ADVANCED POWER TECHNOLOGIES

ANSI/IEEE Standard Device Numbers

In North America protective relays are generally referred to by standard device numbers. Letters are sometimes added to specify the application (IEEE Standard C37.2-2008).

Most commonly used Device Numbers, Suffixes, & Acronyms in Advanced Power Technologies (APT) Power Distribution Protection Engineering & Switchgear/Switchboard relaying applications are in **bold**.

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 – Rate of Change Relay
8 – Control Power Disconnecting Device
9 – Reversing Device
10 – Unit Sequence Switch
11 – Multifunction Device
12 – Overspeed Device
13 – Synchronous–speed Device
14 – Underspeed Device
15 – Speed or Frequency–Matching Device
16 – Data Communications Device
17 – Shunting or Discharge Switch
18 – Accelerating or Decelerating Device
19 – Start–to–Run Transition Contractor
20 – Elect. operated valve (solenoid valve)
21 – Distance Relay
22 – Equalizer Circuit Breaker
23 – Temperature Control Device
24 – Volts per Hertz Relay
25 – Synchronizing or Synchronism–Check Device
26 – Apparatus Thermal Device
27 – Undervoltage Relay
28 – Flame Detector
29 – Isolating Contractor
30 – Annunciator Relay
31 – Separate Excitation Device
32 – Directional (Reverse) Power Relay
33 – Position Switch/Cell Switch
34 – Master Sequence Device
35 – Slip–Ring Short–Circuiting
36 – Polarity or Polarizing Voltage Devices
37 – Undercurrent or Underpower Relay
38 – Bearing Protective Device
39 – Mechanical Condition Monitor
40 – Field (over/under excitation) 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 – Rev. Phase or Phase–Bal. Current Relay
47 – Phase–Seq. or Phase–Bal. Voltage Relay
48 – Incomplete–Sequence Relay
49 – Machine or Transformer Thermal Relay
50 – Instantaneous Overcurrent
51 – AC Inverse Time Overcurrent Relay
52 – AC Circuit Breaker
53 – Field Excitation Relay
54 – Reserved for future application
55 – Power Factor Relay
56 – Field Application Relay
57 – Short–Circuiting or Grounding Device
58 – Rectification Failure Relay
59 – Overvoltage Relay
60 – Voltage or Current Balance Relay
61 – Reserved for future application
62 – Time–Delay Stopping or Opening Relay
63 – Pressure Switch
64 – Ground Detector Relay
65 – Governor
66 – Notching or jogging device
67 – AC Directional Overcurrent Relay
68 – Blocking or "out of step" Relay
69 – Permissive Control Device
70 – Rheostat
71 – Level Switch
72 – DC Circuit Breaker
73 – Load–Resistor Contractor
74 – Alarm Relay
75 – Position Changing Mechanism
76 – DC Overcurrent Relay
77 – Pulse Transmitter
78 – Phase–Angle Measuring 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 – Pilot Communications, Carrier or Pilot– Wire 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 Contractor
94 – Tripping or Trip–Free Relay
95 – 99 Used only for specific applications

Suffixes Indicating Zone of Protection:

B – Bus
G – Ground or generator
L – Line
N – Neutral
T – Transformer
U – Unit

Common Suffix Descriptions

- _1 – Positive–Sequence
- _2 – Negative–Sequence
- A – Alarm, Auxiliary Power
- AC – Alternating Current
- AN – Anode
- B – Bus, Battery
- BF – Breaker Failure
- BP – Bypass
- BT – Bus Tie
- BU – Backup
- C – Capacitor, Condenser, Compensator, Carrier Current, Case or Compressor
- CA – Cathode
- CH – Check (Valve)
- D – Discharge (Valve)
- DC – Direct Current
- DCB – Directional Comparison Blocking
- DCUB – Directional Comparison Unblocking
- DD – Disturbance Detector
- DUTT – Direct Underreaching Transfer Trip
- E – Exciter
- F – Feeder, Field, Filament, Filter, or Fan
- G – Ground or Generator
- GC – Ground Check
- H – Heater or Housing
- L – Line or Logic
- M – Motor or Metering
- MOC – Mechanism Operated Contact
- N – Neutral
- O – Over
- P – Phase or Pump
- PC – Phase Comparison
- POTT – Pott: Permissive Overreaching Transfer Trip
- PUTT – Putt: Permissive Underreaching Transfer Trip
- S – Synchronizing, Secondary, Strainer, Sump, or Suction (Valve)
- SOTF – Switch On To Fault
- T – Transformer
- TD – Time Delay
- TDC – Time–Delay Closing Contact
- TDDO – Time Delayed Relay Coil Drop–Out
- TDO – Time–Delay Opening Contact
- TDPU – Time Delayed Relay Coil Pickup
- THD – Total Harmonic Distortion
- TH – Transformer (High–Voltage Side)
- TL – Transformer (Low–Voltage Side)
- TM – Telemeter
- TOC – Truck Operated Contact
- TT – Transformer (Tertiary–Voltage Side)
- U – Under or Unit
- X – Auxiliary
- Z – Impedance

Acronym Descriptions

- AFD – Arc Flash Detector
- CLK – Clock/Timing Source
- CLP – Cold Load Pickup
- DDR – Dynamic Disturbance Recorder
- DFR – Digital Fault Recorder
- DME – Disturbance Monitor Equipment
- ENV – Environmental data
- HIZ – High Impedance Fault Detector
- HMI – Human Machine Interface
- HST – Historian
- LGC – Scheme Logic
- MET – Substation Metering
- PDC – Phasor Data Concentrator
- PMU – Phasor Measurement Unit
- PQM – Power Quality Monitor
- RIO – Remote Input/Output Device
- RTD – Resistance Temperature Detector
- RTU – Remote Terminal Unit/Data Concentrator
- SER – Sequence of Events Recorder
- TCM – Trip Circuit Monitor
- LRSS – Local/Remote selector switch
- VTFF – VT Fuse Fail