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IEEE Recommended Practice for Unique Identification in Power Plants and Related Facilities — Component Function Identifiers

Sponsor

Energy Development and Power Generation Committee
of the
IEEE Power Engineering Society

Approved March 19, 1992

IEEE Standards Board

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American National Standards Institute

Abstract: This recommended practice provides component function identifiers that, when used with related recommended practices concerning unique identification principles and definitions, implementation instructions, and system descriptions, provides a basis for uniquely identifying systems, structures, and components of nuclear and fossil-fueled power plant projects (electric power generating stations) and related facilities. Hydro and other types of power plant projects are not included. This recommended practice is a part of a series of recommended practices, entitled the Energy Industry Identification System (EIIS), the purpose of which is to present a common language of communication that will permit a user to correlate a system, structure, or component with that of another organization for the purposes of reporting, comparison, or general communication. A significant feature of this concept is that the unique identification code identifies the function at the component level but does not identify the hardware itself.
Keywords: component, component function identifier, function.

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Foreword

(This foreword is not a part of IEEE Std 803.1-1992, IEEE Recommended Practice for Unique Identification in Power Plants and Related Facilities — Component Function Identifiers.)

In April 1979, the Working Group on Unique Identification in Power Plants of the Station Design Subcommittee was formed and charged with the task of producing a series of recommended practices for unique identification in power plants. When it was realized later that this concept provided the same benefits to other types of facilities, the title of the working group was extended to include the words "and related facilities." An example of a related facility would be radioactive waste storage or disposal, or both.

This series of recommended practices, entitled the Energy Industry Identification System (EIIS), provides a single source for unique identification of systems, structures, and components for all types of power generation and related facilities with provision for the inclusion of currently established plant system identifier codes. Using this series of recommended practices, which includes principles, a table of component-function identifier codes, implementation instructions, and system descriptions for the various types of power plants and related facilities, a user can correlate a system, structure, or component with another organization for purposes or reporting, comparison, or general communication. Numerousmic, safety, and convenience benefits can be derived from this concept. IEEE Std 803.1-1992 provides a table of component function identifiers for use in generating unique identification codes for nuclear and fossil-fueled power-plant projects.

The original purpose of this working group was to generate an industry-wide language of communication that could be employed by users at the interface of their organizations and that would not require users to change a viable identification concept that they were already using internally. In the event that the users do not have a viable identification concept of their own, they may choose to employ this concept for their internal applications because it has been successfully applied by several utilities and architectural/engineering firms.

At the time that this standard was completed, the Working Group for Unique Identification in Power Plants and Related Facilities of the Station Operations Subcommittee of the Energy Development and Power Generation Committee of the IEEE Power Engineering Society had the following membership:

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IEEE Recommended Practice for Unique Identification in Power Plants and Related Facilities — Component Function Identifiers

1. Scope

This recommended practice provides a single source of component function identifiers that, along with related recommended practices concerning unique identification principles and definitions, implementation instructions, and system descriptions, makes up a concept, entitled the Energy Industry Identification System (EIIS), for uniquely identifying systems, structures, and components of nuclear and fossil-fueled power plant projects (electric power generating stations) and related facilities. Hydro and other types of power plant projects are not included in this concept.

1.1 Purpose. The purpose of this series of recommended practices is to present a common language of communication that will permit a user organization to correlate a system structure or component with another organization for the purposes of reporting, comparison, or general communication. This concept does not require a user organization to change its own internal identification concept, but merely to transcode at the interface of its organization from its internal language to this common language concept.

The users may, if they so choose, adopt this concept for their internal use. This recommended practice represents the accumulated practice of the industry assimilated into one set of practices. A significant feature of this concept is that the unique identification code identifies the function at the component level but does not identify the hardware itself.

1.2 References. When the following standards referred to in this recommended practice are superseded by an approved revision, the revision shall apply.

[1] IEEE C37.1-1987, IEEE Standard Definition, Specification, and Analysis of Systems Used for Supervisory Control, Data Acquisition, and Automatic Control (ANSI).[1]

[2] IEEE Std 100-1988, IEEE Standard Dictionary of Electrical and Electronics Terms (ANSI).

[3] IEEE Std 803-1983, IEEE Recommended Practice for Unique Identification in Power Plants and Related Facilities — Principles and Definitions (ANSI).

[4] IEEE Std 804-1983, IEEE Recommended Practice for Implementation of Unique Identification System in Power Plants and Related Facilities (ANSI).

[1]IEEE publications are available from the Institute of Electrical and Electronics Engineers, Service Center, 445 Hoes Lane, P. O. Box 1331, Piscataway, NJ 08855-1331, USA.

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[5] IEEE Std 805-1984, IEEE Recommended Practice for System Identification in Nuclear Power Plants and Related Facilities (ANSI).

[6] IEEE Std 806-1986, IEEE Recommended Practice for System Identification in Fossil-Fueled Power Plants and Related Facilities (ANSI).

[7] ISA S5.1-1984, Instrumentation Symbols and Identification.[2]

2. Definitions

The following are definitions for terms as they are used in this unique identification concept or assigned some special or restricted meaning in this recommended practice. For other terms not defined herein, refer to IEEE Std 100-1988 [2].

component. A part or assembly of parts that is viewed as an entity for the purposes of design, operation, and reporting.

function. Normal or characteristic action of a component or the system of which it is a part.

component function identifier. A one to four (1 to 4) character alphanumeric code that identifies the function that will be performed by a component. (Reference codes have been established for the basic functions performed by the principal components currently in use in nuclear and fossil-fueled power plants and related facilities.)

3. Description

The component function identifiers have been selected considering the functional levels within a power plant that are significant to design, procurement, construction, operation, and maintenance applications. The component function identifiers may not include the level necessary for replacement part identification.

The component function identifier codes include ISA Std S5.1-1984 [7] for the more common instrumentation functions. These codes are denoted as “ISA standard” in Tables 2 and 3.

The component function identifiers include IEEE C37.1-1987 [1] for certain electrical devices. These codes are denoted as “IEEE standard” in Tables 2 and 3.

Other identifiers in Tables 2 and 3 have been selected so as not to duplicate codes from the ISA and IEEE standards.

The component function titles have generally been listed in Tables 2 and 3 in the form of “noun-modifier.” This recommended practice principally addresses “noun” functions. Special treatment has been assigned to valves because of operator importance and reportability.

The component function identifiers are sorted in two ways for convenience. The first sort lists component function titles alphabetically in Table 2. The second sort lists component function identifiers alphanumerically in Table 3.

4. Implementation

The component function identifiers listed in Tables 2 and 3 are used in conjunction with the implementation of the Unique Identification System described in IEEE Std 803-1983 [3].

[2]ISA publications are available from the Instrument Society of America, 67 Alexandria Drive, P. O. Box 12277, Research Triangle Park, NC 27709, USA.

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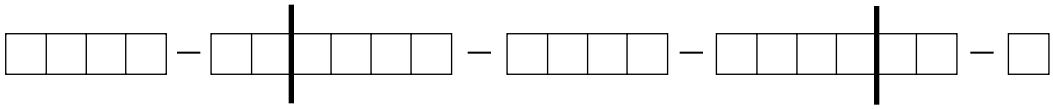
The component function identifier is used in the third field of the Unique Identification Code. (See Table 1.)

Table 1
Unique Identification Code

Field 1	Field 2	Field 3	Field 4	Field 5
Project Identifier	Generating Unit/ System Identifiers	Component Function Identifier	Sequence Code	Electrical Separation Identifier



The component function identifier is left justified for computer applications. Unused character spaces are left blank. It is recognized that user project requirements may dictate use of new or additional component function identifiers in advance of working group action. In this event, an asterisk (*) should be entered in place of the dash (-) immediately in front of the sequence code field of the component's Unique Identification Code to indicate a *component function identifier that is not part of the reference list of component function identifiers.*

Table 2

Component Function Identifier
(Component Functions Listed Alphabetically)

Component Function	Standard Function Identifier
Absorber	ABS
Accumulator	ACC
Adjuster, Rod	ADJ
Adsorber	ADS
Aerator	AER
Agitator	AGT
Air Handling Unit	AHU
Air Lock	AL
Air-Conditioning Package Unit	ACU
Air Preheater (Gas to Air)	APHT
Alarm	ALM
Alarm, Analyzer	AA*
Alarm, Conductivity	CA*
Alarm, Current	IA*
Alarm, Differential, Pressure	PDA*
Alarm, Fire	FRA
Alarm, Flow	FA*
Alarm, Flow (Ratio)	FFA*
Alarm, Flow (Totalized)	FQA*
Alarm, Level	LA*
Alarm, Moisture	MA*
Alarm, Power	JA*
Alarm, Pressure	PA*
Alarm, Radiation	RA*
Alarm, Special	XA*
Alarm, Speed	SA*
Alarm, Temperature	TA*
Alarm, Vibration	VA*
Alarm, Voltage	EA*
Alarm, Weight or Force	WA*
Alarm, Zone (Position)	ZA*
Alternater	ALT
Ammeter (*See*: Indicator, Current)	II*
Amplifier	AMP
Analyzer, Chemical	CHMA
Analyzer, Conductivity	CDA
Analyzer, Density	DENA
Analyzer, PH	PHA

