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230 EQUIPMENT/COMPONENT FUNCTIONAL IDS

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Contact the Component Numbering/Labeling POC for upkeep, interpretation, and variance issues

Ch. 1, Section 230	<u>ESM Component Nomenclature POC and Committee</u>
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REVISION RECORD

Rev	Date	Description	POC	RM
0	9/26/01	Initial issue as part of Section 230, Component Nomenclature.	Tobin Oruch, <i>FWO-SEM</i>	Mitch Harris, <i>FWO-SEM</i>
1	5/22/02	Adopted additional acronyms used frequently at LANL historically.	Tobin Oruch, <i>FWO-SEM</i>	Kurt Beckman, <i>FWO-SEM</i>
2	11/18/02	Eliminated unused/hardly-used historical acronyms, added shop equipment, other IDs	Tobin Oruch, <i>FWO-SEM</i>	Kurt Beckman, <i>FWO-SEM</i>
3	2/9/04	Added/clarified several fire acronyms.	Tobin Oruch, <i>FWO-DO</i>	Gurinder Grewal, <i>FWO-DO</i>
4	8/16/04	No change to actual IDs from Rev. 3. Became single, rev-controlled appendix to 230 with the 3 lists as attachments. Future revs do not require ESB meeting prior to approval by Chief Engineer.	Tobin Oruch, <i>FWO-DO</i>	Gurinder Grewal, <i>FWO-DO</i>
5	5/18/05	Moved general numbering/labeling requirements to new Section 200. Added BAL-balance; CBE-circuit brkr enclosed; CNTR-contactor; CO-cleanout; FD-floor drain; SDS-shower, decon; TRP-trap.	Tobin Oruch, <i>ENG-CE</i>	Gurinder Grewal, <i>ENG-CE</i>
6	2/1/06	Added AFP-Argus Field Panel, ATT-Attenuator (sound, etc.), BTRY-Battery or Battery Box, CRU-Condensate Recovery Unit, FCU-Fan Coil Unit, FPE-Fall Protection Equipment, FTB-Field Termination Box. Deleted FAX-Filter, Air, Rigid (sic; Riga) Flow. OST became ISD 342-1.	Tobin Oruch, <i>ENG-CE</i>	Mitch Harris, <i>ENG-DO</i>
7	10/27/06	IMP and ISD number changes based on new Conduct of Engineering IMP 341. Other administrative changes.	Tobin Oruch, <i>CENG-OFF</i>	Kirk Christensen, <i>CENG-OFF</i>
8	5/13/10	Acro request process clarified. Listing posted as xls, pdf tables optionally; future xls revs don't require revision of this controlling section; expanded for TA-55, others.	Tobin Oruch, <i>CENG-OFF</i>	Larry Goen, <i>CENG-OFF</i>

230 EQUIPMENT/COMPONENT FUNCTIONAL IDS

1.0 PURPOSE AND USE

This Section governs the equipment and component functional IDs to be used in naming equipment and components as described by Section 200. They shall be used for all new building and system design/labeling, and also adopted whenever modifying over 70% of an existing facility's components of a given type.¹

Guidance: Use of this section is also encouraged for smaller, existing-facility projects and labeling/documentation upgrade efforts, since adoption of standard nomenclature ensures gradual progression toward consistently identified systems and components on labels, drawings, procedures, databases, and system design descriptions; this facilitates operations and maintenance.

These acronyms are used to form part of the Equipment Number (or Component Number) that appears on drawings, field labels, and in the computerized maintenance management system (CMMS, e.g., PassPort, Asset Suite).

The listing (Attachment 1) is provided primarily as a spreadsheet that is sorted by Description but may be re-sorted by ID or Primary Discipline.² The Excel find feature can also be used to search within the spreadsheet.

NOTE: The “Primary Discipline” indicator represents the engineering discipline most commonly associated with the ID. This is included to aid ID selection (e.g., can re-sort by this, then Description); however, this discipline categorization does not preclude using the acronym for disciplines other than that indicated.

2.0 REQUIREMENTS

1. When a new project's manager prefers to use historically used acronyms, this can be allowed by the ESM Chapter 1 POC with written permission.
2. When an item is not listed and the function is reasonably similar to a listed component/ID, consider using the listed Function ID rather than requesting a new one from the [ESM Component Numbering/Labeling POC](#). This is especially true when the new one would get little use, since proliferation slows searching and finding. When this is impossible, contact the POC for assistance³.

The POC's process for resolution should be:

- *Encourage the use of MISC (miscellaneous) or another existing acronym.*

¹ Fifty percent is the accepted threshold for system upgrade to current standards when modifying it (ref IEBC Level 3 Alteration and ESM Ch 16 LEBC 50% rule). Component identification relates to safety and cost effectiveness, though arguably less so; thus 70 percent was chosen.

