EXHIBIT K

IEEE Std 100-1996

The IEEE Standard Dictionary of Electrical and Electronics Terms

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conforms to manufacturer's recommendations. (NEC/NESC) [86]

controller (1) **(electric pipe heating systems)** A device that regulates the state of a system by comparing a signal from a sensor located in the system with a predetermined value and adjusting its output to achieve the predetermined value. Controllers, as used in electric pipe heating systems, regulate temperatures on the system and can be referred to as temperature controllers or thermostats. Controller sensors can be mechanical (bulb, bimetallic) or electrical (thermocouple, resistance-temperature detector [RTD] thermistor). (PE) 622A-1984r, 622B-1988r

(2) A device or group of devices that serves to govern, in some predetermined manner, the electric power delivered to the apparatus to which it is connected. (NEC/NESC) [86]

(3) **(packaging machinery)** A device or group of devices that serves to control in some predetermined manner the apparatus to which it is connected. (IA) 333-1980w

(4) The component of a system that functions as the system controller. A controller typically sends program messages to and receives response messages from devices. (IM) 488.2-1992

(5) (A) A functional unit in a computer system that controls one or more units of the peripheral equipment. *Synonym:* peripheral control unit. *See also:* dual-channel controller; input-output controller. (B) In robotics, a processor that takes as input desired and measured position, velocity or other pertinent variables and whose output is a drive signal to a controlling motor or activator. (C) A device through which one can introduce commands to a control system. (C) 610.10-1994

(6) The entity that initiates RamLink transactions. There is exactly one controller on each RamLink ringlet. (C/MM) 1596.4-1996

(7) **(CAMAC system)** *See also:* CAMAC crate.

(8) *See also:* SBus Controller. (BA/C) 1496-1993

Controller *See:* SBus Controller.

controller, automatic (process control) A device that operates automatically to regulate a controlled variable in response to a command and a feedback signal. *Note:* The term originated in process control usage. Feedback elements and final control elements may also be part of the device. *See also:* control system, feedback. (PE) [3]

controller characteristics (thyristor) The electrical characteristics of an ac power controller measured or observed at its input or output terminal. (IA) 428-1981w

controller current (thyristor) The current flowing through the terminals of the controller. (IA) 428-1981w

controller diagram (electric-power devices) A diagram that shows the electric connections between the parts comprising the controller and that shows the external connections. (IA) [60], 270-1966w

controller equipment (thyristor) An operative unit for ac power control comprising one or more thyristor assemblies together with any input or output transformers, filters, other switching devices and auxiliaries required by the thyristor ac power controller to function. (IA) 428-1981w

controller faults (thyristor) A fault condition exists if the conduction cycles of some semiconductors are abnormal. (IA) 428-1981w

controller ON-state interval (thyristor) The time interval in which the controller conducts. *Note:* It is assumed that the starting instant of the controller ON-state interval is coincident with the starting instant of the trigger pulse. (IA) 428-1981w

controller power transformer (thyristor) A transformer within the controller employed to provide isolation or the transformation of voltage or current, or both. (IA) 428-1981w

controller section (thyristor) That part of a controller circuit containing the basic control elements necessary for controlling the load voltage. (IA) 428-1981w

controller, self-operated (automatic control) A control device in which all the energy to operate the final controlling element is derived from the controlled system through the primary detecting element. (PE) [3]

controllers for steel-mill accessory machines Controllers for machines that are not used directly in the processing of steel, such as pumps, machine tools, etc. *See also:* electric controller. (IA) [60]

controllers for steel-mill auxiliaries Controllers for machines that are used directly in the processing of steel, such as screwdowns and manipulators but not cranes and main rolling drives. *See also:* electric controller. (IA) [60]

controller, time schedule (process control) A controller in which the command (or reference input signal) automatically adheres to a pre-determined time schedule. *Note:* The time schedule mechanism may be programmed to switch motors or other devices. (PE) [3]

controlling element, final That forward controlling element which directly changes the value of the manipulated variable. (CS/PE) [3]

controlling elements The functional components of a controlling system. *See also:* control system, feedback. (IM/PE) [120], [3]

controlling elements, forward The elements in the controlling system that change a variable in response to the actuating signal. *See also:* control system, feedback. (IM/PE) [120], [3]

controlling means (of an automatic control system) Consists of those elements that are involved in producing a corrective action. (PE) 94-1970w

controlling section A length of track consisting of one or more track circuit sections, by means of which the roadway elements or the device that governs approach to or movement within a block are controlled. (EEC/PE) [119]

controlling system (1) (automatic control system without feedback) That portion of the control system that manipulates the controlled system. (IM/PE) [120], [3]

