

PANDUIT GUIDE SPECIFICATION  
NOTES AND INSTRUCTIONS TO SPECWRITER

**Notes to the Specification Writer:**

***This Section has been written to cover most, but not all, project conditions that you will encounter. Depending on the project, you may need to add material, delete items, or modify what is currently written. Editing instructions are included throughout the document. (If this document is viewed or printed in color, these instructions appear in red bold italic text.)***

***Review this entire specification Section and edit it to meet the requirements of the specific project. Options or items where the specification writer's input is needed are enclosed in [brackets].***

***Before publishing your final version of this specifications Section, remove all red bold italic instructions.***

PART 1 - GENERAL

1.1 SUMMARY

A. What This Section Includes

This Section includes the specifications for:

1. The supply, delivery, supervision, coordination, and installation of equipment items specified herein and shown on drawings
2. Instruction on where and how permanently installed absence of voltage testers can be installed
3. The documentation and instruction for completing permanently installed absence of voltage testers in various equipment

B. Related Drawings

1. Control drawings follow the specifications in this Section.
2. Electrical drawings specify the electrical requirements.

C. What the Contractor Shall Provide and Install

Although such work is not specifically mentioned herein or on the drawings, the Contractor shall furnish and install all miscellaneous items, accessories, appurtenances, and devices incidental to or required for a sound, secure, and complete installation, without claim for additional payment.

D. Errors or Omissions in Drawings or Documentation

1. If any errors or omissions appear in Drawings, Specifications, or other documents, the bidding Contractor shall notify the Engineer no later than ten (10) days prior to submitting bid.

2. Should conflict occur in or between drawings and specifications, the bidding Contractor is deemed to have estimated the more expensive way of doing the work, unless the bidding Contractor has asked for and obtained a written decision (addendum), before submission of the bid, as to which method or materials will be required.

**E. Dimensions**

Dimensions indicated are limiting dimensions.

1. Do not use equipment exceeding dimensions indicated.
2. Do not use equipment or arrangements that reduce required clearances or exceed specified maximum dimensions.

**1.2 REFERENCES**

- A. Related Sections (equipment wherein permanently absence of voltage testers can be installed)
  1. 26 23 13 Paralleling Low-Voltage Switchgear
  2. 26 24 13 Switchboards
  3. 26 24 16 Panelboards
  4. 26 24 16.16 Electronically Operated Circuit-Breaker Panelboards
  5. 26 24 19 Motor-Control Centers
- B. Applicability of Codes, Rules, and Regulations
  1. Federal, state, and local codes, rules, regulations, and ordinances governing the work are as fully part of the specifications as if herein repeated or hereto attached.
  2. If the contractor should note items in the drawings or the specifications, construction of which would be code violations, the Contractor should promptly call them to the attention of the Owner's representative in writing.
  3. Where the requirements of other sections of the specifications are more stringent than the applicable codes, rules, regulations, and ordinances, the specifications shall apply.
- C. Definitions

The following are the definitions of the terms used in this Section:

1. AVT – Absence of Voltage Tester – a permanently installed absence of voltage tester for use in electrical systems.

**1.3 SYSTEM DESCRIPTION**

The Contractor will provide and install all components included with the absence of voltage tester, including all components required to terminate, secure, and install absence of voltage tester sensor leads.

**1.4 OPERATION MANUALS**

- A. Product user manuals shall be provided with each permanently mounted absence of voltage tester and shall include instruction on every component included in the assembly, along with key commissioning instructions.

#### 1.5 REGULATORY REQUIREMENTS

- A. The permanently absence of voltage tester shall bear a UL label listed to UL 1436.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Equipment shall be handled and stored in accordance with manufacturer's instructions.

#### 1.7 COORDINATION

A. Installation Schedule

The Contractor shall coordinate with all other trades. The Contractor will submit a schedule for the installation within 10 days of contract award.

1. The schedule shall include delivery, installation, and testing for conformance to specific job completion dates.
2. At a minimum, dates are to be provided for the start of demolition, the completion of demolition, the installation start date, the completion of horizontal cabling, the completion of riser cabling, the completion of testing and labeling, cutover, the completion of the final punch list, final inspection, and acceptance.

