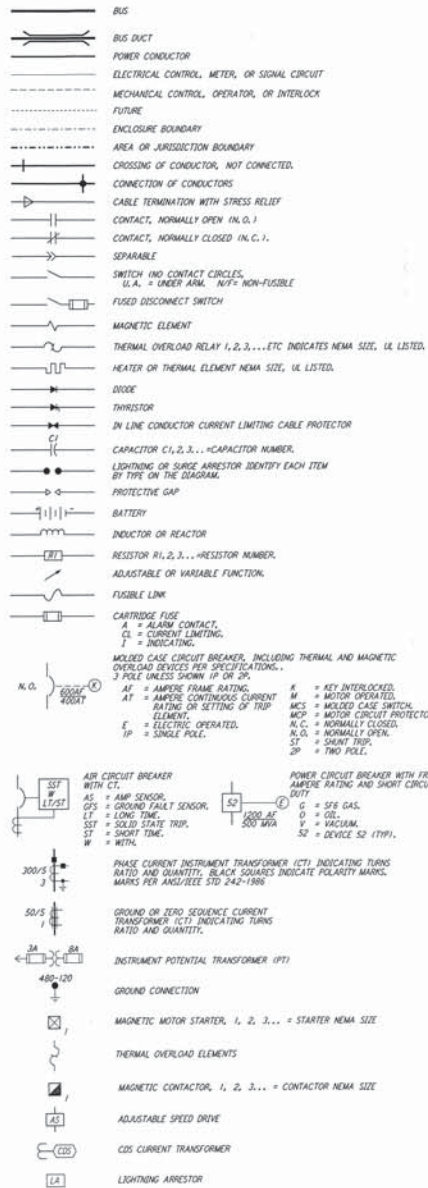
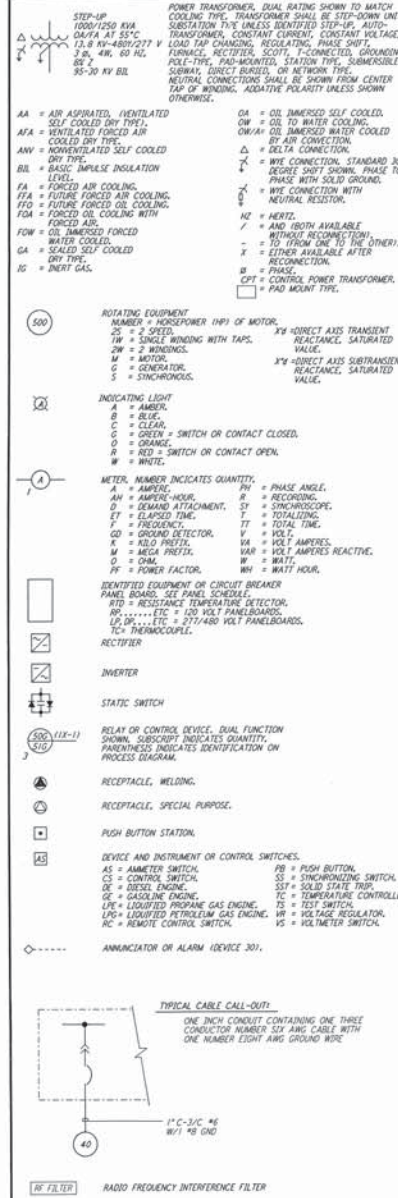


