Although PROTECH provides high security indoor intrusion sensors for the military and government markets, our specialty is outdoor protection. Since we first introduced our PIRAMID outdoor dual technology sensor in 1993, we have been constantly improving and perfecting the adaptability to cope with the ever-changing outdoor environment. Our proprietary "Stereo Doppler" technology makes this possible and gives our sensors the ability to provide the highest level of security with the very lowest nuisance alarm rate possible.

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FENCE SHOCK DETECTION SYSTEM

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

MasterFormat 2014:

28 16 43 Perimeter Security Systems

MasterFormat 2016

28 31 21 Area and Perimeter Intrusion Detection

Notes to Specifier:

1. Where several alternative parameters or specifications exist, or where, the specifier has the option of inserting text, such choices are presented in **<bold text>, where the parameter specified in [brackets] is the normal default.**
2. Explanatory notes and comments are presented in **colored** text.

Important Note to Security Systems Specifiers

CSI MasterFormat 2016 incorporates numerous significant changes affecting electronic safety and security. This document is written to provide flexibility in using either format, although adoption of MasterFormat 2016 is encouraged. The following is a guide to the MasterFormat numbers relevant to the product referenced in this specification.

Primary Specification Area:

MasterFormat 2014:

28 10 00 Electronic Access Control and Intrusion Detection

- 28 16 00 Intrusion Detection
  - 28 16 43 Perimeter Security Systems

MasterFormat 2016:

28 30 00 Security Detection, Alarm, and Monitoring

- 28 15 00 Access Control Hardware Devices
  - 28 31 21 Area and Perimeter Intrusion Detection

Related Requirements:

MasterFormat 2014:

- 28 13 33.26 Access Control Interfaces to Intrusion Detection
- 28 16 29 Intrusion Detection Remote Devices and Sensors
- 28 16 33 Intrusion Detection Interfaces

MasterFormat 2016

- 28 05 35 Security Data Communications Wireless Transmission Equipment
- 28 16 13 Access Control Interfaces to Intrusion Detection
- 28 31 21.17 Fixed Optical Beam Area and Perimeter Security Systems
- 28 31 31 Intrusion Detection Interfaces
- 28 47 21.15 Notification Interfaces to Security Detection, Alarm and Monitoring
- 28 51 51.15 Information Interfaces to Security Detection, Alarm and Monitoring

FENCE SHOCK DETECTION SYSTEM

PART 1 GENERAL

1.01 SUMMARY

A. Section includes a perimeter fence intrusion detection system.

B. Product - A system to detect all attempts at intrusion that use cutting, climbing or stripping of the fence upon which the system is installed while disregarding meteorological phenomena such as wind and rain or interference from vibration.

Refer to MasterFormat notes at the beginning of this document to select requirements specific to the MasterFormat version being used.

1.02 REFERENCES

A. Definitions

1. Climbing event ï An occurrence where one attempts to climb onto a wire mesh fence.
2. Cutting event ï An occurrence where one attempts to cut the wire mesh on a wire mesh fence.
3. ModBus ï A serial master-slave communications protocol initially published in 1979 for use with programmable logic controllers.
4. Wind event ï An occurrence where wind moves several fence panels.
5. Zones ï Logical groupings of sensing elements for the purpose of establishing specific identifiable areas of coverage.

B. Reference Standards

1. Electromagnetic compatibility - EU EMC Directives EN 55022, EN 55024
2. IEEE 802.3 Ethernet
3. Environmental
   a. ANSI/ IEC60529 - Degrees of Protection Provided by Enclosures
   b. International Electrotechnical Commission (IEC) - Ingress Protection Rating IP55

1.03 SUBMITTALS

A. Product Data

1. Manufacturerôs printed or electronic data sheets
2. Manufacturerôs installation and operation manuals

B. Shop Drawings

1. Termination points and enclosures

1.04 QUALIFICATIONS

A. Manufacturer of system shall have a minimum of five (5) years experience in the design, manufacture, and successful implementation of perimeter fence sensing systems.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver the equipment system in the manufacturerôs original, unopened, undamaged container with identification labels intact.

1. Ship and store the system protected from mechanical and environmental conditions as designated by the manufacturer and in a temperature environment of -40°F to +158°F (-40°C and +70°C)

1.06 WARRANTY

A. The Manufacturer shall provide a limited warranty for the system to be free of defects in workmanship and material under normal operating conditions for a period of one year from the date of product shipment.