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Table 2 *(Continued)*
Component Function Identifier

Component Function	Standard Function Identifier
Analyzer, Viscosity	VISA
Anchor	ANC
Annunciator	ANN
Anode	ANO
Antenna	ANT
Arrestor, Flame	FAR
Arrestor, Lighting/Surge	LAR
Attemperator	ATM
Attenuator	ATT
Backfill (*See*: Fill)	FILL
Backflow Preventer	BFP
Baffle	BAF
Baghouse	BAGH
Balancer	BALR
Ballast	BLS
Barometer	BAR
Basket	BSKT
Bath, Constant Temperature	CTB
Battery	BTRY
Battery (State of Charge) Condition Sensor	BCS
Beam	BEAM
Bell (*See*: Annunciator)	ANN
Bellows	BLL
Berm	BERM
Block	BLK
Block, Disconnect	DBLK
Block, Trip Cutout	TBLK
Blower	BLO
Blower, Soot	SBLO
Board (Panel)	BD
Board, Battery	BYBD
Board, Control	CBD
Board, Electrical Control	ECBD
Board, Main Relay (SWYD)	MRBD
Board, Recorder Instrument (SWYD)	RIBD
Boiler	BLR
Boiler, Auxiliary	ABLR
Boiler, Waste Heat	WBLR
Box, Flash	FLBX
Box, Fuse	FUBX
Box, Intrusion Detector (Premise)	IDBX
Box, Junction	JBX
Box, Motor Terminal	MBX
Box, Outlet	OBX
Box, Pull	PBX
Box, Splitter	SBX
Box, Valve	VBX
Brace	BRAC
Brake	BRK
Breaker	BKR
Breaker, Junction Monitored	MJB
Breaker, Vacuum	VACB
Breeching (*See*: Duct)	DUCT
Bridge (*See*: Crane)	CRN
Bridge, Structural	BRDG
Brine Maker	BM
Buffer (Isolator) Device	BUF
Building	BLDG
Bulkhead	BHD
Bunker (*See*: Hopper)	HPR
Burner	BNR
Burner Tilt Mechanism	BTM
Bus	BU
Bus, Earth or (Instrument Station)	EBU
Bus Ground	GBU
Bus, Isolated Phase	IPBU
Bus, Nonsegregated, PH, Metal Enclosure (Unit Start or Cable)	NSBU
Bus, Substation	SSBU
Buzzer (*See*: Annunciator)	ANN
Cabinet	CAB
Cabinet, Hose, Fire	HCAB
Cable	CBL
Cable, Controlled and Low-Voltage Power Less Than 30 A	CBL3
Cable, Low-Level Signal	CBL1
Cable, Low-Voltage Power	CBL4
Cable, Medium-Level Signal	CBL2
Cable, Medium-Voltage Power	CBL5
Calciner	CLN
Calorimeter	CAL
Camera, TV	TVC
Canal	CNL
Capacitor	CAP
Card Reader, Security	SCRD
Carrier, Power Line	PLCR
Cathode Ray Tube	CRT
Centrifuge	CEN
Channel	CHA
Charger, Battery	BYC
Chiller Unit	CHU
Chime (*See*: Annunciator)	ANN
Chimney	CHIM
Chlorinator	CHL
Chute	CHT

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Table 2 *(Continued)*
Component Function Identifier

Component Function	Standard Function Identifier
Circuit Breaker, AC	52†
Circuit Breaker, Anode	7†
Circuit Breaker, DC	72†
Circuit Breaker, Equalizer	22†
Circuit Breaker, Field	41*
Circuit Breaker, Running	42†
Circuit Breaker, Starting	6†
Clarifier	CLF
Classifier	CLS
Clearwell	CLW
Clock (*See*: Indicator, Time)	KI
Clutch	CLU
Coagulator	COAG
Coil	CL
Coil, Cooling	CCL
Coil, Drain	DCL
Coil, Heating	HCL
Collector	COL
Collector, Dust	DCOL
Column	COLM
Column, Chemical Process	CLM
Combustor	CBST
Compactor	CPT
Compandor	CPR
Compensator	COMP
Compressor	CMP
Computer	CPU
Condenser	COND
Condensing Unit	CDU
Conduit	CND
Condulet	CDT
Connector	CON
Connector, Flexible	FCON
Connector, Ground (Communications)	GCON
Console	CSL
Contactor	CNTR
Contactor, Field Changing	93†
Contactor, Isolating	29†
Contactor, Load Resistor	73†
Contactor, Master	4†
Contactor, Reversing	9†
Contactor, Starting to Running Transition	19†
Control, Analyzer	AC*
Control, Conductivity	CC*
Control, Current	IC*
Control, Differential, Pressure	PDC*
Control, Differential, Temperature	TDC*
Control, Flow	FC*
Control, Flow (Ratio)	FFC*
Control, Hand	HC*
Control, Indicating, Analyzer	AIC*
Control, Indicating, Conductivity	CIC*
Control, Indicating, Current	IIC*
Control, Indicating, Differential, Pressure	PDIC*
Control, Indicating, Flow	FIC*
Control, Indicating, Hand	HIC*
Control, Indicating, Level	LIC*
Control, Indicating, Moisture	MIC*
Control, Indicating, Power	JIC*
Control, Indicating, Pressure	PIC*
Control, Indicating, Special	XIC*
Control, Indicating, Speed	SIC*
Control, Indicating, Temperature	TIC*
Control, Indicating, Voltage	EIC*
Control, Indicating, Zone (Position)	ZIC*
Control, Level	LC*
Control, Moisture	MC*
Control, Power	JC*
Control, Pressure	PC*
Control, Recording, Analyzer	ARC*
Control, Recording, Conductivity	CRC*
Control, Recording, Current	IRC*
Control, Recording, Differential, Pressure	PDRC*
Control, Recording, Flow	FRC*
Control, Recording, Level	LRC*
Control, Recording, Moisture	MRC*
Control, Recording, Power	JRC*
Control, Recording, Pressure	PRC*
Control, Recording, Special	XRC*
Control, Recording, Speed	SRC*
Control, Recording, Temperature	TRC*
Control, Recording, Voltage	ERC*
Control, Special	XC*
Control, Speed	SC*
Control, Temperature	TC*
Control, Voltage	EC*
Control, Zone (Position)	ZC*
Control Board (Main)	MCBD
Control Center, Motor	MCC
Control Device, Permissive	69†
Control Operator, Analyzer	ACO
Control Operator, Conductivity	CCO
Control Operator, Differential, Pressure	PDCO
Control Operator, Flow	FCO
Control Operator, Hand	HCO
Control Operator, Level	LCO

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Table 2 *(Continued)*
Component Function Identifier

Component Function	Standard Function Identifier
Control Operator, Pressure	PCO
Control Operator, Special	XCO
Control Operator, Speed	SCO
Control Operator, Temperature	TCO
Control Station, Indicating, Analyzer	AIK*
Control Station, Indicating, Conductivity	CIK*
Control Station, Indicating, Current	IIK*
Control Station, Indicating, Differential, Pressure	PDIK*
Control Station, Indicating, Flow	FIK*
Control Station, Indicating, Level	LIK*
Control Station, Indicating, Moisture	MIK*
Control Station, Indicating, Power	JIK*
Control Station, Indicating, Pressure	PIK*
Control Station, Indicating, Special	XIK*
Control Station, Indicating, Speed	SIK*
Control Station, Indicating, Temperature	TIK*
Control Station, Indicating, Voltage	EIK*
Control Station, Recording, Analyzer	ARK*
Control Station, Recording, Conductivity	CRK*
Control Station, Recording, Differential, Pressure	PDRK*
Control Station, Recording, Flow	FRK*
Control Station, Recording, Level	LRK*
Control Station, Recording, Pressure	PRK
Control Station, Recording, Special	XRK*
Control Station, Recording, Temperature	TRK*
Controller, Digital Computer	DCC
Controller, Programmable	PMC
Controller, Step	STC
Converter	CNV
Conveyor	CNVR
Cooler	CLR
Cooling Tower	CTW
Counter	CTR
Coupler	CPL
Coupling	CPLG
Crane (Bridge)	CRN
Crusher	CRSH
Culvert	CULV
Cyclone	CYCL
Dam	DAM
Damper	DMP
Damper, Blocking	BDMP
Damper, Control	CDMP
Damper, Unidirectional (Back-Draft)	UDMP
Dashpot	DPT
Data Input Device	DID
Data Logger	DAL
Data Storage Unit	DSU
Deaerator	DEA
Decarbonator	DCB
Decoder	DEC
Degasifier	DGS
Dehumidifier	DHU
Deionizer (*See*: Exchanger, Ion)	IX
Demineralizer (Chemical Dryer)	DM
Demineralizer, Filter	FDM
Demister	DMST
Demodulator	DEM
Desk, Operators	ODSK
Desuperheater	DSH
Detector	DET
Detector, Substance, Explosive	EXPD
Detector, Flame	28†
Detector, Ground	GDET
Detector, Metal	MDTR
Device, Accelerating	18A†
Device, Apparatus Thermal	26†
Device, Bearing Protective	38†
Device, Brush Operating or Slip-Ring Short-Circuiting	35†
Device, Control Power Disconnecting	8†
Device, Decelerating	18D†
Device, Manual Trans/Select	43†
Device, Master Sequence	34†
Device, Notching or Jogging	66†
Device, Overspeed	12†
Device, Polarity or Polarizing Voltage	36†
Device, Reversing	9†
Device, Separate Excitation	31†
Device, Short-Circuit or Grounding	57†
Device, Speed or Frequency Matching	15†
Device, Stopping	5†
Device, Synchronous Speed	13†
Device, Temperature Control	23†
Device, Underspeed	14†
Diffuser	DIF
Dike	DIKE
Disconnect	DISC
Disconnect, Motor Operated	MOD
Dispenser	DISP
Distributor	DTR
Dock Leveller	DL
Door	DR
Drain	DRN
Drainage Structure	DS

