchange of two lines on a three-phase system will give a phase sequence reversal.

Phase Sequence Reversal Protection (Phase Reversal Protection): The effect of a device to prevent energization of the protected equipment upon the reversal of the phase sequence in a polyphase circuit.

Phase, Single (1), 2, 3: An individual alternating voltage (measured in cycles per second (Hz)) is a single phase. Two individual alternating voltages separated by 90 degrees is 2 phase. Three individual alternating voltages separated by 120 degrees is 3 phase.

Photoelectric Switch: See Switch, Photoelectric.

Pick-Up and Seal Voltage: The minimum voltage, suddenly applied, at which the device moves from its de-energized into its fully energized position.

Pick-Up Voltage or Current: The voltage or current, suddenly applied, at which the device starts to operate.

Pilot Duty Rating: See Rating, Pilot Duty.

Plugging: A control function which provides braking by reversing the motor line voltage polarity or phase sequence so that the motor develops a counter torque which exerts a retarding force on the load.

Position Stopping: A control function which provides for stopping the driven equipment at a pre-selected position.

Power Circuit: Shows the main power lines coming into the major equipment to be controlled such as a motor. The circuit includes the power, contacts, the thermal unit of the overload relays and the major equipment itself.

Pressure Switch: See Switch, Pressure.

Primary Reactor Starter: See Starter, Primary Reactor.

Primary Resistance Starter: See Starter, Primary Resistance

Program (Used as a Verb): To create an algorithm or solution to solve a series of control problems. This solution is then implemented by relay logic or some type of industrial computer.

Programmable Controller: A solid state device which utilizes a user defined program as well as feedback from input/output devices to control a machine or process.

Proof (Used as a Suffix): So constructed, protected or treated that successful operation of the apparatus is not interfered with when subjected to the specified material or condition.

P

Protection, Anti Plugging: The effect of a control function or device which prohibits plugging (motor braking) action until the motor speed is reduced to some specific value.

Protection, Low Voltage: The effect of a device which senses a low voltage condition and then takes the motor or load off line.

Protection, Overload: The effect of a device which senses excessive current and then takes the motor or load off line. Overload Protection does not protect against short circuits or fault current.

Protection, Overspeed: The effect of a device which senses when motor speed rises above a preset value. The device can then reduce the motor speed back to the preset value.

Protection, Overvoltage: The effect of a device which senses excessive voltage and then takes the motor or load off line.

Protection, Short Circuit: The effect of equipment (i.e..: circuit breakers, motor circuit protectors or fuses) which acts to open the supply line(s) in the event of a short circuit or fault current.

Proximity Switch: See Switch, Proximity.

Push Button: A switch with a manually operated plunger or button for actuating one or more contact blocks.

Push Button Station: See Operator's Control Station.

R

Rainproof:	So constructed, protected or treated as to prevent rain under specified test conditions from interfering with successful operation of the apparatus.
Raintight:	So constructed or protected as to exclude rain under specified test conditions.
Rating:	A designated limit of operating characteristics based on definite conditions. Such operating characteristics as load, voltage, frequency, etc., may be given in the rating.
Rating, Break:	The value of current for which a contact assembly is rated for opening a circuit repeatedly at specified voltage and under specified operating conditions.
Rating, Continuous:	A rating which defines the substantially constant load which can be carried for an extended period of time.
Rating, Eight-Hour (As Applied to a Magnetic Contactor):	The rating based on a device's ampere carrying capacity for 8 hours, starting with new clean contact surfaces, under conditions of free ventilation with full rated voltage on the operating coil and without causing any of the established limitations to be exceeded.
Rating, Make:	The value of current for which a contact assembly is rated for closing a circuit repeatedly at specified voltage and under specified operating conditions.
Rating, Pilot Duty:	The continuous amps rating of pilot device contacts at a specified voltage and under specified operating conditions.
Rating of a Controller:	An arbitrary designation of an operating limit. It is based on the power governed and on the duty and service required. It is arbitrary in the sense that it must necessarily be established by definite fixed standards and cannot, therefore, indicate the safe operating limit under all conditions which may occur.
Reactor, Saturable:	An inductor having means to change the degree of magnetic saturation of its core(s), thereby controlling the magnitude of the alternating current.
Relay:	An electro magnetic device which, when energized, will simultaneously operate one or more normally open or normally closed contacts. These contacts are pilot duty rated and can be used to control output devices such as starter coils, pilot lights, etc.
Relay, Current:	A relay which functions at a predetermined value of current. It may be an overcurrent relay, an undercurrent relay or a combination of both.
Relay, Latching:	A relay in which the contacts are mechanically held in their energized states even after power has been removed from the relay coil. The contacts can be returned to their normal state by pushing a mechanical release or energizing a separate unlatching coil.

R

Relay, Latching: A relay in which the contacts are mechanically held in their energized states even after power has been removed from the relay coil. The contacts can be returned to their normal state by pushing a mechanical release or energizing a separate unlatching coil.

