

SECTION 16495  
TRANSFER SWITCH

PART 1 GENERAL

1.1 SECTION INCLUDES:

- A. Automatic transfer switch.
- B. Manual transfer switch.

1.2 REFERENCES

- A. NEMA ICS 1 - General Standards for Industrial Control and Systems.
- B. NEMA ICS 2 - Standards for Industrial Control Devices, Controllers, and Assemblies.
- C. NEMA ICS 6 - Enclosures for Industrial Controls and Systems.
- D. NFPA 110 – Standards For Emergency And Stand-By Power Systems.

1.3 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in automatic transfer equipment with three years experience.

1.4 SUBMITTALS

- A. Submit product data under provisions of Section 01300.
- B. Submit product data for transfer witches showing overall dimensions, electrical connections, electrical ratings, and environmental requirements.
- C. Submit manufacturer's installation instructions under provisions of Section 01300.

1.5 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data under provisions of Section 01700.
- B. Include instructions for operating equipment.
- C. Include instructions for operating equipment under emergency conditions.
- D. Identify operating limits, which may result in hazardous or unsafe conditions.
- E. Document ratings of equipment and each major component.
- F. Include routine preventive maintenance and lubrication schedule.
- G. List special tools, maintenance materials, and replacement parts.
- H. Submit manufacturer's diagnostic literature and software package.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Onan
- B. Kohler
- C. Catipler
- D. GE/Zenith
- E. ASCO
- F. Russelectric Inc.

2.2 AUTOMATIC TRANSFER SWITCH

- A. Description: NEMA ICS 2; automatic transfer switch.
- B. Configuration: Electrically-operated, mechanically-held transfer switch.

2.3 MANUAL TRANSFER SWITCH

- A. Description: NEMA ICS 2; manual transfer switch.

- B. Configuration: Electrically-operated, mechanically-held transfer switch.
- C. Sequence of Operation: Switch position is selected by control switch mounted in switch cover.

#### 2.4 AUTOMATIC SEQUENCE OF OPERATION

- A. Initiate Time Delay to Start Alternate Source Engine Generator: Upon initiation by normal source monitor.
- B. Time Delay to Start Alternate Source Engine Generator: 0 to 10 seconds, adjustable.
- C. Initiate Transfer Load to Alternate Source: Upon initiation by normal source monitor and permission by alternate source monitor.
- D. Time Delay Before Transfer to Alternate Power Source: 0 to 5 minutes, adjustable.
- E. Initiate Retransfer Load to Normal Source: Upon permission by normal source monitor.
- F. Time Delay Before Transfer to Normal Power: 0 to 30 minutes, adjustable; bypass time delay in event of alternate source failure.
- G. Time Delay Before Engine Shut Down: 0 to 30 minutes, adjustable, of unloaded operation.
- H. Engine Exerciser: Start engine every 7 days; run for 30 minutes before shutting down. Bypass exerciser control if normal source fails during exercising period.
- I. Alternate System Exerciser: Transfer load to alternate source during engine exercise period.
- J. All other setting as per NFPA 110.

#### 2.5 ENCLOSURE

- A. Enclosure: ICS 6; Type as required to meet conditions of installation unless indicated on the Drawings.

#### 2.6 ACCESSORIES

- A. Indicating Lights: Mount in cover of enclosure to indicate NORMAL SOURCE AVAILABLE, ALTERNATE SOURCE AVAILABLE, and SWITCH POSITION.
- B. Test Switch: Mount in cover of enclosure to simulate failure of normal source.
- C. Return to Normal Switch: Mount in cover of enclosure to initiate manual transfer from alternate to normal source.
- D. Transfer Switch Auxiliary Contacts: One normally open; One normally closed.
- E. Normal Source Monitor: Monitor each line of normal source voltage and frequency; initiate transfer when voltage drops below 90% or frequency varies more than 3% from rated nominal value.
- F. Alternate Source Monitor: Monitor alternate source voltage and frequency; inhibit transfer when voltage is below 90% or frequency varies more than 3% from rated nominal voltage.
- G. In-Phase Monitor.
- H. Switched Neutral: Non-Overlapping contacts.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Verify field measurements are as shown on Drawings.
- C. Verify that required utilities are available, in proper location, and ready for use.
- D. Beginning of installation means acceptance of existing conditions.
  - A. Install in accordance with manufacturer's instructions.
  - B. Install in accordance with NFPA 110.

END OF SECTION