

SECTION 26 36 00

TRANSFER SWITCHES

PART 1 GENERAL No Requirements

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Automatic Transfer Switches: (Where practical, manufacturer of transfer switch shall be same as manufacturer of generator).
 - 1. Caterpillar
 - 2. Cummins Corp.
 - 3. Russelectric, Inc.
 - 4. GE Zenith
 - 5. ASCO Power Technologies

2.02 MATERIALS

- A. General:
 - 1. The unit shall be rated based on all classes of loads, i.e., resistive, tungsten, ballast and inductive loads. Switches rated 400 amperes or less shall be UL listed for load served.
 - 2. All transfer switches, complete with accessories, shall be listed by Underwriters Laboratories, under Standard UL 1008 (automatic transfer switches) and approved for use on emergency systems.
 - 3. The transfer switch shall be rated for the voltage and ampacity as shown on the plans and shall have 600 volt insulation on all parts in accordance with NEMA standards.
 - 4. The transfer switches shall be supplied with a microprocessor based control panel. The control panel shall perform the operational and display functions of the transfer switch. The display functions of the control panel shall include ATS position, source availability, sequence indication and diagnostics.
 - 5. For switches installed in systems having ground fault protective devices, and/or wired so as to be designated a separately derived system by the NEC, a fourth pole shall be provided. This additional pole shall isolate the normal and emergency neutrals. The neutral pole shall have the same withstand and operational ratings as the other poles and shall be arranged to break last and make first to minimize neutral switching transients. Add-on or accessory poles that are not of identical construction and withstand capability are not acceptable.
 - 6. A manual handle shall be provided for maintenance purposes with the switch de-energized. An operator disconnect switch shall be provided to defeat automatic operation during maintenance, inspection or manual operation.
- B. Automatic Transfer Switches:
 - 1. Switches shall be electrically-operated, mechanically-held and electrically and mechanically interlocked.
 - 2. Operating time of transfer in either direction shall be less than 10 seconds duration.
 - 3. Provide limiter which opens starting circuit after 45 seconds when engine fails to start.
 - 4. Provide time delay to prevent excessive transfer and re-transfer operation during momentary line voltage dips, load retransfer, and engine shutdown.
 - 5. Provide signal circuit to indicate when load is on emergency generator. Signal shall be wired to security control panel.
 - 6. Provide switch with appropriate engine-starting contact and relays for starting emergency engine-generator unit.

7. For inductive loads, provide poles with magnetic blowouts and arc barriers; for non-inductive loads, provide arc barriers between poles.
 8. Provide unit with trickle-charger, indicator for starting battery, test switch for manual simulation of power outages (including standby unit operation and load transfer), and time-clock exerciser circuit for automatic periodic exercise of engine-generator unit.
 9. Provide free-standing 14-gauge welded steel NEMA Type 1 enclosure with swing-out service panel and door locks.
 10. Provide manufacturer's standard color acrylic enamel finish over a corrosion-resisting primer.
- C. Transfer Switch Accessories:
1. Provide time delay to override momentary normal source outages to delay all transfer switches and engine starting signals. The time delay shall be field-adjustable from 0.5 to 10 seconds and factory-set at 3.0 seconds.
 2. Provide a time delay on re-transfer to normal source. The time delay shall be automatically bypassed if the emergency source fails and normal source is available. The time delay shall be field-adjustable from 0 to 30 minutes and shall be factory-set at 5 minutes.
 3. Provide an unloaded running time delay for emergency generator cool-down. The time delay shall be field-adjustable from 0 to 30 minutes and shall be factory-set at 15 minutes.
 4. Provide independent single-phase voltage and frequency sensing of the emergency source. The pickup voltage shall be adjustable from 85 percent to 100 percent of nominal. Transfer to emergency upon normal source failure when emergency source voltage is 90 percent or more of nominal and frequency is 95 percent or more of nominal.
 5. Provide LED type indicating lights to show switch position and source availability on the front of the ATS enclosure.
 6. Provide one set of normally-open and one set of normally-closed auxiliary contacts on each side of the switch for use with the IBAS system. Refer to Section 230900 Integrated Building Automation System (IBAS).

PART 3 EXECUTION

3.01 INSTALLATION

- A. Provide equipment grounding connections for transfer switch units.

3.02 FIELD QUALITY CONTROL

- A. Test transfer switches by means of simulated power outage; automatic startup by remote-automatic starting, transfer of load, and automatic shutdown. Prior to these tests, adjust transfer switch timers for proper system coordination.
- B. Upon completion of installation and after circuitry has been energized, demonstrate capability and compliance of transfer switches with requirements. Initial testing and re-testing, where necessary, shall be provided at no cost to owner.

END OF SECTION 26 36 00