Relay, Magnetic Control: See Relay.

Relay, Magnetic Overload: An overcurrent relay, the electrical contacts of which are actuated by the electro mechanical force produced by the load current or measure of it.

Relay, Master Control: A magnetic relay which is used to switch the control power feed for a large system or ladder of control logic. Master Control Relays are typically wired into the emergency or main start/stop circuit.

Relay, Open Phase: A relay which functions by reason of the opening of one or more phases of a polyphase circuit.

Relay, Overload: A relay which senses the current flow in a circuit and operates when the current reaches some predetermined value.

Relay, Undervoltage or Low Voltage Protection: A relay which measures the line voltage and operates when that voltage falls below some predetermined value.

Relay, Voltage: A relay which functions at a predetermined value of voltage. It may be an overvoltage relay, an undervoltage relay or a combination of both.

Remote Control: See Control, Remote.

Reset: To restore a mechanism or device to a prescribed state.

Reset, Automatic: A function which operates to automatically restore a mechanism or device to a prescribed state.

Reset, Manual: A function which requires a manual operation to restore a mechanism or device to a prescribed state.

Resistance: The property of a material to oppose the flow of electric current. This opposition to current flow produces heat in the conductor, which results in power losses. Resistance is measured in ohms.

Resistance Starting: See Starter, Primary Resistance.

Resistant (Used as a Suffix): So constructed, protected or treated that the apparatus will not be damaged when subjected to the specified material or conditions for a specified time.

Resistor: A device, the primary purpose of which is to introduce resistance into an electric circuit.

Response Time: See Time, Response.

Reversing: A control function which provides for changing operation of the drive from one direction to the other.

R

Rheostat: An adjustable resistor so constructed that its resistance may be changed without opening the circuit in which it may be connected.

Rigid Metal Conduit: See Conduit, Rigid Metal.

S

SCADA: An acronym for Supervisory Control and Data Acquisition. SCADA generally refers to an industrial computer system that monitors and controls a process.

Schematic Diagram: See Elementary Diagram.

Sealing, Voltage or Current: The voltage or current which is necessary to seat the armature of a magnetic circuit closing device from the position at which the contacts first touch each other.

Selector Switch: See Switch, Selector.

Separate Control: See Control, Separate.

Service of a Controller: The specific application in which the controller is to be used (i.e.: general purpose, definite purpose, etc.).

Settling Time: See Time, Settling.

Short Circuit Protection: See Protection, Short Circuit.

Signal: Information about a variable which can be transmitted in a system.

Single Phasing: The result of an open circuit in one line of a three phase system. The two remaining hot lines form a single phase. A three phase motor will try to operate on this single phase; however, the motor will draw excessive current and could be damaged.

Single Pole: A single electrically isolated circuit that passes through a switch.

Single Throw: One closed contact position available for each pole.

Slow Speed Starting: See Starting, Slow Speed.

Snap Action: A rapid motion of the contacts from one position to another position. This action is relatively independent of the rate of travel of the actuator.

Speed Switch: See Switch, Speed.

Spring Return Switch: See Switch, Spring Return.

Starter: An electric controller for accelerating a motor from rest to normal speed. A device designed for starting a motor in either direction of rotation includes the additional function of reversing and should be designated a controller.

Starter, Automatic: A starter which automatically controls the acceleration of a motor.

Starter, Auto Transformer: A starter provided with an auto transformer which furnishes a reduced voltage for starting. It includes the necessary switching mechanism and is occasionally called a compensator or autostarter.

Starter, Increment (Network): A starter which applies starting current to a motor in a series of increments of predetermined value and a predetermined time interval in a closed circuit transition for the purpose of minimizing line disturbance. One or more increments may be applied before the motor starts.

S

Starter, Part Winding: A form of reduced voltage starting which applies voltage to partial sections of the stator windings in a three phase induction motor.

Starter, Primary Reactor: A starter which includes a reactor connected in series with the primary winding of an induction motor to furnish reduced voltage for starting. It includes the necessary switching mechanism for cutting out the resistor and connecting the motor to the line.

Starter, Primary Resistance: A starter which includes a resistor connected in series with the primary winding of an induction motor to furnish reduced voltage for starting. It includes the necessary switching mechanism for cutting out the resistor and connecting the motor to the line.

Starting, Slow Speed: A control function which provides for starting an electric drive only at the minimum speed setting.

Submersible: So constructed as to exclude water when submerged in water under specified test conditions of pressure and time.

Surface Mounted (Type): Designed to be secured to and to project from a flat surface.

Switch: A device for making, breaking or changing the connections in an electrical circuit.

Switch, Cam Operated: A switch in which the electrical contacts are opened and/or closed by a mechanical action of a cam or cams.

Switch, Control Circuit Limit: A limit switch, the contacts of which are connected only into the control circuit.

Switch, Control Cutout: A switch which interrupts and isolates the control circuit of a controller.

Switch, Disconnect: See Switch, Motor Circuit.