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Table 2 *(Continued)*
Component Function Identifier

Component Function	Standard Function Identifier
Drive	DRIV
Dryer	DRY
Duct	DUCT
Duct, Bus	BDUC
Duct, Cable	CDUC
Dumper	DUMP
Economizer	ECON
Eductor	EDR
Ejector	EJR
Elevator	ELEV
Enclosure	ENCL
Encoder	ECD
Encoder/Decoder	EDC
Engine	ENG
Equipment Base (*See*: Pedestal)	PED
Evaporator	EVP
Exchanger, Heat	HX
Exchanger, Ion	IX
Exciter	EXC
Exhauster	EXH
Expander	EXP
Expansion Joint	EXJ
Extinguisher, Fire	FEXT
Extractor, Vapor	VX
Eyewash	EYW
Fan	FAN
Fan Coil Unit	FCU
Feeder	FDR
Fence	FENC
Fill	FILL
Filter	FLT
Flare	FLR
Floculator	FLOC
Flowmeter (*See*: Indicator, Flow)	FI*
Fountain	FNT
Foundation	FDN
Frame	FRM
Fuel Handling Machine	FHM
Fueling Machine Bridge	FMB
Fueling Machine Head	FMH
Furnace	FURN
Fuse	FU
Fuse Block	FUB
Gas Bottles and Manifold	GBM
Gasifier	GSF
Gate	GATE
Gear	GR
Gear, Reduction	RGR
Gear, Turning	TGR
Generator	GEN
Generator, Auxiliary Motor or Motor	88†
Generator, Diesel	DG
Generator, Permanent Magnet	PMG
Generator, Steam	SG
Generator, Turbine	TG
Generator Set, Motor	MG
Governor	65†
Grille	GRL
Guard Rail	GDR
Gun, Oil	OGUN
Gun, Warmup	WGUN
Handset/Headset	HST
Hand Hole	HH
Hanger	H
Heater, Air (*See*: Heater, Electric Resistance)	EHTR
Heater, Electric Resistance	EHTR
Heater, Combustion	CHTR
Heater, Feedwater (*See*: Exchanger, Heat)	HX
Heater, Steam	SHTR
Heating and Ventilation Unit (*See*: Air Handling Unit)	AHU
Hoist	HOI
Hopper	HPR
Hose	HOSE
Humidifier	HU
Hydrant	HYD
Hydraulic Control Unit	HCU
Ignitor	IGN
Incinerator	INCN
Indicator, Analyzer	AI*
Indicator, Conductivity	CI*
Indicator, Current (Ammeter)	II*
Indicator, Differential, Pressure	PDI*
Indicator, Flow	FI*
Indicator, Flow (Ratio)	FFI*
Indicator, Flow (Totalized)	FQI*
Indicator, Ground	GI
Indicator, Level	LI*
Indicator, Moisture	MI*
Indicator, Power	JI*
Indicator, Pressure	PI*

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Table 2 *(Continued)*
Component Function Identifier

Component Function	Standard Function Identifier
Indicator, Radiation	RI*
Indicator, Special	XI*
Indicator, Speed	SI*
Indicator, Temperature	TI*
Indicator, Time	KI*
Indicator, Time (Totalized)	KQI*
Indicator, Vibration	VI*
Indicator, Voltage	EI*
Indicator, Weight or Force	WI*
Indicator, Zone (Position)	ZI*
Inerter, Pulverizer	INRT
Insulation	ISL
Insulator	INS
Intercom	ICOM
Interlock, Electrical	IEL
Interlock, Mechanical	IMEC
Interrupter, Ground Fault Circuit	GFI
Inverter	INVT
Isolator, Analyzer	AB*
Isolator, Conductivity	CB*
Isolator, Current	IB*
Isolator, Differential, Pressure	PDB*
Isolator, Differential, Temperature	TDB*
Isolator, Flow	FB*
Isolator, Flow (Ratio)	FFB*
Isolator, Flow (Totalized)	FQB*
Isolator, Level	LB*
Isolator, Moisture	MB*
Isolator, Optic	OB
Isolator, Pressure	PB*
Isolator, Radiation	RB*
Isolator, Special	XB*
Isolator, Speed	SB*
Isolator, Temperature	TB*
Isolator, Vibration	VB*
Isolator, Voltage	EB*
Isolator, Weight or Force	WB*
Keyboard	KBD
Kitchen Unit	KPU
Klaxon (*See*: Annunciator)	ANN
Ladder	LADR
Lift Station	LFS
Light, Indicator	IL
Lighting Fixture	LF
Lighting Standard (Pole)	LTP
Line Tuning Unit	LTU
Liner	LNR
Lixator	LIX
Load Cell	LDC
Loudspeaker	LDS
Louver	LV
Lubricator	LU
Magnet	MAG
Manhole	MH
Manlift (*See*: Elevator)	ELEV
Master Element	1*
Mechanism, Position Changing	75*
Meter	MTR
Meter, Demand	DMTR
Meter, Frequency (Hertz)	HZM
Meter, Power Factor	PFM
Meter, Q Hour	QHM
Meter, Temperature	TMTR
Meter, Var (Voltampere-Reactive)	VARM
Meter, Vibration	VIBM
Meter, Voltage Squared	VSM
Meter Watthour	WHM
Microphone	MIKE
Mixer	MIX
Modem (Combined Modulator-Demodulator)	MODE
Modifier, Analyzer	AM
Modifier, Conductivity	CM
Modifier, Current	IM
Modifier, Differential, Pressure	PDM
Modifier, Differential, Temperature	TDM
Modifier, Flow	FM
Modifier, Flow (Ratio)	FFM
Modifier, Flow (Totalizer)	FQM
Modifier, Indicator, Pressure	PIM
Modifier, Level	LM
Modifier, Moisture	MM
Modifier, Power	JM
Modifier, Pressure	PM
Modifier, Radiation	RM
Modifier, Special	XM
Modifier, Speed	SM
Modifier, Temperature	TM
Modifier, Vibration	VM
Modifier, Voltage	EM
Modifier, Weight or Force	WM
Modifier, Zone (Position)	ZM
Modulator	MDR
Module, Instrument	IMOD

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Table 2 *(Continued)*
Component Function Identifier

