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This MANU-SPEC® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Specifier Notes precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies contact and non-contact electronic edge sensing systems for doors, gates and barriers. These products are manufactured by Miller Edge, Inc. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

**SECTION 08 78 00
SPECIAL FUNCTION HARDWARE**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: This Section specifies electronic, contact and non-contact sensing edges for doors, gates and barriers, and their installation.

1.02 RELATED SECTIONS

Specifier Note: Include in this Article only those sections that directly affect the work of this section. Do not include Division 00 or Division 01 sections since it is assumed that all technical sections are related to all project Division 00 and Division 01 sections to some degree.

- A. Section [_____].

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Section 01 42 19 - Reference Standards may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section. Retain only those reference standards to be used within the text of this Section. Add and delete as required for specific project.

1.03 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI/UL 325 Safety for Door, Drapery, Gate, Louver, and Window Operators and Systems.
- B. National Electrical Code (NEC).
- C. National Fire Protection Association (NFPA).
- D. National Electrical Manufacturers Association (NEMA):
 - 1. NEMA 4 Performance Testing for Lighting Controls and Switching Devices with Electronic Fluorescent Ballasts.
- E. International Code Council (ICC):
 - 1. International Building Code.



1.04 ACTION SUBMITTALS

- A. General: Submit listed action submittals in accordance with Conditions of the Contract and Section [01 33 00 - Submittal Procedures] [_____].
- B. Shop Drawings: Indicate information on shop drawings as follows:
 - 1. Size and description of materials, attachment devices, finish, edge and accessory location, construction details, required clearances [And electrical connections].
- C. Samples: Submit as follows
 - 1. [Duplicate], [12 inch (305 mm)] [_____] long samples of [Edge type] [Bulb profile] [_____].
- D. Product Data: Submit product data, including manufacturer's SPEC-DATA® product sheet, for specified products.
 - 1. Material safety data sheets (MSDS).

1.05 INFORMATION SUBMITTALS

- A. Quality Assurance:
 - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
 - 2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
 - 3. Manufacturer's Instructions: Manufacturer's installation instructions.

Specifier Note: Coordinate paragraph below with Part 3 Field Quality Requirements Article. Retain or delete as applicable.

- B. Manufacturer's Field Reports: Manufacturer's field reports specified.

1.06 CLOSEOUT SUBMITTALS

- A. Warranty: Submit warranty documents specified.
- B. Operation and Maintenance Data: Submit operation and maintenance data for installed products in accordance with Section [01 78 00 - Closeout Submittals] [_____].
 - 1. Include:
 - a. Manufacturer's instructions covering maintenance requirements and parts catalog giving complete list of repair and replacement parts with cuts and identifying numbers.

1.07 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
 - 2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction and approving application method.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Conditions of the Contract and Section 01 41 00 - Regulatory Requirements. Repetitive statements should be avoided. Current data on building code requirements and product compliance may be obtained from manufacturer technical support specialists.

- B. Regulatory Requirements:

Specifier Note: Electronic edge sensing systems must also meet the requirements of building codes and zoning bylaws issued by federal, state and local government authorities having jurisdiction. Ensure that project specification section reflects the need to meet these requirements. Edit paragraph below as applicable.

- 1. National Electrical Code (NEC).
- 2. National Fire Protection Association (NFPA).
- 3. [International Building Code (IBC)] [Building Code for the [State] [City] of [_____]].

- C. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with [Section 01 31 19 - Project Meetings] [_____].

1.08 DELIVERY, STORAGE & HANDLING

- A. General: Comply with [01 61 00 - Common Product Requirements] [_____].
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery:
 - 1. Deliver materials in manufacturer's original packaging with identification labels intact and in sizes to suit project.
- D. Storage and Protection:
 - 1. Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
- E. Waste Management and Disposal:

Specifier Note: Environment: The disposal of packaging waste into landfill site demonstrates an inefficient use of natural resources and consumes valuable landfill space. Specifying appropriate packaging and construction waste management and disposal procedures may contribute to points required for LEED® construction project certification.

- 1. Separate waste materials for [Reuse] [And] [Recycling] [_____] in accordance with [Section 01 74 19 - Construction Waste Management and Disposal] [_____].

Specifier Note: Manufacturer may take back packaging and delivery materials for recycling.

- 2. Remove from site and dispose of packaging materials at appropriate recycling facilities.
- 3. Collect and separate for disposal [Paper] [Plastic] [Polystyrene] [Corrugated cardboard] [_____] packaging material [In appropriate onsite bins] [_____] for recycling.

