2

COMMON SYSTEMS

LIGHTING CIRCUIT FLUORESCENT TYPE AND APPLIANCE OUTLETS

FOR ELECTRONIC SWITCHING SYSTEMS AREAS

SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 This circuit provides the wiring for fluorescent lighting fixtures and associated control switches used in switch, terminal, and power rooms. Wiring is also provided for the frame base appliance outlets.

SECTION II - DETAILED DESCRIPTION

1. DISTRIBUTION SYSTEMS FOR 120-VOLT AND 277-VOLT FLUORESCENT LIGHTING

1.01 Fig. 1 shows only the busbar connections for single-phase and 3-phase 4-wire power service, and branch circuits for the following:

(a) The low-voltage control relays (120- or 277-volt ac lighting circuits)

(b) The low-voltage transformer associated with the switching of the aisle or low-intensity lighting (for ESS offices)

(c) The frame base appliance outlets.

2. LOW-VOLTAGE SWITCHING

2.01 Fig. 3, Z option (120 volts) and Y option (277 volts), shows the wiring of a step-down transformer and rectifier, which provide the rectified 24 volts used in low-voltage switching.

2.02 Fig. 4 shows the wiring of a low-voltage relay used to control essential ac power to lighting fixtures.

2.03 Fig. 5 shows the wiring of a low-voltage switch used to actuate the low-voltage relays.

3. FRAME BASE APPLIANCE OUTLETS

3.01 The wiring multiple from the power service to the frame lineups is shown in Fig. 7. A minimum of two circuits is required. Each circuit should be wired to appliance outlets, alternating the frame lineups.

3.02 The wiring multiples for the single and duplex outlets within a frame lineup are shown in Fig. 8 and 9.

4. GENERAL

4.01 Fig. 2 shows the wiring for fixtures that are joined by spliced wires within the fixture channel.

4.02 Fig. 6 shows the wiring for the equipment ground multiples.

4.03 Fig. A, B, and C show the wiring connections at individual lighting fixtures as well as the connections for rapid-start-type ballasts. This type of ballast eliminates the use of external starters by providing the required preheating current through coils integral with the ballast. In the rapid-start system, the current flows during both lamp starting and operation.

Note: Since ballasts are furnished with wiring diagrams on the ballast cases, it is essential that this information be checked against the wiring of the fixture before attempting to change it to agree with this drawing. Ballast manufacturers and catalog numbers are listed in Table 3.

4.04 Circuit Notes 105 through 110 and Tables 1 and 2 give information on the design of feeder and branch circuits. Load information is summarized on an individual basis and on a branch circuit capacity basis. Table 2 summarizes the maximum load

in amperes, input watts, and lamp watts that may be imposed on 15- or 20-ampere capacity lighting circuits derated to 80 percent or 70 percent capacity as required by the National Electrical Code. Table 2 loads are based on loads of two 40-watt lamp-equipped fluorescent fixtures utilizing high-power factor ballasts per Table 1.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01 Alternating Current

110 to 125 volts, 60 hertz
254 to 289 volts, 60 hertz
24 volts, 60 hertz

2. FUNCTIONAL DESIGNATIONS

2.01 None.

3. FUNCTIONS

3.01 Connects essential ac power through control switches or low-voltage relays to frame-mounted lighting fixtures.

3.02 Connects essential ac power to step-down transformers to supply the required voltage for operating low-voltage control relays.

3.03 Connects essential ac power to frame base appliance outlets.

4. CONNECTING CIRCUITS

4.01 When this circuit is listed on a keysheet, the connecting information thereon is to be followed.

(a) Miscellaneous Circuit for All Frames - SD-1A129-01.

(b) AC Power Distribution Circuit - SD-1A213-01.

5. MANUFACTURING TESTING REQUIREMENTS

Intermediate Requirements

5.01 None.

End Requirements

5.02 This circuit should be tested to verify that it is wired in accordance with the schematic and wiring drawings, that the requirements of the circuit requirements table are met, and that the circuit is capable of performing all functions stated in this circuit description.

SECTION IV - REASONS FOR REISSUE

D. Description of Changes

D.1 Corrected Fig. 2, 3, and 5A and CADs 1 and 4.

D.2 Added options Y and Z.

D.3 Changed Circuit Note 1^2.

D.4 Added Equipment Note 212.

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