PART 1  GENERAL

1.01  SUMMARY

A. Section Includes:

1. Automatic Transfer Switch

B. Related Sections

1. Section 15952 - Controls and Instrumentation
2. Section 16010 - Basic Electrical Requirements
3. Section 16620 - Standby Power Generator Systems

1.02  SUBMITTALS

A. Product Data: Submit manufacturer’s data and installation instructions for electrical power transfer switches.

B. Shop Drawings: Submit layout drawings of electrical power transfer switches. Submit wiring diagrams for electrical transfer switches, and associated control devices showing connections to prime and alternate power sources, electrical load, and equipment components.

1.03  REFERENCES

A. Specify UL listed equipment, assemblies and materials.

B. Refer to current ANSI and NEMA standards.


PART 2  PRODUCTS

2.01  MANUFACTURERS

A. Automatic Transfer Switches

1. Caterpillar Tractor Company.
2. Onan Corp.; Sub of McGraw-Edison Co.
3. Russelectric Inc.
4. Zenith
5. ANSCO

2.02  TRANSFER SWITCHES
A. Automatic Transfer Switches

1. Switches shall be electrically operated, mechanically held and electrically and mechanically interlocked.
2. Select switches capable of automatically transferring the load from normal to emergency source.
3. Provide switch with operating time of transfer in either direction of less that 10 seconds duration.
4. Select transfer switch with limiter which opens starting circuit after 45 seconds when engine fails to start.
5. Equip switch with time delay to prevent excessive transfer and retransfer operation during momentary line voltage dips, load retransfer, and engine shutdown.
6. Provide signal circuit to indicate when load is on emergency source.
7. Provide switch with appropriate engine-starting contact and relays for starting emergency engine-generator unit.
8. For inductive loads, equip poles with magnetic blowouts and arc barriers; for noninductive loads, equip switches with are barriers between poles.
9. Equip unit with trickle-charger, and with indicator for starting battery, and with test switch for manual simulation of power outages including standby unit operation and load transfer, and with time-clock exerciser circuit for automatic periodic exercise of engine-generator unit.
10. Provide free-standing 14-gage welded steel NEMA Type 1 enclosure with swing out service panel and door locks.
11. Coat enclosure with manufacturer’s standard color acrylic enamel finish over a corrosion-resisting primer.

B. Transfer Switch Accessories

1. A time delay to override momentary normal source outages to delay all transfer switch and engine starting signals. The time delay shall be field adjustable from 0.5 to 6 seconds and factory set at 3 seconds.
2. A time delay on retransfer 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 be factory set at 30 minutes.
3. An unloaded running time delay for emergency generator cool-down. The time delay shall be field adjustable from 0 to 5 minutes and be factory set at 5 minutes.
4. Independent single phase voltage and frequency sensing of the emergency source. The pickup voltage shall be adjustable from 85% to 100% of nominal. Transfer to emergency upon normal source failure when emergency source voltage is 90% or more of nominal and frequency is 95% of more of nominal.
5. Pilot lights to show switch position.
6. One set of normally open and one set of normally closed auxiliary contacts on each side of the switch.

PART 3 EXECUTION
3.01 INSTALLATION OF AUTOMATIC TRANSFER SWITCHES

A. Install transfer switches, in accordance with equipment manufacturer’s written instructions, and with recognized industry practices.

B. Provide equipment grounding connections for transfer switch units.

3.02 FIELD QUALITY CONTROL

A. Test transfer switches, by means of simulated power outage; automatic start-up 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 retesting, where necessary, at no cost to Owner.

END OF SECTION