1.09 PROJECT AMBIENT CONDITIONS

- A. Installation Location: Assemble and erect components only when temperatures are above 40 degrees F (4 degrees C).

1.010 SEQUENCING

- A. Sequence With Other Work: Comply with electronic edge sensing systems manufacturer's written recommendations for sequencing construction operations.

Specifier Note: Coordinate article below with Conditions of the Contract and with [01 78 36 - Warranties] [_____].

1.011 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

Specifier Note: Coordinate article below with manufacturer's warranty requirements.

- C. Warranty: Commencing on date of acceptance by [Owner] [Architect] [Consultant] [_____].

1.012 MAINTENANCE

- A. Include complete maintenance on electronic edge sensing systems for 12 months after date of acceptance by [Owner] [Architect] [Consultant] [_____].
- B. Regularly and systematically [Weekly] [Semi-monthly] [Monthly] [_____] examine, clean and adjust edge sensing systems.
- C. Repair or replace parts of electronic edge sensing systems whenever required due to defect and normal wear and tear.
- D. Use only standard parts of product line of manufacturer of electronic edge sensing systems.
- E. Maintain locally adequate stock of parts for replacement or emergency purposes.
- F. Provide personnel to perform work under supervision and in direct employ of electronic edge sensing system manufacturer or manufacturer's licensed agent.

- G. Perform work during regular trade working hours satisfactory to [Owner] [Architect] [Consultant] [_____].
- H. Provide emergency call-back at no extra cost and ensure fulfillment of maintenance and emergency service without undue loss of time to [Owner] [Architect] [Consultant] [_____].
- I. Ensure that maintenance personnel register with designated building personnel at time of inspections and maintenance.

1.013 EXTRA MATERIALS

- A. Provide maintenance materials in accordance with Section [01 78 00 - Closeout Submittals] [_____].

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Ensure manufacturer has minimum [5] [_____] years experience in manufacturing components similar to or exceeding requirements of project.

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

- B. Manufacturer: Miller Edge, Inc.
 - 1. Contact: PO Box 159, West Grove, PA 19390; Telephone: (800) 220-3343, (610) 869-4422; Fax: (610) 869-4423; E-mail: info@milleredge.com; website: www.milleredge.com.
- C. Proprietary Products/Systems:

2.02 SENSING SYSTEM

- A. [4-Wire] [_____] [Contact] [Non-contact] sensing system, with [UV resistant [Black] [White] [Gray] [Caution yellow] [Yellow and black striped] [XR-5 chemical resistant] [_____] colored contact element cover] [Flexible astragal] to [ANSI/UL325] [_____].
 - 1. Power Input Range: [8 - 28 V AC] [12 - 35 V DC] [_____].

Specifier Note: Choose the normally open contact condition for standard applications.

- 2. Relay Output: Dry contact [Normally open] [Normally closed], [0.5 amps at 115 V AC] [1 amps at 24 V DC] [_____].
- 3. Operation Distance: [50 feet (15.2 m) free air] [15 feet (4.6 m) in extrusion] [_____].
- 4. Transmitter Total Radiated Power: 86 mW.
- 5. Free Operation Beam Half Angle: 5 degrees, nominal.
- 6. Peak Wavelength: 940 n/Meter.
- 7. Response Time: Less than 10 m/sec.

Specifier Note: Choose length of cable to suit project requirements.

- 8. Cable Size: 24 AWG (0.635 mm) x [_____] feet (m) long.
- 9. Operating Temperature Range: -25 - 131 degrees F (-32 - 55 degrees C).

Specifier Note: There are a multitude of different methods for attaching the sensing elements to the bottom of doors and gates. The methods are dependent on whether the system used is a contact or a non-contact system as well as the application and the electronic sensing model specified. Check the manufacturer's SPEC-DATA sheet to determine the best method of mounting for the specified models.

- 10. Mounting Options: [Flush] [Aluminum] [Clip-on] [Double-faced tape] [PVC channel] [Screw attachment] [Double angle bottom mounted] [Flexible mounting attached to door bottom] [Mounting flaps attached to door bottom] [_____].
- B. Sensing System Enclosure Specifications:
 - 1. Enclosure Material: [Black] [_____], [Polycarbonate] [_____] to [NEMA 4, IP56] [_____].
 - 2. Enclosure Operating Temperature: -25 - 158 degrees F (-32 - 70 degrees C).