Component Function	Standard Function Identifier
Monitor	MON
Monitor, Atmospheric Condition	45†
Monitor, Mechanical Condition	39†
Motor	MO
Motor, Starter	MSTR
Multiplexer	MPX
Neutralizer	NEU
Nozzle	NZL
Nozzle Plate (*See*: Orifice)	OR
Operating Mechanism	84†
Operator, Valve	VOP
Orifice	OR
Oscillator	OSL
Oscillograph	OSG
Oscilloscope	OSC
Osmosis Unit, Reverse	ROU
Outlet	OUT
Oven (*See*: Furnace)	FURN
Oxidizer	OXID
Packaged HVAC Assembly (*See*: A/C Unit)	ACU
Pan, Cable (*See*: Tray, Cable)	TY
Panel	PL
Parking Lot	PKLT
Pedestal	PED
Penetration	PEN
Phase Shifting Device	PSD
Photoelectric Cell	PEC
Pipe (Spool)	PSP
Pipe Fittings	PSF
Piping Specialities	PSX
Player	PLAY
Platform	PLAT
Plennum (*See*: Duct)	DUCT
Plug (*See*: Connector)	CON
Positioner Car (RR)	CPOS
Potential Device	PD
Power Supply, Electric	JX
Power Supply, Electric, Regulated	RJX
Power Supply, Uninterruptible	UJX
Precipitator	PCP
Pressure Breakdown Device (*See*: Orifice)	OR
Pressurizer	PZR
Primary Element, Analyzer	AE*
Primary Element, Burner	BE*
Primary Element, Conductivity	CE*
Primary Element, Current	IE*
Primary Element, Differential, Pressure	PDE*
Primary Element, Flow	FE*
Primary Element, Level	LE*
Primary Element, Moisture	ME*
Primary Element, PH	PHE
Primary Element, Pressure	PE*
Primary Element, Radiation	RE*
Primary Element, Seismic	SESE*
Primary Element, Special	XE*
Primary Element, Speed	SE*
Primary Element, Temperature	TE*
Primary Element, Vibration	VE*
Primary Element, Voltage	EE*
Primary Element, Wear	WRE*
Primary Element, Weight or Force	WE*
Primary Element, Zone (Position)	ZE*
Printer	PRNT
Printer/ Plotter	PLOT
Probe, Temperature	TPRB
Projector	PJR
Protector, Surge (*See*: Surge Protection Package)	SPP
Pulverizer	PULV
Pump	P
Pump, Heat	HPMP
Pump, Vacuum	VACP
Purifier	PFR
Pyrometer	PYRO
Rack	RK
Radio	RADO
Radiator (*See*: Exchanger, Heat)	HX
Railroad	RLRD
Reactor (Nuclear)	RCT
Reactor, Phase Correction (*See*: Phase Shifting Device)	PSD
Reader	RDR
Reboiler	RBLR
Receiver	RCV
Receiver, Microwave	MWRX
Receptacle	RCP
Reclamer	RCL
Recombiner	RCB
Recorder, Analyzer	AR*
Recorder, Conductivity	CR*
Recorder, Current	IR*
Recorder, Differential, Pressure	PDR*
Recorder, Differential, Temperature	TDR*

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Table 2 *(Continued)*
Component Function Identifier

Component Function	Standard Function Identifier
Recorder, Flow	FR*
Recorder, Flow (Ratio)	FFR*
Recorder, Flow (Totalized)	FQR*
Recorder, Frequency	HZR
Recorder, Indicating, Analyzer	AIR*
Recorder, Level	LR*
Recorder, Moisture	MR*
Recorder, Power	JR*
Recorder, Pressure	PR*
Recorder, Radiation	RR*
Recorder, Seismic	SESR
Recorder, Special	XR*
Recorder, Speed	SR*
Recorder, Temperature	TR*
Recorder, Vibration	VR*
Recorder, Voltage	ER*
Recorder, Weight or Force	WR*
Rectifier	RECT
Rectifier, Silicon Controlled	SCR
Reel, Hose, Fire	HR
Reflector	RFL
Refractor	RFR
Refrigerator	REF
Refrigerator Unit	RFU
Regenerator	RGEN
Regulating Device	90†
Regulator	RG
Regulator, Air Filter	AFRG
Reheater	RHTR
Relay	RLY
Relay, AC Directional Overcurrent	67†
Relay, AC Reclosing	79†
Relay, AC Time Overcurrent	51†
Relay, Alarm	74†
Relay, Analyzer	AY
Relay, Annunciator	30†
Relay, Automatic Selective Control or Transfer	83†
Relay, Blocking	68†
Relay, Carrier/Pilot-Wire Receiver	85†
Relay, Checking or Interlocking	3†
Relay, Current Balance	61†
Relay, DC Overcurrent	76†
Relay, DC Reclosing	82†
Relay, Differential Protective	87†
Relay, Directional Power	32†
Relay, Distance	21†
Relay, Exciter or DC Generator	53†
Relay, Field	40†
Relay, Field Application	56†
Relay, Frequency	81†
Relay, Ground Detector (Not CT Secondary)	64†
Relay, Incomplete Sequence	48†
Relay, Instantaneous Overcurrent (OC)	50†
Relay, Locking-Out	86†
Relay, Machine or Transformer Thermal	49†
Relay, Out-of-Step Protective or Phase-Angle Measuring	78†
Relay, Overvoltage	59†
Relay, Phase Discordance	95†
Relay, Phase-Balance Current or Reverse-Phase	46†
Relay, Phase-Sequence Voltage	47†
Relay, Power Factor	55†
Relay, Rectifier Failure	58†
Relay, Static Breaker Failure	24†
Relay, Time-Delay Starting or Closing	2†
Relay, Time-Delay Stopping or Opening	62†
Relay, Tripping	94†
Relay, Undercurrent or Underpower	37†
Relay, Undervoltage	27†
Relay, Unit Sequence Starting	44†
Relay, Voltage Directional	91†
Relay, Voltage and Power Directional	92†
Relay, Voltage or Current Balance	60†
Reservoir	RVR
Resistor, Grounding	RES
Rheostat	70†
Rheostat	RHE
Road	ROAD
Rod	ROD
Rupture Disc	RPD
Sampler	SAMP
Scale	SCL
Scraper	SCRP
Screen	SCN
Scrubber	SCB
Sea Wall	SEWL
Seal	SEAL
Selector	SEL
Separator	SEP
Separator, Reheater Moisture	MSR
Shield, Missile	MSHD
Shower	SHR
Shower, Safety	SSHR
Sight Glass, Flow	FG*
Sight Glass, Level	LG*

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Table 2 *(Continued)*
Component Function Identifier

Component Function	Standard Function Identifier
Silencer	SIL
Silo	SILO
Sink	SNK
Skimmer	SKR
Slaker	SLKR
Sleeve	SLV
Snubber	SNB
Solenoid	SOL
Source, Radiation	RADS
Speaker	SPK
Spectometer	SPTR
Spillway	SPWY
Splitter, RF	SPL
Sprinkler	SRNK
Stack (*See*: Chimney)	CHIM
Stacker	STKR
Stacker/Reclaimer	STRC
Stair	STA
Steam Drum	SD
Stop Log	STLG
Strainer	STR
Sump	SUMP
Superheater	SH
Support	SPT
Surge Protection Package	SPP
Switch, Analyzer	AS*
Switch, Conductivity	CS*
Switch, Current	IS*
Switch, Differential, Pressure	PDS*
Switch, Differential, Temperature	TDS*
Switch, Flow	80†
Switch, Flow	FS*
Switch, Flow (Ratio)	FFS*
Switch, Flow (Totalized)	FQS*
Switch, Hand	HS*
Switch, Indicating, Analyzer	AIS*
Switch, Indicating, Conductivity	CIS*
Switch, Indicating, Current	IIS*
Switch, Indicating, Differential, Pressure	PDIS*
Switch, Indicating, Flow	FIS*
Switch, Indicating, Hand	HIS*
Switch, Indicating, Level	LIS*
Switch, Indicating, Moisture	MIS*
Switch, Indicating, Pressure	PIS*
Switch, Indicating, Radiation	RIS*
Switch, Indicating, Special	XIS*
Switch, Indicating, Speed	SIS*
Switch, Indicating, Temperature	TIS*
Switch, Indicating, Time	KIS*
Switch, Indicating, Totalizing, Flow	FQIS
Switch, Indicating, Vibration	VIS*
Switch, Indicating, Voltage	EIS*
Switch, Indicating, Weight or Force	WIS*
Switch, Indicating, Zone (Position)	ZIS*
Switch, Level	71†
Switch, Level	LS*
Switch, Limit (Zone)	ZS*
Switch, Line	89†
Switch, Moisture	MS*
Switch, Position	33†
Switch, Power	JS*
Switch, Pressure	63†
Switch, Pressure	PS*
Switch, Recording, Temperature	TRS*
Switch, Shunting or Discharge	17†
Switch, Speed	SS*
Switch, Temperature	TS*
Switch, Transmitting, Indicating, Analyzer	AITS
Switch, Unit Sequence	10†
Switch, Vibration	VS*
Switchgear	SWGR
Switching Unit, Automatic	ASU
Synchronizing or Synchronism—Check Device	25†
Synchronoscope	SYN
Tachometer	TAC
Tank	TK
Tap Changer, Transformer	TTC
Telemeter	TLM
Telephone	TEL
Teletypewriter	TTY
Television	TELE
Thermostat	TH
Thermowell	TW
Timer	TMR
Totalizer, Current	IQ*
Totalizer, Flow	FQ*
Totalizer, Power Watthour	JWHQ
Totalizer, Time	KQ*
Totalizer, Voltage	EQ*
Tower	TWR
Transducer	TD
Transformer	XFMR
Transformer, Current	XCT
Transformer, Potential	XPT

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Table 2 *(Continued)*
Component Function Identifier

