PROCESS INDUSTRY PRACTICES

COMPLETE REVISION
May 2018

Electrical

PIP ELSMC13
Low-Voltage Motor Control Centers

PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

In an effort to minimize the cost of process industry facilities, this Practice has been prepared from the technical requirements in the existing standards of major industrial users, contractors, or standards organizations. By harmonizing these technical requirements into a single set of Practices, administrative, application, and engineering costs to both the purchaser and the manufacturer should be reduced. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve requirements that will be appended to and take precedence over this Practice. Determinations concerning fitness for purpose and particular matters or application of the Practice to particular project or engineering situations should not be made solely on information contained in these materials. The use of trade names from time to time should not be viewed as an expression of preference but rather recognized as normal usage in the trade. Other brands having the same specifications are equally correct and may be substituted for those named. All Practices or guidelines are intended to be consistent with applicable laws and regulations including OSHA requirements. To the extent these Practices or guidelines should conflict with OSHA or other 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 the Practice.

This Practice is subject to revision at any time.

PUBLISHING HISTORY

March 2000	*Issued*	*April 2013*	*Complete Revision*
October 2006	*Complete Revision*	*May 2018*	*Complete Revision*
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Table of Contents

1. Scope

This Practice describes the requirements for the design, fabrication, inspection, testing, and shipping of factory-assembled 600 V motor control centers. It includes requirements for buses, enclosures, motor starters, fused switches, and circuit breakers. All equipment described in this Practice is suitable for use in dry, non-classified areas or in outdoor enclosures. Panelboards and adjustable speed drives are outside the scope of this Practice.

2. References

Applicable parts of the following Practices and 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 Process Industry Practices (PIP)

– PIP ELSSG12 - *Design and Fabrication of Outdoor Enclosures for Motor Controllers and Switchgear*

2.2 Industry Codes and Standards

- American Society of Civil Engineers
  – ASCE/SEI 7 - *Minimum Design Loads for Building and Other Structures*
- Institute of Electrical and Electronics Engineers (IEEE)
  – IEEE C37.20.7 - *IEEE Guide for Testing Metal-Enclosed Switchgear Rated up to 38kV for Internal Arcing Faults*
- National Electrical Manufacturers Association (NEMA)
  – NEMA ICS 18 - *Motor Control Centers*
  – NEMA ICS 2 - *Industrial Control and System Controllers, Contactors and Overload Relays Rated 600 Volts*
- National Fire Protection Association (NFPA)
  – NFPA 70 - *National Electrical Code* (NEC)
- Underwriters Laboratories (UL)
  – UL 845 - *Motor Control Centers*

3. Definitions

arc resistant: Equipment designed to withstand the effects of an internal arcing fault, as indicated by meeting test requirements of *IEEE C37.20.7*

spare: Space occupied by a unused starter, feeder, or other device

space: A space specified and equipped to accept a future unit

intelligent motor control center: A motor control center (MCC) with digital communication and control capability