Specifier Note: Miller Edge, Inc., has more than a dozen different models of sensing systems as follows: ME110, ME111, ME112, ME113, ME120, ME123, MGO20, MGR20, MGS20, MC22, MT21, MT22, MU21, MU22, MU Bumpers. Insert the appropriate model number in the paragraph below to suit application and project requirements. For electronic contact system, choose the Electronically Activated 4-Wire Sensing Edges system. For a non-contact electronic sensing system, choose the Patriot 4-Wire Non-Contact Sensing system.

- C. Acceptable Material: Miller Edge, Inc., [Electronically Activated 4-Wire Sensing Edges] [Patriot 4-Wire Non-Contact Sensing System] model [ME10] [_____].

Specifier Note: There are many accessories and options available for the electronic door sensing systems. A few have been listed below. For more options and accessories, check both the manufacturer's SPEC-DATA sheet and website.

2.03 ACCESSORIES

- A. Universal Wireless Transmitter and Receiver [With alarm].
 - 1. Acceptable Material: Miller Edge, Inc., Universal Wireless Transmitter.
- B. Motion detector.
 - 1. Acceptable Material: Miller Edge, Inc., Motion Detector.
- C. Industrial door sensors.
 - 1. Acceptable Material: Miller Edge, Inc., Industrial Door Sensor.
- D. Infrared beam system.
 - 1. Acceptable Material: Miller Edge, Inc., Infrared Beam Sensor.
- E. Digital inductive [Single] [Dual] loop detectors.
 - 1. Acceptable Material: Miller Edge, Inc., Digital Inductive Detector.
- F. Hand-held transmitter.
 - 1. Acceptable Material: Miller Edge, Inc., model [MWKT-01] [MWHT-01] [_____].
- G. Wall Station: 3-button control.
 - 1. Acceptable Material: Miller Edge, Inc., Wall Station Control.
- H. [_____].
 - 1. Acceptable Material: [_____].

Specifier Note: Edit Paragraph below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Section 01 25 13 - Product Substitution Procedures.

2.04 PRODUCT SUBSTITUTIONS

- A. Substitutions: [In accordance with Section 01 25 13 - Product Substitution Procedures] [_____] [No substitutions permitted].

PART 3 EXECUTION

3.01 INSTALLERS

- A. Provide experienced and qualified technicians to carry out erection, assembly and installation of electronic edge sensing systems.

3.02 MANUFACTURER'S INSTRUCTIONS

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

- A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and Miller Edge, Inc. SPEC-DATA sheets.

3.03 EXAMINATION

- A. Site Verification of Conditions:

1. Verify that substrate conditions, which have been previously installed under other sections or contracts, are acceptable for product installation in accordance with manufacturer's instructions prior to installation of electronic edge sensing system.
2. Inform [Owner] [Architect] [Consultant] [_____] of unacceptable conditions immediately upon discovery.
3. Proceed with installation only after unacceptable conditions have been remedied.

3.04 INSTALLATION

Specifier Note: Coordinate installation with the manufacturer's written installation details and instructions.

- A. Coordinate electronic edge sensing system work with work of other trades for proper time and sequence to avoid construction delays.
- B. Install electronic edge sensing system in accordance with manufacturer's written instructions.

3.05 FIELD QUALITY CONTROL

Specifier Note: Use the following Articles when manufacturer's field services are desired to verify the quality of the installed components. Establish the number and duration of periodic site visits required by the Manufacturer and specify below. Consult with the Manufacturer for services required. Delete if field services are not required.

- A. Manufacturer's Field Services: Have manufacturer's technical representative schedule site visits to review work as follows:
 1. After delivery and storage of products.
 2. When preparatory work for which work of this Section depends is complete, but before installation begins.
 3. [Weekly] [2 times] [_____] during progress of work [at [25%] and [60%]] [_____] of completion.
 4. Upon completion of work, after cleaning is carried out.

3.06 ADJUSTMENT

- A. Adjust electronic edge sensing system for sensitivity to obstruction and to ensure full closure of [Door] [Gate] [Barrier] [_____].

3.07 FINAL CLEANING

- A. Do cleanup in accordance with Section [01 74 00 - Cleaning and Waste Management] [_____].
- B. Upon completion, remove surplus and excess materials, rubbish, tools and equipment.

3.08 PROTECTION

Specifier Note: Coordinate the following Article with Section 01 76 00 - Protecting Installed Construction.

- A. Protect installed product from damage during construction in accordance with Section [01 76 00 - Protecting Installed Construction] [_____].
- B. Repair any damage to adjacent materials caused by electronic edge sensing system installation.

END OF SECTION