ONE AND THREE LINE DIAGRAM SYMBOLS



ONE AND THREE LINE DIAGRAM SYMBOLS



DEVICE FUNCTION NUMBERS

- ADAPTED FROM ANSI C37.2-1987, USAGE PER IEEE STD. 242-1986
1. MASTER ELEMENT OR INITIATING DEVICE SUCH AS FLOAT SWITCH.
 2. TIME DELAY STARTING OR CLOSING RELAY.
 3. CHECKING OR INTERLOCKING RELAY (AND GATE).
 4. MASTER CONTACT.
 5. STOPPING DEVICE.
 6. STARTING CIRCUIT BREAKER.
 7. STOPPING CIRCUIT BREAKER.
 8. CONTROL POWER DISCONNECTING DEVICE.
 9. REVERSEING DEVICE.
 10. UNIT SEQUENCE SWITCH.
 11. THREE OR MORE CONNECTIONS PER LEGEND.
 12. OVER SPEED DEVICE.
 13. SYNCHRONISMUS OR PHASE DEVICE.
 14. UNDER SPEED DEVICE.
 15. SPEED OR FREQUENCY MATCHING DEVICE.
 16. RESERVE FOR FUTURE APPLICATION.
 17. SHUNTING OR DISCHARGE SWITCH.
 18. ACCELERATING OR DECELERATING DEVICE.
 19. STARTING TO RUNNING TRANSITION DEVICE.
 20. ELECTRICALLY OPERATED VALVE.
 21. DISTANCE (IMPEDANCE CHANGE DETECTOR).
 22. EQUALIZER CIRCUIT BREAKER.
 23. TEMPERATURE CONTROL DEVICE (SPACE HEATER THERMOSTAT).
 24. VOLTS PER HERTZ RATIO RELAY.
 25. SYNCHRONIZING OR SYNCHRONISMUS CHECK DEVICE.
 26. APPARATUS THERMAL DEVICE (FIELD OR COOLANT OVERTEMPERATURE).
 27. UNDERVOLTAGE RELAY.
 28. FLAME DETECTOR.
 29. ISOLATING CONTACTOR.
 30. ANNUNCIATOR RELAY.
 31. SEPARATE EXCITATION DEVICE.
 32. DIRECTIONAL POWER RELAY (ANTI MOTORING).
 33. BIAS OPERATING OR BIAS RING SHORT CIRCUITING DEVICE.
 34. POLARITY OR POLARIZING VOLTAGE DEVICE.
 35. UNDERCURRENT OR UNDERPOWER DEVICE (GROUND CONTINUITY MONITOR).
 36. BEARING PROTECTIVE DEVICE.
 37. FIELD RELAY.
 38. MECHANICAL CONDITION (VIBRATION ETC.) MONITOR.
 39. FIELD CIRCUIT BREAKER.
 40. RUNNING CIRCUIT BREAKER.
 41. CONTROL CIRCUIT MANUAL TRANSFER OR SELECTOR DEVICE.
 42. UNIT SEQUENCE STARTING RELAY.
 43. ATMOSPHERIC CORRECTION MONITOR.
 44. REVERSE PHASE OR PHASE BALANCE CURRENT RELAY.
 45. PHASE SEQUENCE VOLTAGE RELAY.
 46. INCOMPLETE SEQUENCE RELAY.
 47. MACHINE OR TRANSFORMER (SATURATION OR LOAD WINDING) THERMAL RELAY.
 48. INSTANTANEOUS OVERCURRENT RELAY.
 49. AC TIME OVERCURRENT RELAY.
 50. AC CIRCUIT BREAKER.
 51. EXCITER OR DC GENERATOR RELAY.
 52. TURNING GEAR ENGAGING DEVICE.
 53. POWER FACTOR RELAY.
 54. FIELD APPLICATION RELAY.
 55. SHORT CIRCUITING OR GROUNDING DEVICE.
 56. VOLTAGE FAILURE RELAY.
 57. OVERVOLTAGE RELAY.
 58. VOLTAGE BALANCE RELAY.
 59. GAS DENSITY SWITCH.
 60. TIME DELAY STOPPING OR OPENING RELAY.
 61. LIQUID OR GAS SUDDEN PRESSURE RELAY (MANUAL RESET).
 62. GROUND PROTECTION RELAY (UNDERVOLTAGE + INSULATION FAILURE).
 63. LOCKING.
 64. NOTCHING OR JOGGING DEVICE.
 65. AC DIRECTIONAL OVERCURRENT RELAY.
 66. BLOCKING RELAY.
 67. PERMISSIVE LOCKING DEVICE.
 68. ELECTRICALLY OPERATED REINSTAT.
 69. LEVEL SWITCH.
 70. CIRCUIT BREAKER.
 71. LOAD RESISTOR CONTACTOR.
 72. ALARM RELAY (ALARMS OTHER THAN ANNUNCIATOR, DEVICE 301).
 73. POSITION CHANGING MECHANISM.
 74. DC OVERCURRENT RELAY.
 75. TELEMETRING DEVICE.
 76. PHASE ANGLE MEASURING OR OUT-OF-STEP RELAY.
 77. AC RECLOSING RELAY.
 78. FLOW SWITCH.
 79. FREQUENCY RELAY.
 80. DC RECLOSING RELAY.
 81. AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY.
 82. OPERATING MECHANISM.
 83. CARRIER OR PILOT WIRE RECEIVER RELAY.
 84. LOCKOUT AUXILIARY RELAY (MANUAL RESET).
 85. AUXILIARY MOTOR OR MOTOR GENERATOR.
 86. LINE SWITCH.
 87. REGULATING DEVICE.
 88. VOLTAGE DIRECTIONAL RELAY.
 89. TROOPING OR TRIP FREE RELAY.
 90. OPEN FOR SPECIFIC APPLICATIONS.
 91. OPEN FOR SPECIFIC APPLICATIONS.
 92. OPEN FOR SPECIFIC APPLICATIONS.
 93. OPEN FOR SPECIFIC APPLICATIONS.
 94. OPEN FOR SPECIFIC APPLICATIONS.
 95. OPEN FOR SPECIFIC APPLICATIONS.