Component Function	Standard Function Identifier
Transmitter, (Volt-Ampere-Reactive)	VART
Transmitter, Analyzer	AT*
Transmitter, Conductivity	CT*
Transmitter, Current	IT*
Transmitter, Differential, Pressure	PDT*
Transmitter, Differential, Temperature	TDT*
Transmitter, Flow	FT*
Transmitter, Flow (Ratio)	FFT*
Transmitter, Flow (Totalized)	FQT*
Transmitter, Indicating, Analyzer	AIT*
Transmitter, Indicating, Conductivity	CIT*
Transmitter, Indicating, Current	IIT*
Transmitter, Indicating, Differential, Pressure	PDIT*
Transmitter, Indicating, Differential, Temperature	TDIT*
Transmitter, Indicating, Flow	FIT*
Transmitter, Indicating, Level	LIT*
Transmitter, Indicating, Moisture	MIT*
Transmitter, Indicating, Pressure	PIT*
Transmitter, Indicating, Radiation	RIT*
Transmitter, Indicating, Special	XIT*
Transmitter, Indicating, Speed	SIT*
Transmitter, Indicating, Temperature	TIT*
Transmitter, Indicating, Vibration	VIT*
Transmitter, Indicating, Voltage	EIT*
Transmitter, Indicating, Weight or Force	WIT*
Transmitter, Level	LT*
Transmitter, Microwave	MWTX
Transmitter, Moisture	MT*
Transmitter, Power	JT*
Transmitter, Power Watthour	JWHT
Transmitter, Pressure	PT*
Transmitter, Pulse	77†
Transmitter, Radiation	RT*
Transmitter, Special	XT*
Transmitter, Speed	ST*
Transmitter, Temperature	TT*
Transmitter, Time (Totalized)	KQT*
Transmitter, Vibration	VT*
Transmitter, Voltage	ET*
Transmitter, Zone (Position)	ZT*
Transmitter-Receiver	TMRC
Trap	TRP
Tray, Cable	TY
Tripper	TPR
Trolley	TRLY
Tubing	TBG
Tunnel	TUN
Turbine	TRB
Turnstile	TRNS
Turret	TUR
Typewriter	TPW
Ultrasonic Cleaner	USC
Unit, Security, X-Ray	XRAY
Unit Heater	VUH
Unit Substation	USS
Unloader	UNLD
Urinal	URN
Valve	V
Valve, Check	CKV
Valve, Control, Analyzer	ACV
Valve, Control, Conductivity	CCV
Valve, Control, Differential, Pressure	PDCV*
Valve, Control, Flow	FCV*
Valve, Control, Hand	HCV
Valve, Control, Level	LCV*
Valve, Control, Pressure	PCV*
Valve, Control, Special	XCV
Valve, Control, Speed	SCV*
Valve, Control, Temperature	TCV*
Valve, Diverter	DV
Valve, Electrically Operated	20†
Valve, Injection	INV
Valve, Isolation	ISV
Valve, Leakoff	LOV
Valve, Relief	RV
Valve, Root	RTV
Valve, Sample	SMV
Valve, Shutoff	SHV
Valve, Solenoid, Analyzer	ASV
Valve, Solenoid, Conductivity	CSV
Valve, Solenoid, Differential, Pressure	PDSV
Valve, Solenoid, Flow	FSV
Valve, Solenoid, Level	LSV
Valve, Solenoid, Pressure	PSV
Valve, Solenoid, Speed	SSV
Valve, Solenoid, Temperature	TSV
Valve, Telltale	TTV
Valve, Test	TV
Valve, Vent	VTV
Vaporizer	VPR
Variac	VRC
Ventilator	VLR
Vessel	VSL

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Table 2 *(Continued)*
Component Function Identifier

Component Function	Standard Function Identifier
Vessel, Reactor	RPV
Vibrator	VBR
Voltmeter (*See*: Indicator, Voltage)	EI*
Wash Machine	WSM
Washer, Air	WSH
Water Closet	WC
Water Hammer Arrestor	WHA
Waterwall	WW
Wattmeter (*See*: Indicator, Power)	JI*
Wave Guide	WGU
Weir	WEIR
Well, Temperature (*See*: Thermowell)	TW
Whistle (*See*: Annunciator)	ANN
Window, Observation	OWND
Wire, Electrical	WEL
Wire, Nonelectrical	WNE

*Standard Function Identifier is an ISA standard. See Footnote 2.
†Standard Function Identifier is an IEEE standard. See Footnote 1.

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Table 3
Component Function Identifier
(Standard Function Identifiers Listed Numerically and Alphabetically)

Standard Function Identifier	Component
1	Master Element†
2	Relay, Time-Delay Starting or Closing†
3	Relay, Checking or Interlocking†
4	Contactor, Master†
5	Device, Stopping†
6	Circuit Breaker, Starting†
7	Circuit Breaker, Anode†
8	Device, Control Power Disconnecting†
9	Device, Reversing†
10	Switch, Unit Sequence†
12	Device, Overspeed†
13	Device, Synchronous Speed†
14	Device, Underspeed†
15	Device, Speed or Frequency Matching†
17	Switch, Shunting or Discharge†
18A	Device, Accelerating†
18D	Device, Decelerating†
19	Contactor, Starting-To-Running Transition†
20	Valve, Electrically Operated†
21	Relay, Distance†
22	Circuit Breaker, Equalizer†
23	Device, Temperature Control†
24	Relay, Static Breaker Failure
25	Synchronizing or Synchronism-Check Drive†
26	Device, Apparatus Thermal†
27	Relay, Undervoltage†
28	Detector, Flame†
29	Contactor, Isolating†
30	Relay, Annunciator†
31	Device, Separate Excitation†
32	Relay, Directional Power†
33	Switch, Position†
34	Device, Master Sequence
35	Device, Brush-Operating or Slip-Ring Short Circuiting†
36	Device, Polarity or Polarizing Voltage†
37	Relay, Undercurrent or Underpower†
38	Device, Bearing Protective†
39	Monitor, Mechanical Condition†
40	Relay, Field†
41	Circuit Breaker, Field†
42	Circuit Breaker, Running†
43	Device, Manual Trans/Select†
44	Relay, Unit Sequence Starting†
45	Monitor, Atmospheric Condition†
46	Relay, Phase-Balance Current or Reverse-Phase
47	Relay, Phase-Sequence Voltage†
48	Relay, Incomplete Sequence†
49	Relay, Machine or Transformer Thermal†
50	Relay, Instantaneous Overcurrent (OC)†
51	Relay, AC Time Overcurrent†
52	Circuit Breaker, AC†
53	Relay, Exciter or DC Generator†
55	Relay, Power Factor†
56	Relay, Field Application†
57	Device, Short-Circuiting or Grounding†
58	Relay, Rectifier Failure†
59	Relay, Overvoltage†
60	Relay, Voltage or Current Balance†
61	Relay, Current Balance†
62	Relay, Time-Delay Stopping or Opening†
63	Switch, Pressure†
64	Relay, Ground Detector (Not CT Secondary)†
65	Governor†
66	Device, Notching or Jogging†
67	Relay, AC Directional Overcurrent†
68	Relay, Blocking†
69	Control Device, Permissive†
70	Rheostat†
71	Switch, Level†
72	Circuit Breaker, DC†
73	Contactor, Load-Resistor†
74	Relay, Alarm†
75	Mechanism, Position Changing†
76	Relay, DC Overcurrent†
77	Transmitter, Pulse†
78	Relay, Out-of-Step Protective or Phase-Angle Measuring†
79	Relay, AC Reclosing†
80	Switch, Flow†
81	Relay, Frequency†
82	Relay, DC Reclosing†
83	Relay, Automatic Selective Control or Transfer†
84	Operating Mechanism†
85	Relay, Carrier/Pilot-Wire Receiver†
86	Relay, Locking-Out†
87	Relay, Differential Protective†
88	Generator, Auxiliary Motor or Motor†
89	Switch, Line†
90	Regulating Device†
91	Relay, Voltage Directional†
92	Relay, Voltage and Power Directional†

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Table 3 *(Continued)*
Component Function Identifier