(2) **(control system feedback)** The portion that compares functions of a directly controlled variable and a command and adjusts a manipulated variable as a function of the difference. *Note:* It includes the reference input elements; summing point; forward and final controlling elements; and feedback elements. *See also:* control system, feedback. (IM/PE) [120], [3]

controlling voltage, composite *See:* composite controlling voltage.

control machine (A) **(railroad practice)** An assemblage of manually operated levers or other devices for the control of signals, switches, or other units, without mechanical interlocking, usually including a track diagram with indication lights. *See also:* car retarder. (B) **(railroad practice)** A group of levers or equivalent devices used to operate the various mechanisms and signals that constitute the car retarder installation. *See also:* car retarder; centralized traffic-control system. (EEC/PE) [119]

control, manual Those elements in the excitation control system which provide for manual adjustment of the synchronous machine terminal voltage by open-loop control. (PE) 421-1972s

control mechanism (control systems for steam turbine-generator units) Includes all systems, devices, and mechanisms between a controller and the controlled valves. (PE) 122-1985s

control metering point (1) **(tie line)** The location of the metering equipment that is used to measure power on the tie line for the purpose of control. *See also:* center of distribution; power system. (PE) [54]

(2) **(electric power system)** The actual or equivalent location of power flow measurement on an area tie line. (PE) 94-1991

control mode (thyristor) The starting instant of the controller ON-state interval is periodic. The control mode is defined

interconnected delta connection (power and distribution transformers) A three-phase connection using six windings (two per phase) connected in a six-sided circuit with six bushings to provide a fixed phase-shift between two three-phase circuits without change in voltage magnitude. *Note:* The interconnected delta connection is sometimes described as a "hexagon autotransformer," or a "squashed delta." (PE) C57.12.80-1978r

interconnected star connection of polyphase circuits *See:* zigzag connection of polyphase circuits.

interconnected system (A) (electric power system) A system consisting of two or more individual power systems normally operating with connecting tie lines. *See also:* power system. **(B)** Two or more power systems connected by transmission facilities. (PE) 94-1991

interconnecting channel (of a supervisory system) The transmission link, such as the direct wire, carrier, or microwave channel (including the direct current, tones, etc.) by which supervisory control or indication signals or selected telemeter readings are transmitted between the master station and the remote station or stations, in a single supervisory system. (PE/SWG) C37.100-1992

interconnection (1) The physical plant and equipment required to facilitate the transfer of electric energy between two or more entities. It can consist of a substation and an associated transmission line and communications facilities or only a simple electric power feeder. (PE/SUB) 1109-1990
(2) The facilities that connect two power systems or control areas. (PE) 858-1993

interconnection device *See:* adapter.

interconnection diagram (packaging machinery) A diagram showing the connections between the terminals in the control panel and outside points, such as connections to motors and auxiliary devices. (IA) 333-1980w

interconnection tie A feeder interconnecting two electric supply systems. *Note:* The normal flow of energy in such a feeder may be in either direction. *See also:* center of distribution. (PE/T&D) [10]

interconnect space The address space used for board identification, system configuration, and board specific functions such as testing and diagnostics. (C/MM) 1296-1987s

interconnect template A definition of the contents of the interconnect space of an agent. (C/MM) 1296-1987s

interdendritic corrosion Corrosive attack that progresses preferentially along interdendritic paths. *Note:* This type of attack results from local differences in composition, that is, coring, commonly encountered in alloy castings. (IA) [59]

interdigital magnetron A magnetron having axial anode segments around the cathode, alternate segments being connected together at one end, remaining segments connected together at the opposite end. (ED) [45], 161-1971w

interdigital transducer (IDT) A comb-like conductive structure that is fabricated on the surface of a substrate and consists of interleaved metal electrodes (fingers) whose function is to transform electrical energy into acoustic energy or vice versa by means of the piezoelectric effect. (UFFC) 1037-1992

interdigit interval (dial-pulse address signaling systems) (telephony) In dial-pulse signaling, an extended make interval used to separate and distinguish successive dial-pulse address digits. (COM) 753-1983w

