

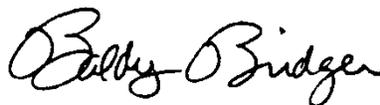
Device Function Numbers

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The system of device function numbers used in switchgear schematic and connection diagrams is documented in ANSI/IEEE C37.2, IEEE Standard Electrical Power System Device Function Numbers. This system is over half a century old. (No, I haven't been using it quite that long myself, but I've seen it used on drawings dating back to the 1930's.) However, like any standard, it is revised from time to time. The latest revision is dated 1991. The issue before that was 1987, and the one before that was 1979. Listed below are some of the changes made in the last two revisions.

7	In the 1979 edition, device 7 was an anode circuit breaker, a device frequently used in mercury arc rectifier equipments but no longer seen in this day of solid state rectifiers. In the 1987 edition, device 7 was "Reserved for future application." In the 1991 edition, device 7 is used for a rate-of-rise current relay. For many years, the description of device 50, which is commonly thought of as an instantaneous overcurrent relay, included the rate-of-rise feature. This feature is no longer part of device 50's description.
11	In 1979, device 11 was reserved for future application. Beginning with the 1987 edition, device 11 became a multifunction device. This is defined as a device with three or more important functions. Typical use would be for a multifunction motor protective relay. When device 11 is used, the functions included in it should be defined in the drawing legend.
24	In 1979, device 24 was reserved for future application. Beginning with the 1987 edition, device 24 became a volts per hertz relay. These relays are typically used to protect large generators from overvoltage during sub-synchronous operation, and are seldom seen in Powell switchgear. I mention it because there are still those among us who remember the use of 24 for a bus tie circuit breaker. In the standard, the proper number for a bus tie breaker has been 52BT since some time in the 1950's, but we still see the designation 24 from time to time.
47	Up through 1979, device 47 was a phase-sequence voltage relay. Starting with the 1987 edition, this definition was expanded to read phase-sequence or phase-balance voltage relay, and the description specifically lists negative phase sequence overvoltage as one of its applications.
50	See device 7.
82	Up through 1987, device 82 is described as a dc reclosing relay. In the 1991 edition the description is expanded to read dc load-measuring reclosing relay.

Some other changes were made, but these are the ones most likely to affect switchgear for utility and industrial distribution systems.



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