

SCHEMATIC & WIRING DIAGRAM SYMBOLS

WIRING BY VENDOR
CALLOUT LEADER
WIRING BY FIELD
MECHANICAL INTERLOCK, EXISTING, OR FUTURE AS INDICATED
WIRING BY OTHERS, IDENTITY OF OTHERS SHALL BE SHOWN EACH TIME THIS SYMBOL IS USED
ENCLOSURE BOUNDARY
CROSSING OF CONDUCTORS, NOT CONNECTED
CONNECTION OF CONDUCTORS
BREAK IN LINE FOR DRAFTING CLARITY
CONDUCTORS WITH SHIELD, SHOWN WITH CRIMP LUG INSULATED FROM GROUND
GROUND
GROUPING OF CONDUCTORS, NUMBERS INDICATE WIRE OR TERMINAL DESIGNATION
CONTACT, NORMALLY OPEN (N.O.), FORM 'A' CONTACT. CLOSURES WHEN COIL IS ENERGIZED. IDENTIFICATION SAME AS ELECTRICAL DEVICE IN PLAN SYMBOLS
CONTACT, NORMALLY CLOSED (N.C.), FORM 'B' CONTACT OPENS WHEN COIL IS ENERGIZED
O.L. = OVERLOAD RELAY CONTACTS
G.R. = GROUND RELAY CONTACTS
SEPARABLE OR DRAWOUT TYPE CONNECTOR
EQUIPMENT TERMINAL AND/OR SWITCH CONTACT
FIELD CONNECTION TO EQUIPMENT TERMINAL
TERMINATION IN HVAC RELAY BOX
WIRE CONNECTION, CRIMP TYPE
TERMINAL OR TERMINAL BOX IN MCC OR SWITCHGEAR
TERMINAL IN RELAY PANEL
TERMINAL IN FIELD TERMINAL BOX
TERMINAL IN MARSHALLING BOX
TERMINAL IN CONTROL PANEL
PLC INPUT TERMINAL
PLC OUTPUT TERMINAL
TERMINAL IN PACKAGED EQUIPMENT
RELAY COIL :
AX = AUXILIARY RELAY.
CR = CONTROL RELAY.
IR = INTERPOSING RELAY.
C = CONTACTOR.
M = MOTOR STARTER.
GR = GROUND RELAY.
IC = INSTANTANEOUS CLOSE.
IO = INSTANTANEOUS OPEN.
SR = REDUCED VOLTAGE STARTING RELAY.
TE = TIME DELAY ON ENERGIZATION.
TD = TIME DELAY ON DEENERGIZATION.
UV = UNDER VOLTAGE.
3 = NUMBER OF CONTACTS.
LIGHTS :
A = AMBER LIGHT.
B = BLUE LIGHT.
C = CLEAR LIGHT.
W = WHITE LIGHT.
O = ORANGE LIGHT.
G = GREEN LIGHT. SWITCH OR CONTACT OPEN, PROCESS ON/VALVE OPEN.
R = RED LIGHT. SWITCH OR CONTACT CLOSED, PROCESS OFF/VALVE CLOSED.