² Attachment 1 revisions do not require revision of this controlling Section nor the Engineering Standards Board etc. as they are non-technical (only Standards Manager approval required). PDF sort files may be posted optionally.

³ POC can grant approval for interim use until listing is revised.

- *When this is not appropriate, determine if one of the referenced national standards, another national standard, and/or a printout of historically used acronyms lists a unique and suitable 6-character-maximum Function ID for the component (Section 230 has many common components, not the entire set).*
 - *Choose an appropriate Function ID weighing historical precedent against national standard alignment. Bear in mind that more general terms will better fill gaps and serve future needs and minimize acronym proliferation.*
 - *Grant the requestor provisional OK to use it, and capture the new entry in the revision in-progress.*
4. For electrical utilities: The numerical designations from IEEE 803.1 (e.g., “52” can be used on electrical utility drawings but alpha acronyms are generally preferable).

3.0 ATTACHMENT

Attachment 1, the ID listing, is webposted at http://engstandards.lanl.gov/ESM_Chapters.shtml#esm1

ENDNOTES

Standards used in these listings:

- ASME Y14.38a-2002, *Abbreviations and Acronyms*
- ASPE – Am Soc Plumbing Engrs *Data Book Ch 21*
- IEEE 803.1-92, *Recommended Practice for Unique Identification in Power Plants and Related Facilities - Component Function Identifiers*
- IEEE 1015-97, *IEEE Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems (Blue Book)*
- IEEE 1100-99, *Recommended Practice for Powering and Grounding Electronic Equipment (Emerald Book)*
- ISA 5.1-92, *Instrumentation Symbols and Identification (reaffirmation of ISA S5.1)*
- NECA 100-99, *Symbols for Electrical Construction Drawings*
- NFPA 170-06, *Standard for Fire Safety Symbols*
- CMMS file showing current usage of acronyms

The process to produce the equip-comp listings was (and is):

A comprehensive listing of components was produced from national standards, CMMS, D. T. Bush memo FSS-9/MM-95-048, and the 1999 LANL drafting and engineering standards manuals. This was then thinned to include the most commonly used and expected components. Historically used IDs in widespread use were retained. This was augmented by IEEE 803.1.

- For instruments, if 803.1 referenced ISA, then ISA was listed as the source.
 - In a few rare cases, it was necessary to modify national acronyms where the source documents were non-unique from one to the next (e.g., the instrument “Final Element, Flow” was designated FE@ and reflected as “5.1mod” to distinguish it from “Fan, Exhaust” which is commonly designated “FE” at LANL).
- For electrical/I&C, when 803.1 did not provide sufficient granularity or did not list a component, it was augmented by ISA, NECA, or IEEE 1100.

- IEEE C37.2-1996, *Standard Electrical Power System Device Function Numbers and Contact Designations*, was reviewed and found to duplicate the device numbers in IEEE 803.1; likewise an informative listing in Annex E of NFPA 79-1997, *Electrical Standards for Industrial Machinery*, was reviewed but not utilized.
- For mechanical, ASME was used to augment 803.1; NFPA and NECA provided fire-related IDs in rare instances. ASPE Data Book Ch 21 provided some plumbing acronyms.
 - ASHRAE Guideline 4-1993, *Preparation of Operating and Maintenance Documentation for Building Systems*, which has suggested HVAC-R acronyms, was reviewed but not utilized.
- The IEEE/ANSI C37.2 "standard electrical power device function numbers" shown in 803.1 are most commonly used for in conjunction with utility-type transmission and distribution equipment and sometimes in one-line diagrams for low voltage utilization level switchgear. These numbers are rarely seen in conjunction with NEMA switchboards, panelboards, or motor control centers. It is necessarily wrong to use them in conjunction with NEMA-grade equipment, just unusual and cumbersome.

Where they are used, power device function numbers must be use strictly in accordance with IEEE Std C37.2. In that document, a device **52** is a circuit breaker, but the trip unit is usually represented by a **51**, **51G**, **51/50**, or **51G/50G** device function number, the **51** indicating an ac time overcurrent relay function (long time and short time), the **50** indicating an instantaneous overcurrent relay function, and **G** indicating ground fault overcurrent relay function (if present).

This kind of representation is fine for low-voltage switchgear in which the power circuit breakers have identifiable electronic trip units -- one can think of the trip unit as a "relay." But to this approach breaks down for equipment employing molded case circuit breakers that do not have identifiable trip units.

IEEE Std C37.2 defines the 89 "line switch" as "A switch used as a disconnecting, load interrupter, or isolating switch in an ac or dc power circuit. (This device function number is normally not necessary unless the switch is eclectically operated or has electrical accessories such as an auxiliary switch, a magnetic lock, etc.)" It appears that the proposed use of 89 is OK used as MV disconnecting, load interrupter, or isolating switches. CDD should be used for low-voltage systems.