DEVICE SUFFIX DESIGNATIONS:

- SPECIFIC USAGE SHALL BE IDENTIFIED IN A LEGEND ON THE DIAGRAM.
- A = AIR
 - B = BUS
 - C = CURRENT
 - CS = CONTROL SWITCH
 - E = ELECTRIC
 - F = FREQUENCY
 - G = GROUND CONNECTION ON NEUTRAL OF WYE POWER TRANSFORMER.
 - GS = GROUND SENSOR, ZERO SEQUENCE WINDOW TYPE CT INCLUDING ALL PHASE CONDUCTORS AND NO GROUND PATH.
 - HR = HAND RESET.
 - J = DIFFERENTIAL
 - L = LIQUID LEVEL OR LINE
 - M = MANUAL
 - N = RESIDUAL CURRENT CONNECTION ON WYE OF THREE 1Ø CTS.
 - PR = PRESSURE RELIEF
 - P = PNEUMATIC
 - S = SYNCHRONIZING
 - T = TEMPERATURE OR TRANSFORMER
 - 2 = SEQUENTIAL NUMBER OF IDENTICAL UNITS
 - V = VOLTAGE
 - Z = AUXILIARY (ENERGIZING) RELAY
 - Z = AUXILIARY RELAY

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WA-E-001	ABBREVIATIONS & ACRONYMS
WA-E-002	STANDARD PLAN SYMBOLS
WA-E-003	SCHEMATIC & WIRING SYMBOLS

NO.	DATE	BY	CHKD	ENGR	PROJ	DESCRIPTION
B	4-19-96	JG	JZ	JZ	BYDM	FINAL DESIGN REVIEW & BID
A	10-31-95				TDH	PRELIMINARY DESIGN REVIEW

DESIGNED	J. G.
CHECKED	
ENGINEER	
PROJ.	

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 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

**LASER INTERFEROMETER
 GRAVITATIONAL-WAVE OBSERVATORY
 SITE NO. 1 - HANFORD, WASHINGTON**

FILE: NONE
 PROJECT: PPI50969
 DRAWING: 8094

WA-E-004

DATE	10/31/95
BY	JG
CHKD	JZ
ENGR	JZ
PROJ	BYDM

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