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METERS :
A = AMMETER.
F = FREQUENCY METER.
D = DEMAND ATTACHMENT.
ET = ELAPSED TIME.
GD = GROUND DETECTOR.
O = OHM METER.
K = KILO PREFIX.
M = MEGA PREFIX.
PF = POWER FACTOR METER.
PH = PHASE ANGLE METER.
PI = POSITON INDICATOR.
R = RECORDING METER.
SY = SYNCHROSCOPE.
T = TOTALIZING.
TT = TOTAL TIME.
V = VOLT METER.
VAR = VOLT AMPS REACTIVE.
W = WATT.
WH = WATT HOUR.
DEVICE AS IDENTIFIED ON PROCESS DIAGRAM HIGH-HIGH LEVEL SWITCH NO. 27 SHOWN.
PUSHBUTTON, NORMALLY OPEN, SINGLE POLE, SINGLE THROW (SPST), MOMENTARY CLOSED
PUSHBUTTON, NORMALLY CLOSED, SINGLE POLE, SINGLE THROW (SPST), MOMENTARY OPEN
SWITCH, MULTIPLE POLE, MULTIPLE THROW.
H = HAND X = SWITCH DEVELOPMENT CONTACT MAKE.
O = OFF R = REMOTE
A = AUTO L = LOCAL
TWO-SINGLE CIRCUIT, PUSHBUTTON STATION, SINGLE POLE, SINGLE THROW (SPST), MAINTAINED CONTACT.
SWITCH, SINGLE POLE, SINGLE THROW (SPST). THE SWITCH BLADE SHALL BE SHOWN ON THE MAINTAINED CONTACT LOAD SIDE (TYPICAL).
SWITCH, SINGLE POLE, DOUBLE THROW (SPDT) MAINTAINED CONTACT.
TRANSFER CONTACTS (ALTERNATE TO SPDT).
ROPE SWITCH, (EMERGENCY STOP).
LIMIT SWITCH, NORMALLY OPEN (N.O.).
LIMIT SWITCH, NORMALLY CLOSED (N.C.).
LEVEL SWITCH - OPENS ON LOW LEVEL, CLOSURES ON RISING LEVEL. NORMALLY OPEN (N.O.).
LEVEL SWITCH - OPENS ON RISING LEVEL, CLOSURES ON LOW LEVEL. NORMALLY CLOSED (N.C.).
PRESSURE SWITCH, FORM "C" CONTACTS. TOP NORMALLY OPEN (N.O.), BOTTOM NORMALLY CLOSED (N.C.).
PRESSURE SWITCH, OPENS ON HIGH PRESSURE, CLOSURES ON LOW PRESSURE. NORMALLY CLOSED (N.C.).
TEMPERATURE SWITCH, OPENS ON LOW TEMPERATURE, CLOSURES ON RISING TEMPERATURE. NORMALLY OPEN (N.O.).
TEMPERATURE SWITCH, OPENS ON RISING TEMPERATURE, CLOSURES ON LOW TEMPERATURE. NORMALLY CLOSED (N.C.).
VIBRATION SWITCH, OPENS ON VIBRATION. NORMALLY CLOSED (N.C.).
FLOW SWITCH, OPENS ON DECREASING FLOW, CLOSURES ON INCREASING FLOW. NORMALLY OPEN (N.O.).
FLOW SWITCH, OPENS ON INCREASING FLOW, CLOSURES ON DECREASING FLOW. NORMALLY CLOSED (N.C.).
ON DELAY RELAY CONTACT. NORMALLY OPEN, CLOSURES AFTER TIME DELAY (TDC).
ON DELAY RELAY CONTACT. NORMALLY CLOSED, OPENS AFTER TIME DELAY (TDO).
OFF DELAY RELAY CONTACT NORMALLY OPEN (N.O.) INSTANTANEOUS CLOSED, OPENS AFTER TIME DELAY (TDO).
OFF DELAY RELAY CONTACT NORMALLY CLOSED (N.C.) INSTANTANEOUS OPEN, CLOSURES AFTER TIME DELAY (TDC).

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ANNUNCIATOR: H=HORN, S=SPEAKER.
BELL.
BUZZER.
SOLENOID OPERATED VALVE. (DC COIL REVERSE POLARITY DIODE)
THERMOCOUPLE
DIODE
THYRISTOR
IN LINE CONDUCTOR CURRENT LIMITING CABLE PROTECTOR
LIGHTNING OR SURGE ARRESTOR
PROTECTIVE GAP
BATTERY
RESISTOR
R1, 2, 3... = RESISTOR NUMBER.
ADJUSTABLE OR VARIABLE FUNCTION.
CARTRIDGE FUSE
A = ALARM CONTACT.
CL = CURRENT LIMITING.
I = INDICATING.
CAPACITOR. C1, 2, 3... = CAPACITOR NUMBER.
FUSIBLE LINK.
CIRCUIT BREAKER, MOLDED CASE
INDUCTOR
CONTROL POWER TRANSFORMER. PRIMARY AND SECONDARY VOLTAGE PLUS VOLT AMPERES SHALL BE SHOWN.
IDENTIFIED EQUIPMENT.
TERMINAL BLOCK (TB).
A, B, C... ETC = SEQUENTIAL IDENTIFIER.
1, 2, 3... ETC = TERMINAL NUMBER.
DENOTES CONTROL DEVICE TO BE LOCATED IN FIELD OR ADJACENT TO MOTOR.
LOCATED ON CONTROL BOARD.
PURCHASED BY INSTRUMENT SPECIFICATION OR REQUISITION.
FURNISHED WITH MECHANICAL EQUIPMENT.

MOTOR CONTROL CABLE CONDUCTOR COLOR CODE

CODE	COLOR	CONDUCTOR NO.
R	RED	1
O	ORANGE	2
X2	WHITE	X2
BU	BLUE	3
Y	YELLOW	4
BK	BLACK	5
BR	BROWN	6
R/BK	RED/BLACK	7
BU/BK	BLUE/BLACK	8
GR	GREEN	GROUND OR (-)

REFERENCES	ABBREVIATIONS & ACRONYMS
WA-E-001	ABBREVIATIONS & ACRONYMS
WA-E-002	STANDARD PLAN SYMBOLS
WA-E-004	ONE/THREE LINE DIAGRAM SYMBOLS

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WA-E-002	STANDARD PLAN SYMBOLS
WA-E-004	ONE/THREE LINE DIAGRAM SYMBOLS

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DRAWN	M. M.	6-25-96	
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AS-BUILT DRAWINGS

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E
D
C
B
A