interdigit (interdigital) time (measuring the performance of tone address signaling systems) The time interval between successive signal present intervals during which no signal present condition exists. This time includes the signal off condition and transition intervals between signal off condition and signal present condition on both state transitions. (COM) 752-1986r

interelectrode capacitance (j–l interelectrode capacitance c_{jl} of an n-terminal electrode tube) The capacitance determined from the short-circuit transfer admittance between the jth and the lth terminals. *Note:* This quantity is often referred to as direct interelectrode capacitance. *See also:* electron-tube admittances. (ED) 161-1971w

interelectrode transadmittance (j–l interelectrode transadmittance of an n-electrode electron tube) The short-circuit transfer admittance from the jth electrode to the lth electrode. *See also:* electron-tube admittances. (ED) 161-1971w

interelectrode transconductance (j–l interelectrode transconductance) The real part of the j–l interelectrode transadmittance. *See also:* electron-tube admittances. (ED) 161-1971w

interelement influences (polyphase wattmeters) The percentage change in the recorded value that is caused solely by the action of the stray field of one element upon the other element. *Note:* This influence is determined at the specified frequency of calibration with rated current and rated voltage in phase on both elements or such lesser value of equal currents in both elements as gives end-scale deflection. Both current and voltage in one element shall then be reversed, and, for rating purposes, one-half the difference in the readings in percent is the interelement influence. *See also:* accuracy rating. (EEC) [102], [111]

interexchange carrier In the United States, a common carrier limited by law to carry telephone traffic between local exchange and transport areas. (C) 610.7-1995

interexchange channel A direct channel or circuit between exchanges. (C) 610.7-1995

interface (1) (696 interface devices) A shared electrical boundary between parts of a computer system, through which information is conveyed. (C/MM) 696-1983w
(2) (microprocessor operating systems) A shared boundary between two layers or modules of software. (C/MM) 855-1985s
(3) (watthour meters) The means for transmitting information between the register and peripheral equipment. (ELM) C12.13-1985s
(4) (general) A shared boundary. (C) [20], [85]

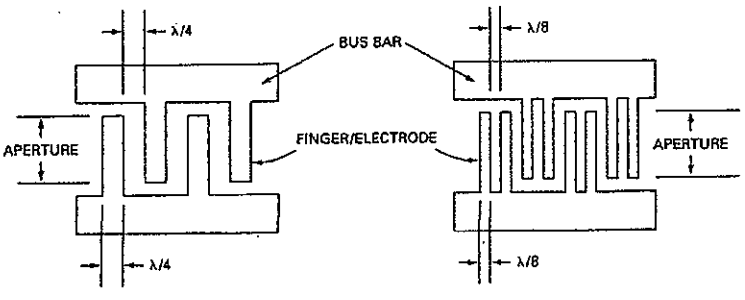

illustration of transducer parameters

(5) **(Class 1E equipment and circuits) (nuclear power generating station)** A junction or junctions between a Class 1E equipment and another equipment or device. (Examples: connection boxes, splices, terminal boards, electrical connections, grommets, gaskets, cables, conduits, enclosures, etc.) (PE) 323-1974s, 380-1975w

(6) **(programmable instrumentation)** A common boundary between a considered system and another system, or between parts of a system, through which information is conveyed. (IM) 488.1-1987r

(7) **(test, measurement, and diagnostic equipment)** A shared boundary involving the specification of the interconnection between two equipments or systems. The specification includes the type, quantity and function of the interconnection circuits and the type and form of signals to be interchanged via those circuits. *See also:* adapter. (MIL) [2]

(8) **(A) (data transmission)** A common boundary; for example, a physical connection between two systems or two devices. The boundary may be mechanical such as the physical surfaces and spacings in mating parts, modules, components, or subsystems, or electrical, such as matching signal levels, impedances, or power levels of two or more subsystems. **(B) (data transmission)** A concept involving the specification of the interconnection between two equipments or systems. The specification includes the type, quantity, and function of the interconnection circuits and the type and form of signals to be interchanged by these circuits. (PE) 599-1985w

(9) **(A) (software)** A shared boundary across which information is passed. **(B) (software)** A hardware or software component that connects two or more other components for the purpose of passing information from one to the other. **(C) (software)** To connect two or more components for the purpose of passing information from one to the other. **(D) (software)** To serve as a connecting or connected component as in definition (B). (C) 610.12-1990

