

A service entrance disconnect is a device that interrupts excessive voltage and allows for manually disconnecting your home or business from the electrical utility. This information sheet discusses when to use a service entrance disconnect device and the requirements of National Electrical Code (NEC) and National Fire Protection Association (NFPA) 70.

# **1.0 DEFINITION OF SERVICE DISCONNECT DEVICE:**

Generally defined as a circuit breaker that either forms part of your utility meter base or the main panel, and is often called the 'main breaker'.



The installation information provided in this information sheet is informational in nature only, and should not be considered the advice of a properly licensed and qualified electrician or used in place of a detailed review of the applicable National Electric Codes and local codes. Specific questions about how this information may affect any particular situation should be addressed to a licensed and qualified electrician.



### 2.0 ARTICLE 230 CLAUSES OF THE NATIONAL ELECTRICAL CODE SPECIFIC TO SERVICE ENTRANCE DEVICES:

The designer of a generator system should ensure that the system complies with all codes, specifically NEC and NFPA. NEC codes specific to service entrance devices are covered in the following NEC clauses.

230.70 - Means shall be provided to disconnect all conductors in a building or structure from the service entrance conductors.

**230.70 (1)** - The service disconnecting means shall be installed at a readily accessible location, either outside or inside the building, nearest the point of entrance of the service conductors.

**230.72** - Equipment connected to the supply side of service disconnect. Only the following equipment shall be permitted to be connected to the supply side of the service disconnecting means:

Taps used only to supply load management devices, circuits for standby power systems, fire pump equipment, fire and sprinkler alarms, control circuits for power-operable service disconnecting means, ground-fault protection systems, meters, meter sockets or meter disconnect switches, if provided with service equipment and installed in accordance with requirements for service entrance conductors.

230.90 - Each ungrounded conductor shall have over-current protection.

230.91 - The service over-current device shall be integral part of the service disconnecting means or shall be located immediately adjacent hereto.

## 3.0 NEC 230 APPLICABLE TO TRANSFER SWITCHES:

Article 230 becomes applicable to transfer switches when the planned installation places them on the utility side of the existing Service Entrance. In many areas, it is common practice for the Service Entrance to be a circuit breaker in the main distribution panel. This requires either installing a new service entrance, or to install a Service Rated Transfer switch.

# **4.0 DEFINITION OF A SERVICE RATED TRANSFER SWITCH:**

A Service Entrance Rated transfer switch is just a normal transfer switch with a circuit breaker added in series with the utility input, and a bonding jumper between neutral and ground. Service Entrance – rated transfer switches should be code compliant and have Underwriters Laboratories UL– 891 and UL–1008 labels and meet all national and local codes.

#### **5.0 OPTIONS FOR SERVICE ENTRANCE DISCONNECT:**

The following details options for Service Entrance disconnect and refers to the illustration detailed overleaf.

Option One - Service Entrance disconnect switch with integral fuses located upstream of the ATS (see diagram)

**Option Two** - Service Entrance circuit breaker located upstream of the ATS – the least expensive if no other equipment is required to meet code (see diagram)

**Option Three** - Service Entrance ATS with circuit breakers as switching mechanism – uses two circuit breakers and can be very physically large (see diagram)

Option Four - Service entrance ATS with switch mechanism and integral circuit breaker – also calls for very large enclosure (see diagram)

(This information sheet is for a guide only before installation or designing any electrical system you must consult with your power system supplier and a qualified consulting engineer familiar with all the specific codes.)

To fulfill our commitment to be the leading supplier in the power generation industry, the Buckeye Power Sales team ensures they are always up-to-date with the current power industry standards as well as industry trends. As a service, our Information Sheets are circulated on a regular basis to existing and potential power customers to maintain their awareness of changes and developments in standards, codes and technology within the power industry.





CANAL WINCHESTER, OH 8155 Howe Industrial Parkway Canal Winchester, OH 43110 (614) 751-4515 (866) 889-2628

CHICAGO, IL 1308 Marquette Drive Romeoville, IL 60446 (630) 914-3000 CINCINNATI, OH 4992 Rialto Road West Chester, OH 45069 (513) 755-2323 (800) 368-7422

INDIANAPOLIS, IN 1707 S. Franklin Road Indianapolis, IN 46239 (317) 271-9661 (800) 632-0339 CLEVELAND, OH 8465 Tower Drive Twinsburg, OH 44087-0394 (330) 425-9165 (800) 966-2825

FORT WAYNE, IN 7525 Maplecrest Road #221 Fort Wayne, IN 46835 (855) 638-2721 TOLEDO, OH 12400 Williams Road Perrysburg, OH 43551 (855) 638-2728