

ANSI Device Numbers

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The **ANSI Standard Device Numbers**^{[1] [2] [3]} denote what features a protective device supports (such as a relay or circuit breaker). These types of devices protect electrical systems and components from damage when an unwanted event occurs, such as an electrical fault.

List of Device Numbers

- 1 - Master Element
- 2 - Time Delay Starting or Closing Relay
- 3 - Checking or Interlocking Relay
- 4 - Master Contactor
- 5 - Stopping Device
- 6 - Starting Circuit Breaker
- 7 - Anode Circuit Breaker
- 8 - Control Power Disconnecting Device
- 9 - Reversing Device
- 10 - Unit Sequence Switch
- 11 - *Reserved for future application*
- 12 - Overspeed Device
- 13 - Synchronous-speed Device
- 14 - Underspeed Device
- 15 - Speed - or Frequency, Matching Device
- 16 - *Reserved for future application*
- 17 - Shunting or Discharge Switch
- 18 - Accelerating or Decelerating Device
- 19 - Starting to Running Transition Contactor
- 20 - Electrically Operated Valve
- 21 - Distance Relay
- 22 - Equalizer Circuit Breaker
- 23 - Temperature Control Device
- 24 - Over-Excitation Relay (V/Hz)
- 25 - Synchronizing or Synchronism-Check Device
- 26 - Apparatus Thermal Device
- 27 - Undervoltage Relay
- 28 - Flame Detector
- 29 - Isolating Contactor
- 30 - Annunciator Relay
- 31 - Separate Excitation Device
- 32 - Directional Power Relay
- 33 - Position Switch
- 34 - Master Sequence Device
- 35 - Brush-Operating or Slip-Ring Short-Circuiting, Device
- 36 - Polarity or Polarizing Voltage Devices
- 37 - Undercurrent or Underpower Relay
- 38 - Bearing Protective Device
- 39 - Mechanical Conduction Monitor
- 40 - Field Relay
- 41 - Field Circuit Breaker
- 42 - Running Circuit Breaker
- 43 - Manual Transfer or Selector Device
- 44 - Unit Sequence Starting Relay
- 45 - Atmospheric Condition Monitor
- 46 - Reverse-phase or Phase-Balance Current Relay
- 47 - Phase-Sequence Voltage Relay
- 48 - Incomplete Sequence Relay
- 49 - Machine or Transformer, Thermal Relay
- 50 - Instantaneous Overcurrent or Rate of Rise, Relay
- 51 - AC Time Overcurrent Relay
- 52 - AC Circuit Breaker
- 53 - Exciter or DC Generator Relay
- 54 - High-Speed DC Circuit Breaker
- 55 - Power Factor Relay
- 56 - Field Application Relay
- 57 - Short-Circuiting or Grounding (Earthing) Device
- 58 - Rectification Failure Relay
- 59 - Overvoltage Relay
- 60 - Voltage or Current Balance Relay
- 61 - Machine Split Phase Current Balance
- 62 - Time-Delay Stopping or Opening Relay
- 63 - Pressure Switch
- 64 - Ground (Earth) Detector Relay
- 65 - Governor
- 66 - Notching or Jogging Device
- 67 - AC Directional Overcurrent Relay
- 68 - Blocking Relay
- 69 - Permissive Control Device
- 70 - Rheostat
- 71 - Level Switch

- 72 - DC Circuit Breaker
- 73 - Load-Resistor Contactor
- 74 - Alarm Relay
- 75 - Position Changing Mechanism
- 76 - DC Overcurrent Relay
- 77 - Pulse Transmitter
- 78 - Phase-Angle Measuring or Out-of-Step Protective Relay
- 79 - AC Reclosing Relay
- 80 - Flow Switch
- 81 - Frequency Relay
- 82 - DC Reclosing Relay
- 83 - Automatic Selective Control or Transfer Relay
- 84 - Operating Mechanism
- 85 - Carrier or Pilot-Wire Receiver Relay
- 86 - Lockout Relay
- 87 - Differential Protective Relay
- 88 - Auxiliary Motor or Motor Generator
- 89 - Line Switch
- 90 - Regulating Device
- 91 - Voltage Directional Relay
- 92 - Voltage and Power Directional Relay
- 93 - Field Changing Contactor
- 94 - Tripping or Trip-Free Relay
- 95 - Reluctance Torque Synchrocheck
- 96 - Autoloading Relay
- 97 - *For specific applications where other numbers are not suitable*
- 98 - *For specific applications where other numbers are not suitable*
- 99 - *For specific applications where other numbers are not suitable*

Note 1: A suffix letter may be used with the device number; for example, suffix N is used if the device is connected to a Neutral wire (example: 59N in Siemens Relay is used for protection against Neutral Displacement); and suffixes X,Y,Z are used for auxiliary devices. Similarly, the "G" suffix denotes a "ground", hence a "51G" being a time overcurrent ground relay^[4].

Note 2: A suffix number may also be used with a device number: numbers are used to distinguish multiple "same" devices in the same equipment such as 51-1, 51-2.

Note 3: Device numbers may be combined if the device provides multiple functions, such as the instantaneous/time-delay AC over current relay denoted as 50/51

Note 4: For function descriptions, refer to IEEE standards reference library or American Standards C37. For understanding and learning application of these devices, many technical reference books have been published and are available. These device numbers and their application are typically in the domain of electrical engineers, specifically power generation, transmission or distribution system engineers in regards to safely controlling and protecting users and equipment

[5]

References

1. ^ GE Multilin - ANSI Standard Device Number (<http://www.geindustrial.com/pm/notes/ref/ANSI.pdf>)
2. ^ *Protective Relaying Manual*, Pennsylvania Electric Association (1975)
3. ^ Basler Electric - ANSI/IEEE Device Numbers (http://www.basler.com/downloads/ANSI_functions.pdf)
4. ^ GE Power Management - Relay Selection Guide (<http://www.geindustrial.com/pm/notes/get8048a.pdf>)
5. ^ Notes 2, 3 & 4: Applied Protective Relaying 1979 by Westinghouse Electric Corporation, 2nd Printing, "Appendix II, Electrical Power System Device Numbers and Functions" as adopted by IEEE standard and incorporated in American Standard C37.2-1970.

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