PROCESS INDUSTRY PRACTICES

COMPLETE REVISION
June 2023

Electrical

PIP ELSAP20
Low-Voltage Automatic Transfer Switch

PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

This Practice has been prepared by harmonizing technical requirements from existing standards of major industrial operators, contractors, and standards development organizations. While this Practice is intended to incorporate the majority of requirements, individual applications may have requirements which take precedence over this Practice. Determinations concerning fitness for purpose or application of this Practice to specific project or engineering situations should not be made solely on information contained in this Practice. All Practices are intended to be consistent with applicable laws and regulations. Should this Practice conflict with applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by this Practice.

Use of trade names should not be viewed as an expression of preference. Other brands having the same specifications are equally correct and may be substituted for those named.

This Practice is subject to revision at any time. For more information refer to PIP ADG001, *Specification for Developing Practices*.

Process Industry Practices
3925 West Braker Lane (R4500)
Austin, Texas 78759

PUBLISHING HISTORY

June 2007	*Issued*	*June 2023*	*Complete Revision*
October 2012	*Complete Revision*		
January 2018	*Complete Revision*		

Not printed with State funds

PIP ELSAP20
Low-Voltage Automatic Transfer Switch

Table of Contents

Data Form

ELSAP20-D – Data Sheet for Low-Voltage Automatic Transfer Switch

1. Scope

This Practice describes the requirements for the design, fabrication, inspection, testing, and shipping of factory-assembled low-voltage automatic transfer switches. This Practice does not cover fast transfer systems.

2. References

Applicable parts of the following industry codes and standards shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

2.1 Industry Codes and Standards

- American Society of Civil Engineers
  - ASCE/SEI 7 - *Minimum Design Loads for Building and Other Structures*
- Underwriters Laboratories (UL)
  - UL 508A - *Industrial Control Panels*
  - UL 1008 - *Transfer Switch Equipment*
  - UL 991 - *UL Standard for Safety Tests for Safety-Related Controls Employing Solid-State Devices*
- National Electrical Manufacturers Association (NEMA)
  - NEMA ICS 10 - *AC Automatic Transfer Switches*
- National Fire Protection Association (NFPA)
  - NFPA 70 - *National Electrical Code*
  - NFPA 110 - *Standard for Emergency and Standby Power Systems*
- Institute of Electrical Electronics Engineers (IEEE)
  - IEEE 446 - *Recommended Practice for Emergency and Standby Power Systems for Industrial and Commercial Applications* - IEEE Orange Book (Color Book Series)

2.2 Other References

- Canadian Standards Association
  - CSA C22.2 No. 178, *Transfer Switch Equipment*

3. Definitions

closed transition: Transfer switch equipment providing momentary paralleling of both power sources during transfer in either direction. This permits the transfer of electrical loads without a power interruption. The closed transition is possible only if the sources are properly interfaced and synchronized. This is a make before break operation.

open transition: Transfer of power between a normal and alternate power supply if the normal power supply is interrupted or falls outside set parameters. This is a break before make operation.