Switch, Drum: A switch in which the electrical contacts are made on segments or surfaces on the periphery of a rotating cylinder or sector or by the operation of a rotating cam.

Switch, Float: A switch which is operated by a buoyant component part and is responsive to the level of a liquid.

Switch, Foot: A switch which is suitable for actuation by an operator's foot.

Switch, General Use: A switch which is extended for use in general distribution and branch circuits. It is rated in amperes and is capable of interrupting the rated current at the rated voltage.

Switch, Isolating: A switch intended for isolating an electrical circuit from its source of power. It has no interrupting rating, and it is intended to be operated only after the circuit has been opened by some other means.

S

Switch, Limit:	A switch which converts the mechanical motion of a machine into an electrical signal. It is typically used to identify the end of travel, or limits of travel, of certain parts in the machine.
Switch, Master:	A switch used for speed control on DC or wound rotor induction motors.
Switch, Motor Circuit:	A switch intended for use in a motor branch circuit. It is rated in horsepower, and is capable of interrupting the maximum operating overload (see Operating Overload) current of a motor of the same rating at the rated voltage.
Switch, Photoelectric:	A switch that uses a light beam to sense the presence or absence of an object.
Switch, Pressure:	A switch which is operated by air or water pressure.
Switch, Proximity:	A switch which reacts when an object, called the target, comes within close proximity of the sensing surface (or face) of the switch.
Switch, Selector:	A manually operated multi-position switch for selecting alternative control circuits.
Switch, Speed:	A speed responsive switch which is actuated when the equipment by which it is driven attains a predetermined speed.
Switch, Spring Return:	A multi-position switch in which the self-returning function is effected by the action of a spring.

T

Terminal Board (Block or Strip): An insulating base or slab equipped with one or more terminal connectors for the purpose of making electrical connections thereto.

Terminal Connector: A connector for attaching a conductor to a lead, terminal block or stud of an electrical apparatus.

Tests, Application: Those tests performed by a manufacturer to determine those operating characteristics which are not necessarily established by standards but which are of interest in the application of devices.

Tests, Dielectric (HI-POT): Tests which consist of the application of a voltage higher than the rated voltage for a specified time for the purpose of determining the adequacy against breakdown of insulating materials and spacings under normal conditions.

Thermal Cutout: An overcurrent protective device which contains a heater element in addition to a fusible member which opens the circuit.

Thermal Protector (As Applied to Motors and Generators): A protective device which is intended for assembly as an integral part of the machine and which, when properly applied, protects the machine against dangerous overheating due to overload and, in a motor, failure to start.

Three Wire Control: See Control, Three Wire.

Tight (Used as a Suffix): So constructed that the enclosure will exclude the specified material under specified conditions.

Time, Accelerating: The time in seconds for a change from one specified speed to a higher specified speed while accelerating under specified conditions.

Time, Decelerating: The time in seconds for a change from one specified speed to a lower specified speed while decelerating under specified conditions.

Time, Inverse: A qualifying term applied to a relay, circuit breaker or fuse, indicating that its time of operation decreases as the magnitude of the operating quantity increases.

Time, Response: An output, expressed as a function of time, resulting from the application of a specified input under specified operating conditions.

Time, Settling: The time required, following the initiation of a specified stimulus to a system, for a specified variable to enter and remain within a specified narrow band centered on its final value. Settling time shall be expressed in seconds.

Time Delay: Means that a time interval is purposely introduced in the performance of a function.

Timing Period: See On Delay and Off Delay.

T

Transformer, Control: A voltage transformer utilized to supply a voltage suitable for the operation of control devices.

Transformer, Isolating: Transformer used to electrically isolate one circuit from another.

Transition, Closed Circuit: (As Applied to Reduced Voltage Controllers, including Wye Delta Controllers) A method of starting in which the power to the motor is not interrupted during the normal starting sequence.

Transition, Open Circuit: (As Applied to Reduced Voltage Controllers) A method of starting in which the power to the motor is interrupted during the normal starting sequence.

Trip Free: A device which automatically trips (i.e.: overload relay) and cannot be manually defeated.

Two Wire Control: See Control, Two Wire.

U

Undervoltage Protection: See Protection, Low Voltage.

Undervoltage or Low Voltage Protection Relay: See Relay, Undervoltage or Low Voltage Protection.

Undervoltage Release: (Low Voltage Release) A type of control circuit which allows the output device to turn off upon a low voltage condition and then turn on automatically when voltage returns to normal. This control circuit is often referred to as Two Wire Control.

V

Voltage Relay: See Relay, Voltage.

Voltage Sealing: See Sealing, Voltage or Current.

W

Watertight: So constructed as to exclude water applied in the form of a hose stream under specified test conditions.

Withstandability, Fault: The ability of electrical apparatus to withstand the effects of specified electrical fault current conditions without exceeding specified damage criteria.

Wiring Diagram: Diagram with connection points shown as closely as possible to their actual physical location in the equipment. Bold lines represent the power circuit and normal weight or red lines are used to show the control circuit.

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