Standard Function Identifier	Component
93	Contactor, Field Changing†
94	Relay, Tripping†
95	Relay, Phase Discordance Handling Unit†
AA	Alarm, Analyzer*
AB	Isolator, Analyzer*
ABLR	Boiler, Auxiliary
ABS	Absorber
AC	Control, Analyzer*
ACC	Accumulator
ACO	Control Operator, Analyzer
ACU	Air-Conditioning Package Unit
ACU	Packaged HVAC Assembly (*See*: A/C Unit)
ACV	Valve, Control, Analyzer*
ADJ	Adjuster, Rod
ADS	Adsorber
AE	Primary Element, Analyzer*
AER	Aerator
AFRG	Regulator, Air Filter
AGT	Agitator
AHU	Air Handling Unit
AHU	Heating and Ventilating Unit (*See*: Air Handling Unit)
AI	Indicator, Analyzer*
AIC	Control, Indicating, Analyzer*
AIK	Control Station, Indicating, Analyzer*
AIR	Recorder, Indicating, Analyzer*
AIS	Switch, Indicating, Analyzer*
AIT	Transmitter, Indicating, Analyzer*
AITS	Switch, Transmitting, Indicating, Analyzer
AL	Air Lock
ALM	Alarm
ALT	Alternater
AM	Modifier, Analyzer
ANC	Anchor
AMP	Amplifier
ANN	Annunciator
ANN	Bell (*See*: Annunciator)
ANN	Buzzer (*See*: Annunciator)
ANN	Chime (*See*: Annunciator)
ANN	Klaxon (*See*: Annunciator)
ANN	Whistle (*See*: Annunciator)
ANO	Anode
ANT	Antenna
APHT	Air Preheater (Gas to Air)
AR	Recorder, Analyzer*
ARC	Control, Recording, Analyzer*
ARK	Control Station, Recording, Analyzer*
AS	Switch, Analyzer*
ASU	Switching Unit, Automatic
ASV	Valve, Solenoid, Analyzer
AT	Transmitter, Analyzer*
ATM	Attemperator
ATT	Attenuator
AY	Relay, Analyzer
BAF	Baffle
BAGH	Baghouse
BALR	Balancer
BAR	Barometer
BCS	Battery (State of Charge) Condition Sensor
BD	Board (Panel)
BDMP	Damper, Blocking
BDUC	Duct, Bus
BE	Primary Element, Burner*
BEAM	Beam
BERM	Berm
BFP	Backflow Preventer
BHD	Bulkhead
BKR	Breaker
BLDG	Building
BLK	Block
BLL	Bellows
BLO	Blower
BLR	Boiler
BLS	Ballast
BM	Brine Maker
BNR	Burner
BRAC	Brace
BRDG	Bridge, Structural
BRK	Brake
BSKT	Basket
BTM	Burner Tilt Mechanism
BTRY	Battery
BU	Bus
BUF	Buffer (Isolator) Device
BYBD	Board, Battery
BYC	Charger, Battery
CA	Alarm, Conductivity*
CAB	Cabinet
CAL	Calorimeter
CAP	Capacitor
CB	Isolator, Conductivity*
CBD	Board, Control
CBL	Cable
CBL1	Cable, Low-Level Signal
CBL2	Cable, Medium-Level Signal
CBL3	Cable, Control and Low-Voltage PWR Less Than 30 A
CBL4	Cable, Low-Voltage Power

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Table 3 *(Continued)*
Component Function Identifier

Standard Function Identifier	Component
CBL5	Cable, Medium-Voltage Power
CBST	Combustor
CC	Control, Conductivity*
CCL	Coil, Cooling
CCO	Control Operator, Conductivity
CCV	Valve, Control, Conductivity
CDA	Analyzer, Conductivity
CDMP	Damper, Control
CDT	Condulet
CDU	Condensing Unit
CDUC	Duct Cable
CE	Primary Element, Conductivity*
CEN	Centrifuge
CGEN	Chemical Generator
CHA	Channel
CHIM	Chimney
CHIM	Stack (*See*: Chimney)
CHL	Chlorinator
CHMA	Analyzer, Chemical
CHT	Chute
CHTR	Heater, Combustion
CHU	Chiller Unit
CI	Indicator, Conductivity*
CIC	Control, Indicating, Conductivity*
CIK	Control Station, Indicating, Conductivity *
CIS	Switch, Indicating, Conductivity*
CIT	Transmitter, Indicating, Conductivity*
CKV	Valve, Check
CL	Coil
CLF	Clarifier
CLM	Column, Chemical Process
CLN	Calciner
CLR	Cooler
CLS	Classifier
CLU	Clutch
CLW	Clearwell
CM	Modifier, Conductivity
CMP	Compressor
CND	Conduit
CNL	Canal
CNTR	Contactor
CNV	Converter
CNVR	Conveyor
COAG	Coagulator
COL	Collector
COLM	Column
COMP	Compensator
CON	Connector
CON	Plug (*See*: Connector)
COND	Condenser
CPL	Coupler
CPLG	Coupling
CPOS	Positioner, Car (RR)
CPR	Compandor
CPT	Compactor
CPU	Computer
CR	Recorder, Conductivity*
CRC	Control, Recording, Conductivity*
CRK	Control Station, Recording, Conductivity
CRN	Bridge, (*See*: Crane)
CRN	Crane (*See*: Bridge)
CRSH	Crusher
CRT	Cathode Ray Tube
CS	Switch, Conductivity*
CSL	Console
CSV	Valve, Solenoid, Conductivity
CT	Transmitter, Conductivity*
CTB	Bath, Constant Temperature
CTR	Counter
CTW	Cooling Tower
CULV	Culvert
CYCL	Cyclone
DAL	Data Logger
DAM	Dam
DBLK	Block, Disconnect
DCB	Decarbonator
DCC	Controller, Digital Computer
DCL	Coil, Drain
DCOL	Collector, Dust
DEA	Deaerator
DEC	Decoder
DEM	Demodulator
DENA	Analyzer, Density
DET	Detector
DG	Generator, Diesel
DGS	Degasifier
DHU	Dehumidifier
DID	Data Input Device
DIF	Diffuser
DIKE	Dike
DISC	Disconnect
DISP	Dispenser
DL	Dock Leveller
DM	Demineralizer (Chemical Driver)
DMP	Damper
DMST	Demister

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Table 3 *(Continued)*
Component Function Identifier

Standard Function Identifier	Component
DMTR	Meter, Demand
DPT	Dashpot
DR	Door
DRIV	Drive
DRN	Drain
DRY	Dryer
DS	Drainage Structure
DSH	Desuperheater
DSU	Data Storage Unit
DTR	Distributor
DUCT	Duct
DUCT	Breeching (*See*: Duct)
DUCT	Plennum (*See*: Duct)
DUMP	Dumper
DV	Valve, Diverter
EA	Alarm, Voltage*
EB	Isolator, Voltage*
EBU	Bus, Earth or (Instrument Station)
EC	Control, Voltage*
ECBD	Board, Electrical Control
ECD	Encoder
ECON	Economizer
EDC	Encoder/Decoder
EDR	Eductor
EE	Primary Element, Voltage*
EHTR	Heater, Air (*See*: Heater, Electric Resistance)
EHTR	Heater, Electric Resistance
EI	Indicator, Voltage*
EI	Voltmeter (*See*: Indicator, Voltage)*
EIC	Control, Indicating, Voltage*
EIK	Control Station, Indicating, Voltage*
EIS	Switch, Indicating, Voltage*
EIT	Transmitter, Indicating, Voltage*
EJR	Ejector
ELEV	Elevator
ELEV	Manlift (*See*: Elevator)
EM	Modifier, Voltage
ENCL	Enclosure
ENG	Engine
EQ	Totalizer, Voltage*
ER	Recorder, Voltage*
ERC	Control, Recording, Voltage*
ET	Transmitter, Voltage*
EVP	Evaporator*
EXC	Exciter
EXH	Exhauster
EXJ	Expansion Joint
EXP	Expander
EXPD	Detector, Substance, Explosive
EYW	Eyewash
FA	Alarm, Flow*
FAN	Fan
FAR	Arrestor, Flame
FB	Isolator, Flow*
FC	Control, Flow*
FCO	Control Operator, Flow
FCON	Connector, Flexible
FCU	Fan Coil Unit
FCV	Valve, Control, Flow*
FDM	Demineralizer, Filter
FDN	Foundation
FDR	Feeder
FE	Primary Element, Flow*
FENC	Fence
FEXT	Extinguisher, Fire
FFA	Alarm, Flow (Ratio)*
FFB	Isolator, Flow (Ratio)*
FFC	Control, Flow (Ratio)*
FFI	Indicator, Flow (Ratio)*
FFM	Modifier, Flow (Ratio)
FFR	Recorder, Flow (Ratio)*
FFS	Switch, Flow (Ratio)*
FFT	Transmitter, Flow (Ratio)*
FG	Sight Glass, Flow*
FHM	Fuel Handling Machine
FI	Flowmeter (*See*: Indicator, Flow)
FI	Indicator, Flow*
FIC	Control, Indicating, Flow*
FIK	Control Station, Indicating, Flow*
FILL	Backfill (*See*: Fill)
FILL	Fill
FIS	Switch, Indicating, Flow*
FIT	Transmitter, Indicating, Flow*
FLBX	Box, Flash
FLOC	Floculator
FLR	Flare
FLT	Filter
FM	Modifier, Flow
FMB	Fueling Machine Bridge
FMH	Fueling Machine Head
FNT	Fountain
FQ	Totalizer, Flow*
FQA	Alarm, Flow (Totalized)*
FQB	Isolator, Flow (Totalized)*
FQI	Indicator, Flow (Totalized)*
FQIS	Switch, Indicating, Totalizing, Flow

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Table 3 *(Continued)*
Component Function Identifier