B. Final Inspection

1. The Contractor is required to notify the Engineer of a proposed appointment for Final Inspection at least 72 hours before the appointment.
2. Within five working days after the final inspection, the Contractor shall send final project documentation and warranty information to the Owner and Engineer. The final project documentation shall include, but may not be limited to:
  - a. A copy of the completed VeriSafe Absence of Voltage Tester commissioning checklist included in the provided user manual

#### 1.8 PROJECT CONDITIONS

A. Project Environmental Requirements

1. Electrical System Safety

- a. Observe all warning signs on equipment and all written safety precautions in instruction and technical manuals.

#### 1.9 USE OF THE SITE

- A. Where the Owner deems it necessary to place restrictions, use the site as directed by the Owner.

- B. When proceeding with the work, do not interfere with the ordinary use of streets, aisles, passages, exits, or operations of the Owner. During the day, set up cones and barriers in hallways and walkways.
- C. Request a hazardous materials worksheet that identifies potential-hazardous locations. Do not proceed with any work in locations where hazardous materials are known to be. Obtain instructions from the Contractor's Project Manager on how and when to work in these areas.
- D. Multiple times each day, each contractor shall remove all trash and debris from the site.
- E. Before leaving the room each day:
  - 1. The Contractor shall return any equipment that they have disconnected to working order.
  - 2. The Contractor's Job Foreman shall inspect all work locations to ensure that the rooms are clean and that all of the tasks described above have been done.
  - 3. It is recommended that the Contractor inspect the site and take pictures to document the condition of the electrical equipment.

#### **1.10 CONTINUITY OF SERVICES**

- A. Take no action that will interfere with or interrupt the existing building services unless previous arrangements have been made with the Owner's representative. Arrange all work to minimize shutdown time.
- B. The Owner's personnel shall perform shutdown of operating systems. When shutdown of systems is required, the contractor shall give three (3) days' advance notice.
- C. Should building services be inadvertently interrupted:
  - 1. The Job Foreman shall immediately notify the Project Manager of the accidental disruption of services, the remedy, and how long it will take to restore services.
  - 2. The Contractor shall immediately furnish the labor, including overtime, the material, and the equipment necessary to promptly restore the interrupted service at no cost to the Owner.

#### **1.11 WARRANTY**

- A. The Contractor shall provide the following warranties for the system and components.
  - 1. Contractor Materials and Labor Warranty

The Contractor shall provide system warranties, for a period specified in the contract documents, against faulty materials and defects in workmanship. The Contractor shall also honor any manufacturer warranties that exceed this period time.
  - 2. Manufacturer Component Warranty

All components of the absence of voltage tester shall be free from manufacturing defects in material or workmanship, under normal and proper usage, for a minimum of one (1) year.

- B. The Manufacturer shall bear the burden to replace or repair any defective products during the warranty period at their cost, including labor and materials.
- C. The warranty period shall begin on the date of the Owner's Acceptance of the Work. Evaluation of quality and workmanship shall be solely by the Owner or the Owner representatives.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- 1. Panduit
- 2. \_\_\_\_\_

The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety. Products in compliance with the specification and manufactured by others not named will be considered only if pre-approved by the engineer \_\_\_\_\_ days prior to bid date.

### 2.2 RATINGS

- A. AVT is to be used in AC or DC environments with the following Category Ratings:
  - 1. Category III: 600V
  - 2. Category IV: 300V
- B. AVT is to be UL 1436 rated.
- C. The AVT Absence of Voltage Test is have a functional safety rating of SIL 3.
- D. The AVT is to have the appropriate ratings for the country it is being installed in.

### 2.3 APPLICATIONS

The following sections will illustrate and explain different applications to consider for a permanently mounted absence of voltage test. The following applications are not all-inclusive, and it is ultimately up to the specwriter to determine best installation for the AVT.