- END OF SECTION ï

PART 2 PRODUCT

2.01 EQUIPMENT

A. Manufacturer: PROTECH/Protection Technologies, Inc.
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Sparks, NV 89434
Phone: +1 775 856-7333 | Fax: +1 775 856-7658
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B. Model: G-Fence 600, G-Fence 600Z

C. Alternates: None

2.02 GENERAL DESCRIPTION

A. The system shall detect all attempts at intrusion that use cutting, climbing or stripping of the fence upon which the system is installed while disregarding meteorological phenomena such as wind and rain or interference from vibration.

B. The system shall employ a sensing/detection cable which integrates 40 detector elements spaced at 3 m intervals on a wire meshed fence.

The actual protected length is a function of the width of the fence panel. Typically, one sensor per panel is employed.

40 sensors, each on a 2.5 m panel, yield a protected length of 100m.

40 sensors, each on a 3 m panel, yield a protected length of 120m.

C. The system shall be capable of detecting a cable cut to within 3 meters (9.8 feet).

D. The systemôs control unit(s) shall analyze and process the data from the detector cables and communicate status to a head-end unit.

E. The system shall have the capacity to be deployed to provide up to 600 meters (1980 feet) of coverage.

F. The system shall have the capability to be logically configured in up to 10 zones without limitations on size or location on the perimeter.

G. The system shall be auto-calibrating.

H. The system shall employ 12 VDC power.

The system requires an external power supply, and a back-up battery is recommended.

I. The system shall be hardened for operation in the temperature range of -40°F to +158°F (-40°C and +70°C)

2.03 SYSTEM COMPONENTS

A. Detection Cable

1. The detection cable shall contain shock sensing elements spaced at 3 m intervals over 100 m.
2. The cable shall have a 1.5 m lead-in section on each end prior to reaching a sensing element, with the option for an additional 200 m of lead-in on each end.
3. Each sensing element in the detection cable shall contain its own signal processing intelligence, thereby distributing the system intelligence along the cable length.
4. Each sensing element shall be auto-calibrating.
5. The detection cable shall be resistant to bending and traction.
6. The detection cable and sensing elements shall have the following properties:
   a. Jacket construction: polyethylene
   b. Maximum cable section length: 120 meters (394 feet)

The length of the protected area may be less than the physical cable length, depending on the fence panel widths.

See previous note.

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   c. Maximum number of sensors per section: 40
   d. Sensor type: X-Y-Z accelerometer
   e. Area of sensitivity per sensor element: 3 meters (9.8 feet)

B. Link Termination Unit

1. A link termination unit shall terminate the detection cable in an open loop configuration or terminate and bridge two detection cables between adjacent control units.

C. Control Unit

1. A control unit shall be capable of terminating up to six 100 meter cable sections to provide fence coverage up to 600 meters (1980 feet).
2. The control unit shall be designed for mounting directly on the fence via integral mounting hooks.
3. The control unit shall have a tamper protection switch.
4. The control unit shall exhibit a cable cut response time of 30 seconds.
5. The control unit shall be capable of being programmed via an IP connection.
6. Integrated Web Server
   a. The control unit shall have an integrated server to provide the following functions:
      1) event log history
      2) remote maintenance
      3) remote sensitivity adjustment
   b. The web server shall be accessed via an IP connection using the Internet Explorer browser.

7. Electrical ï The control unit shall have the following connections:
   a. Connections
      1) Detection cable(s): 1 or 2
      2) 12 VDC power
      3) Alarm contact outputs
         a) **[2] [10]** intrusion
         b) 1 technical
         c) 1 Tamper

The G-Fence 600 provides 2 intrusion alarm outputs.
The G-Fence 600Z provides 10 intrusion alarm outputs.

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   b. External power supply/battery charger 110/230VAC 50/60Hz / 13.6Vdc - 2.2A

- END OF SECTION -

PART 3 EXECUTION

3.01 INSTALLERS

A. The Contractorôs installers and technicians shall be factory trained and certified to install, service, and maintain the system.

B. Contractor personnel shall comply with all applicable state and local licensing requirements.

3.02 INSTALLATION

A. The Contractor shall adhere to all Manufacturerôs published installation procedures, diagrams, and guidance.

B. Control units

1. Control units shall not be installed in front of a hedge, in a shaded area, or in any other location that would impede sunlight from reaching the solar panel.
2. Control units shall be installed at the top of the fence.

C. Detector cable

1. Detector cables shall be installed at mid-height of the fence.

- END OF SECTION -