Standard Function Identifier	Component
FQM	Modifier, Flow (Totalized)*
FQR	Recorder, Flow (Totalized)*
FQS	Switch, Flow (Totalized)*
FQT	Transmitter, Flow (Totalized)*
FR	Recorder, Flow*
FRA	Alarm, Fire
FRC	Control, Recording, Flow*
FRK	Control Station, Recording, Flow*
FRM	Frame
FS	Switch, Flow*
FSV	Valve, Solenoid, Flow
FT	Transmitter, Flow*
FU	Fuse
FUB	Fuse Block
FUBX	Box, Fuse
FURN	Furnace
FURN	Oven (*See*: Furnace)
GATE	Gate
GBM	Gas Bottles and Manifold
GBU	Bus, Ground
GCON	Connector, Ground (Communications)
GDET	Detector, Ground
GDR	Guard Rail
GEN	Generator
GFI	Interrupter, Ground Fault Circuit
GI	Indicator, Ground
GR	Gear
GRL	Grille
GSF	Gasifier
H	Hanger
HC	Control, Hand*
HCAB	Cabinet, Hose, Fire
HCL	Coil, Heating
HCO	Control Operator, Hand
HCU	Hydraulic Control Unit
HCV	Valve, Control Hand
HH	Hand Hole
HIC	Control, Indicating, Hand*
HIS	Switch, Indicating, Hand*
HOI	Hoist
HOSE	Hose
HPMP	Pump, Heat
HPR	Bunker (*See*: Hopper)
HPR	Hopper
HR	Reel, Hose, Fire
HS	Switch, Hand*
HST	Handset/Headset
HU	Humidifier
HX	Exchanger, Heat
HX	Heater, Feedwater (*See*: Exchanger, Heat)
HX	Radiator (*See*: Exchanger, Heat)
HYD	Hydrant
HZM	Meter, Frequency (Hertz)
HZR	Recorder, Frequency
IA	Alarm, Current*
IB	Isolator, Current*
IC	Control, Current*
ICOM	Intercom
IDBX	Box, Intrusion Detector (Premise)
IE	Primary Element, Current*
IEL	Interlock, Electrical
IGN	Ignitor
II	Ammeter (*See*: Indicator Current)
II	Indicator, Current*
IIC	Control, Indicating, Current*
IIK	Control Station, Indicating, Current
IIS	Switch, Indicating, Current*
IIT	Transmitter, Indicating, Current*
IL	Light, Indicator
IM	Modifier, Current
IMEC	Interlock, Mechanical
IMOD	Module, Instrument
INCN	Incinerator
INRT	Inerter, Pulverizer
INS	Insulator
INV	Valve, Injection
INVT	Inverter
IPBU	Bus, Isolated Phase
IQ	Totalizer, Current*
IR	Recorder, Current*
IRC	Control, Recording, Current*
IS	Switch, Current*
ISL	Insulation
ISV	Valve, Isolation
IT	Transmitter, Current*
IX	Exchanger, Ion
IX	Deionizer (*See*: Exchanger, Ion)
JA	Alarm, Power*
JBX	Box, Junction
JC	Control, Power*
JI	Indicator, Power*
JI	Wattmeter (*See*: Indicator, Power)*
JIC	Control, Indicating, Power*
JIK	Control Station, Indicating, Power*
JM	Modifier, Power
JR	Recorder, Power*

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Table 3 *(Continued)*
Component Function Identifier

Standard Function Identifier	Component
JRC	Control, Recording, Power*
JS	Switch, Power*
JT	Transmitter, Power*
JWHQ	Totalizer, Power Watthour
JWHT	Transmitter, Power Watthour
JX	Power Supply, Electric
KBD	Keyboard
KI	Clock (*See*: Indicator, Time)
KI	Indicator, Time*
KIS	Switch, Indicating, Time*
KPU	Kitchen Unit
KQ	Totalizer, Time*
KQI	Indicator, Time (Totalized)*
KQT	Transmitter, Time (Totalized)*
LA	Alarm, Level*
LADR	Ladder
LAR	Arrestor, Lightning
LB	Isolator, Level*
LC	Control, Level*
LCO	Control Operator, Level
LCV	Valve, Control, Level*
LDC	Load Cell
LDS	Loudspeaker
LE	Primary Element, Level*
LF	Lighting Fixture
LFS	Lift Station
LG	Sight Glass, Level*
LI	Indicator, Level*
LIC	Control, Indicating, Level*
LIK	Control Station, Indicating, Level*
LIS	Switch, Indicating, Level*
LIT	Transmitter, Indicating, Level*
LIX	Lixator
LM	Modifier, Level*
LNR	Liner
LOV	Valve, Leakoff
LR	Recorder, Level*
LRC	Control, Recording, Level*
LRK	Control Station, Recording, Level*
LS	Switch, Level*
LSV	Valve, Solenoid, Level
LT	Transmitter, Level*
LTP	Lighting Standard (Pole)
LTU	Line Tuning Unit
LU	Lubricator
LV	Louver
MA	Alarm, Moisture
MAG	Magnet
MB	Isolator, Moisture
MBX	Box, Motor Terminal
MC	Control, Moisture*
MCBD	Control Board (Main)
MCC	Control Center, Motor
MDR	Modulator
MDTR	Detector, Metal
ME	Primary Element, Moisture*
MG	Generator Set, Motor
MH	Manhole
MI	Indicator, Moisture*
MIC	Control, Indicating, Moisture*
MIK	Control Station, Indicating, Moisture*
MIKE	Microphone
MIS	Switch, Indicating, Moisture*
MIT	Transmitter, Indicating, Moisture
MIX	Mixer
MJB	Breaker, Junction, Monitored
MM	Modifier, Moisture
MO	Motor
MOD	Disconnect, Motor Operated
MODE	Modem (Combined Modulator-Demodulator)
MON	Monitor
MPX	Multiplexer
MR	Recorder, Moisture*
MRBD	Board, Main Relay (SWYD)
MRC	Control, Recording, Moisture*
MS	Switch, Moisture*
MSHD	Shield, Missile
MSR	Separator, Reheater, Moisture
MSTR	Motor, Starter
MT	Transmitter, Moisture*
MTR	Meter
MWRX	Receiver, Microwave
MWTX	Transmitter, Microwave
NEU	Neutralizer
NSBU	Bus, Nonsegregrating PH, Metal Enclosure (Unit Start or Cable)
NZL	Nozzle
OB	Isolator, Optic*
OBX	Box, Outlet
ODSK	Desk, Operators
OGUN	Gun, Oil
OHM	Meter, Q Hour
OR	Nozzle, Plate (*See*: Orifice)
OR	Orifice
OR	Pressure Breakdown Device (*See*: Orifice)
OSC	Oscilloscope

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Table 3 *(Continued)*
Component Function Identifier

Standard Function Identifier	Component
OSG	Oscillograph
OSL	Oscillator
OUT	Outlet
OWND	Window, Observation
OXID	Oxidizer
P	Pump
PA	Alarm, Pressure*
PB	Isolator, Pressure*
PBX	Box, Pull
PC	Control, Pressure*
PCO	Control Operator, Pressure
PCP	Precipitator
PCV	Valve, Control, Pressure*
PD	Potential Device
PDA	Alarm, Differential, Pressure*
PDB	Isolator, Differential, Pressure*
PDC	Control, Differential, Pressure*
PDCO	Control Operator, Differential, Pressure
PDCV	Valve, Control, Differential, Pressure*
PDE	Primary Element, Differential, Pressure*
PDI	Indicator, Differential, Pressure*
PDIC	Control, Indicating, Differential, Pressure*
PDIK	Control Station, Indicating, Differential, Pressure*
PDIS	Switch, Indicating, Differential, Pressure*
PDIT	Transmitter, Indicating, Differential, Pressure*
PDM	Modifier, Differential, Pressure
PDR	Recorder, Differential Pressure*
PDRC	Control, Recording, Differential, Pressure*
PDRK	Control Station, Recording, Differential Pressure*
PDS	Switch, Differential, Pressure*
PDSV	Valve, Solenoid, Differential, Pressure
PDT	Transmitter, Differential, Pressure*
PE	Primary Element, Pressure*
PEC	Photoelectric Cell
PED	Equipment Base (*See*: Pedestal)
PED	Pedestal
PEN	Penetration
PFM	Meter, Power Factor
PFR	Purifier
PHA	Analyzer, PH
PHE	Primary Element
PI	Indicator, Pressure*
PIC	Control, Indicating, Pressure*
PIK	Control Station, Indicating, Pressure*
PIM	Modifier, Indicator, Pressure
PIS	Switch, Indicating, Pressure*
PIT	Transmitter, Indicating, Pressure*
PJR	Projector
PKLT	Parking Lot
PL	Panel
PLAT	Platform
PLAY	Player
PLCR	Carrier, Power Line
PLOT	Printer/Plotter
PM	Modifier, Pressure
PMC	Controller, Programmable
PMG	Generator, Permanent Magnet
PR	Recorder, Pressure*
PRC	Control, Recording, Pressure*
PRK	Control Station, Recording, Pressure*
PRNT	Printer
PS	Switch, Pressure*
PSD	Phase Shifting Device
PSD	Reactor, Phase Correction (*See*: Phase Shifting Device)
PSF	Pipe Fittings
PSP	Pipe (Spool)
PSV	Valve, Solenoid, Pressure
PSX	Piping Specialities
PT	Transmitter, Pressure*
PULV	Pulverizer
PYRO	Pyrometer
PZR	Pressurizer
QHM	Meter, Q Hour
RA	Alarm, Radiation*
RADO	Radio
RADS	Source, Radiation
RB	Isolator, Radiation
RBLR	Reboiler
RCB	Recombiner
RCL	Reclaimer
RCP	Receptacle
RCT	Reactor (Nuclear)
RCV	Receiver
RDR	Reader
RE	Primary Element, Radiation*
RECT	Rectifier
REF	Refrigerator
RES	Resistor, Grounding
RFL	Reflector
RFR	Refractor
RFU	Refrigeration Unit
RG	Regulator
RGEN	Regenerator
RGR	Gear, Reduction