- A. 26 23 13 Paralleling Low-Voltage Switchgear
  - 1. Shall be provided on:
    - a. Load side of the incoming power of the main feeder breaker
    - b. each individual feeder breaker
- B. 26 24 13 Switchboards

1. Shall be provided on:
  - a. Load side of the main circuit breaker
  - b. Load side of each individual breaker within the switchboard
- C. 26 24 16 Panelboards
  1. Shall be provided on:
    - a. Line side of the panelboard
    - b. TBD other locations
- D. 26 24 19 Motor-Control Centers
  1. Shall be provided on:
    - a. Line side of the MCC units
    - b. Load side of the MCC units
    - c. Line and Load side of the MCC units
    - d. Line side of the MCC main
    - e. Load side of the MCC main
    - f. Main Lug Only (MLO) compartment

## 2.4 SPECIFICATION COPY

- A. Specification to be modified by the specwriter:
  1. Absence of Voltage Testers (AVT) shall be provided on the [select location in equipment in application section above] as per contract documents. The AVT shall be a hardwired voltage presence indicator and absence of voltage tester connected to the [select termination point per applications above] and shall be listed and labeled for the purpose of verifying absence of voltage (UL 1436). The AVT shall provide visual indication at the equipment door of any voltage presence on any phase, but also provide an absence of voltage test that tests the tester, tests phase to phase, tests phase to ground, and provides positive indication when voltage is below 3V AC or DC. This will allow for any authorized personnel to verify absence of voltage while the unit door is safely closed. The Absence of Voltage Tester indicator module shall be installed using a standard 30mm pilot device knockout. The isolation module shall be securely mounted via flush-mount or DIN rail inside the equipment. Refer to the manufacturer installation manuals as supplied with the system, to install each one of the system components. The absence of voltage tester shall be listed and labeled to UL 1436, have a functional safety rating of SIL 3, be UL type 4X listed, and have immunity to high surges. The Absence of Voltage Tester shall be a Panduit "VeriSafe" AVT catalog number [insert SKU from table below depending on application]

- B. Sample MCC Specification:

1. Absence of Voltage Testers (AVT) shall be provided on the load side of each MCC units as per contract documents. The AVT shall be a hardwired voltage presence indicator and absence of voltage tester connected to the load side of the bucket and shall be listed and labeled for the purpose of verifying absence of voltage (UL 1436). The AVT shall provide visual indication at the MCC unit door of any voltage presence on any phase, but also provide an absence of voltage test that tests the tester, tests phase to phase, tests phase to ground, and provides positive indication when voltage is below 3V AC or DC. This will allow for any authorized personnel to verify absence of voltage while the MCC unit door is safely closed. The Absence of Voltage Tester indicator module shall be installed using a standard 30mm pilot device knockout. The isolation module shall be securely mounted via flush-mount or DIN rail inside the MCC. Refer to the manufacturer installation manuals as supplied with the system, to install each one of the system components. The absence of voltage tester shall be listed and labeled to UL 1436, have a functional safety rating of SIL 3, be UL type 4X listed, and have immunity to high surges. The Absence of Voltage Tester shall be Panduit "VeriSafe" AVT catalog number [insert SKU from table below depending on application].

part number	Description	unit of measure	std. pkg. qty	std. ctn. qty.
VS-AVT-C02-L03	VeriSafe Absence of Voltage Tester, Three Phase 600V Module, 2ft System Cable, 3ft sensor leads	piece	1	1
VS-AVT-C08-L10	VeriSafe Absence of Voltage Tester, Three Phase 600V Module, 8ft System Cable, 10ft sensor leads	piece	1	1

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. The following procedures shall be completed by the Contractor
  1. Examine installation area to assure there is enough room to install the AVT
  2. Verify AVT is ready to be installed
  3. Furnish any special installation equipment or tools necessary to properly complete the installation.
  4. Beginning of install confirms installer accepts conditions.
- B. Failure to follow the appropriate guidelines may require the installer to provide additional material and labor required to bring the installation back into alignment with the guidelines and to correct any and all damage to the cables by the installer during the implementation.
- C. All techniques and fixtures used in the installation must allow for easy maintenance of, and ready access to, all components for test measurements.

### 3.2 INSTALLATION

- A. Contractor shall follow all installation instructions provided by the manufacturer.
- B. Control wiring shall be as shown on the contract drawings except as modified by the approval and submittal process.

### 3.3 COMMISSIONING

- A. Contractor is responsible for generation of the commissioning checklist for each Absence of Voltage Tester installation, and make it available to the owner upon request.

END OF SECTION