(10) **(STEbus)** A shared boundary between two or more systems, or between two or more elements within a system, through which information is conveyed. (C/MM) 1000-1987r, 796-1983r

(11) **(SBX bus)** A shared boundary, between two systems or parts of systems, through which information is transferred. (C/MM) 959-1988r

(12) **(electromechanical watthour meters)** The means for communications between devices. (ELM) C12.15-1990

(13) A device placed between the line output of a digital telephone set and test equipment. The device performs at least one of the following functions: simulation of a normal network connection, control of the telephone set under test, or access for the reference codec to the digital voice signal. (COM) 269-1992

(14) **(MULTIBUS)** A shared boundary between modules or agents of a computer system, through which information is conveyed. (C/MM) 1296-1987s

(15) A junction or junctions between a Class 1E equipment and another equipment or device. (For motors, typical interfaces include, as applicable: mechanical mounting connection to the driven equipment and the motor mounting to its base, and force transmitted to the motor, electrical connection, cooling system connections, and lubrication system connection. *See also:* data-transfer interface; user interface. (PE) 334-1994

(16) A shared boundary between two functional entities. A standard specifies the services in terms of the functional characteristics and behavior observed at the interface. The standard is a contract in the sense that it documents a mutual obligation between the service user and provider and assures a stable definition of that obligation. (C/PA) 14252-1996

(17) Hardware or software that provides a point of communication between two or more processes, persons, or other physical entities. (C) 610.10-1994, 610.7-1995

(18) A shared boundary between two objects such as devices, systems, or networks, across which information is passed. *See also:* data-transfer interface; user interface. (C/PE/SUB) 610.10-1994, 999-1992

(19) Either the MA interface or the MT interface without distinction, or one of the two in particular. (C/PA) 1224.1-1993

(20) A junction or junctions between a Class 1E equipment and another equipment or device. (For motors, typical interfaces include, as applicable: mechanical mounting connection to the driven equipment and the motor mounting to its base, any force transmitted to the motor, electrical connection, cooling system connections, and lubrication system connection.) (PE) 334-1994

(21) In software development, a relationship among two or more entities (such as software item - software item, software item - hardware item, software item - user, or software unit - software unit) in which the entities share, provide, or exchange data. An interface is not a software item, software unit, or other system component; it is a relationship among them. (C/SE) J-STD-016-1995

(22) A shared boundary between two layers or modules of software. (C/MM) 855-1990

interface-CCITT (data transmission) The present European, and possible world standard, for interface requirements between data processing terminal equipment and data communication equipment. The CCITT standard resembles very closely the American EIA, Standard RS-232-C. This standard is considered mandatory in Europe and on the other continents. (PE) 599-1985w

interface control (1) (software, configuration management) The process of identifying all functional and physical characteristics relevant to the interfacing of two or more configuration items provided by one or more organizations, and ensuring that proposed changes to these characteristics are evaluated and approved prior to implementation. *See also:* baseline; configuration audit; configuration control; configuration control board; configuration identification; configuration item; configuration management; configuration status accounting; software library. (C/SE) 610.12-1990, 828-1983s

(2) **(software)** (DoD usage) In configuration management, the administrative and technical procedures and documentation necessary to identify functional and physical characteristics between and within configuration items provided by different developers, and to resolve problems concerning the specified interfaces. *See also:* configuration control. (C) 610.12-1990

interface—EIA standard RS-232-C (data transmission) A standardized method adopted by the Electronic Industries Association to ensure uniformity of interface between data communication equipment and data processing terminal equipment. The standard interface has been generally accepted by a great majority of the manufacturers of data transmission and business equipment. (PE) 599-1985w

interface error An error condition caused by hardware incompatibility, software incompatibility or other incompabilities between any two items of equipment. (C) 610.10-1994

interface—MIL STD 188B (data transmission) The standard method of interface established by the Department of Defense and is presently mandatory for use by the departments and agencies of the Department of Defense for the installation of all new equipment. This standard provides the interface requirements for interconnection between data communication security devices, data processing equipment, or other special military terminal devices. (PE) 599-1985w

interface, operating (connector) The surfaces at which a connector is normally separated. (See the corresponding figure.) 386-1977s

interface operation *See:* operation.

interface plane An assigned plane on the bottom surface of the module connector from which the connector's electrical pins