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Table 3 *(Continued)*
Component Function Identifier

Standard Function Identifier	Component
RHE	Rheostat
RHTR	Reheater
RI	Indicator, Radiation*
RIBD	Board, Recorder Instrument (SWYD)
RIS	Switch, Indicating, Radiation*
RIT	Transmitter, Indicating, Radiation*
RJX	Power Supply, Electric, Regulated
RK	Rack
RLRD	Railroad
RLY	Relay
RM	Modifier, Radiation
ROAD	Road
ROD	Rod
ROU	Osmosis Unit, Reverse
RPD	Rupture Disc
RPV	Vessel, Reactor
RR	Recorder, Radiation*
RT	Transmitter, Radiation*
RTV	Valve, Root
RV	Valve, Relief
RVR	Reservoir
SA	Alarm, speed*
SAMP	Sampler
SB	Isolator, Speed*
SBLO	Blower, Soot
SBX	Box, Splitter
SC	Control, Speed*
SCB	Scrubber
SCL	Scale
SCN	Screen
SCO	Control Operator, Speed
SCR	Rectifier, Silicon Controlled
SCRD	Card Reader, Security
SCRP	Scraper
SCV	Valve, Control, Speed*
SD	Steam Drum
SE	Primary Element, Speed*
SEAL	Seal
SEL	Selector
SEP	Separator
SESE	Primary Element, Seismic
SESR	Recorder, Seismic
SEWL	Sea Wall
SG	Generator, Steam
SH	Superheater
SHR	Shower
SHTR	Heater, Steam
SHV	Valve, Shutoff
SI	Indicator, Speed*
SIC	Control, Indicating, Speed*
SIK	Control Station, Indicating, Speed*
SIL	Silencer
SILO	Silo
SIS	Switch, Indicating, Speed*
SIT	Transmitter, Indicating, Speed*
SKR	Skimmer
SLKR	Slaker
SLV	Sleeve
SM	Modifier, Speed
SMV	Valve, Sample
SNB	Snubber
SNK	Sink
SOL	Solenoid
SPK	Speaker
SPL	Splitter, RF
SPP	Surge Protection Package
SPP	Protector, Surge (*See*: Surge Protection Package)
SPT	Support
SPTR	Spectrometer
SPWY	Spillway
SR	Recorder, Speed*
SRC	Control, Recording, Speed*
SRNK	Sprinkler
SS	Switch, Speed*
SSBU	Bus, Substation
SSHR	Shower, Safety
SSV	Valve, Solenoid, Speed
ST	Transmitter, Speed*
STA	Stair
STC	Controller, Step
STKR	Stacker
STLG	Stop Log
STR	Strainer
STRC	Stacker/Reclaimer
SUMP	Sump
SWGR	Switchgear
SYN	Synchronoscope
TA	Alarm, Temperature *
TAC	Tachometer
TB	Isolator, Temperature *
TBG	Tubing
TBLK	Block, Trip Cutout
TC	Control, Temperature*
TCO	Control Operator, Temperature
TCV	Valve, Control, Temperature*
TD	Transducer

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Table 3 *(Continued)*
Component Function Identifier

Standard Function Identifier	Component
TDB	Isolator, Differential, Temperature*
TDC	Control, Differential, Temperature*
TDI	Indicator, Differential, Temperature
TDIT	Transmitter, Indicating, Differential, Temperature*
TDM	Modifier, Differential, Temperature
TDR	Recorder, Differential Temperature*
TDS	Switch, Differential, Temperature*
TDT	Transmitter, Differential, Temperature*
TE	Primary Element, Temperature*
TEL	Telephone
TELE	Television
TG	Generator, Turbine
TGR	Gear, Turning
TH	Thermostat
TI	Indicator, Temperature*
TIC	Control, Indicating, Temperature*
TIK	Control Station, Indicating, Temperature
TIS	Switch, Indicating, Temperature*
TIT	Transmitter, Indicating, Temperature*
TK	Tank
TLM	Telemeter
TM	Modifier, Temperature
TMR	Timer
TMRC	Transmitter-Receiver
TMTR	Meter, Temperature
TPR	Tripper
TPRB	Probe, Temperature
TPW	Typewriter
TR	Recorder, Temperature*
TRB	Turbine
TRC	Control, Recording, Temperature*
TRK	Control Station, Recording, Temperature*
TRLY	Trolley
TRNS	Turnstile
TRP	Trap
TRS	Switch, Recording, Temperature*
TS	Switch, Temperature*
TSV	Valve, Solenoid, Temperature
TT	Transmitter, Temperature*
TTC	Tap Changer, Transformer
TTV	Valve, Telltale
TTY	Teletypewriter
TUN	Tunnel
TUR	Turret
TV	Valve, Test
TVC	Camera, TV
TW	Thermowell
TW	Well, Temperature (*See*: Thermowell)
TWR	Tower
TY	Pan, Cable (*See*: Tray, Cable)
TY	Tray, Cable
UDMP	Damper, Unidirectional (Back-Draft)
UJX	Power Supply, Uninterruptible
UNLD	Unloader
URN	Urinal
USC	Ultrasonic Cleaner
USS	Unit Substation
VA	Alarm, Vibration*
VACB	Breaker, Vacuum
VACP	Pump, Vacuum
VARM	Meter, Var (Voltampere-Reactive)
VART	Transmitter, (Voltampere-Reactive)
VB	Isolator, Vibration*
VBR	Vibrator
VBX	Box, Valve
VE	Primary Element, Vibration*
VI	Indicator, Vibration*
VIBM	Meter, Vibration
VIS	Switch, Indicating, Vibration*
VISA	Analyzer, Viscosity
VIT	Transmitter, Indicating, Vibration*
VLR	Ventilator
VM	Modifier, Vibration
VOP	Operator, Valve
VPR	Vaporizer
VR	Recorder, Vibration*
VRC	Variac
VS	Switch, Vibration*
VSL	Vessel
VSM	Meter, Voltage Squared
VT	Transmitter, Vibration*
VTV	Valve, Vent
VUH	Unit Heater
VX	Extractor, Vapor
WA	Alarm, Weight or Force*
WB	Isolator, Weight or Force*
WBLR	Boiler, Waste Heat
WC	Water Closet
WE	Primary Element, Weight or Force
WEIR	Weir
WEL	Wire, Electrical
WGU	Wave Guide
WGUN	Gun, Warmup
WHA	Water Hammer Arrestor
WHM	Meter, Watthour

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Table 3 *(Continued)*
Component Function Identifier

Standard Function Identifier	Component
WI	Indicator, Weight or Force*
WIS	Switch, Indicating, Weight or Force*
WIT	Transmitter, Indicating, Weight or Force*
WM	Modifier, Weight or Force
WNE	Wire, Nonelectrical
WR	Recorder, Weight or Force*
WRE	Primary Element, Wear
WSH	Washer, Air
WSM	Wash Machine
WW	Waterwall
XA	Alarm, Special*
XB	Isolator, Special*
XC	Control, Special*
XCO	Control Operator, Special
XCT	Transformer, Current
XCV	Valve, Control, Special
XFMR	Transformer
XI	Indicator, Special*
XIC	Control, Indicating, Special*
XIK	Control Station, Indicating, Special*
XIS	Switch, Indicating, Special*
XIT	Transmitter, Indicating, Special*
XM	Modifier, Special
XPT	Transformer, Potential
XR	Recorder, Special*
XRAY	Unit, Security, X-Ray
XRC	Control, Recording, Special*
XRK	Control Station, Recording, Special*
XT	Transmitter, Special*
ZA	Alarm, Zone (Position)*
ZC	Control, Zone (Position)*
ZE	Primary Element, Zone (Position)*
ZI	Indicator, Zone (Position)*
ZIC	Control, Indicating, Zone (Position)*
ZIS	Switch, Indicating, Zone (Position)*
ZM	Modifier, Zone (Position)
ZS	Switch, Limit (Zone)*
ZT	Transmitter, Zone (Position)

*Standard Function Identifier is an ISA standard. See Footnote 2.
†Standard Function Identifier is an IEEE standard. See Footnote 1.

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