FD525 Fiber-Optic Intrusion Detection System
Specification Sheet

The Fiber SenSys **FD525™** Alarm Processing Unit (APU) represents state of the art fiber optic sensor interrogation and signal processing technology for perimeter protection. When connected to its unique fiber optic cable assembly, the **FD525™** APU is can detect simultaneous intrusion attempts from multiple zone locations on a perimeter.

Intended for fence line applications, the **FD525**'s cable assembly divides a perimeter into a maximum of 25 zones per APU. Each of these independent zones is sensitive to vibrations from intrusion attempts. The **FD525** interrogates each zone continuously and analyzes the optical return signals to determine whether an intrusion occurs. The **FD525** provides users with the ability to tune each zone independently for optimal system effectiveness.
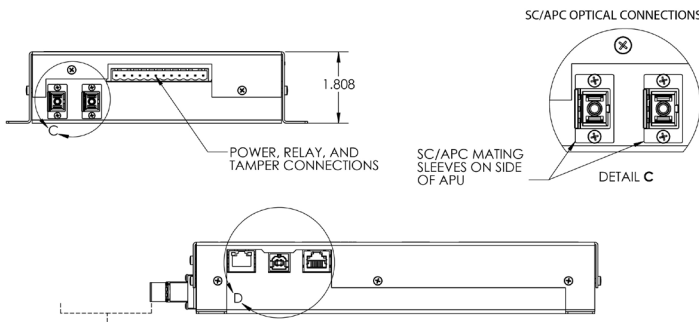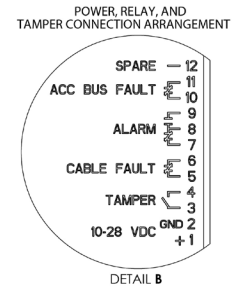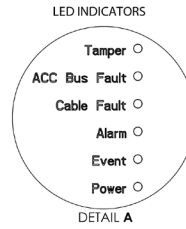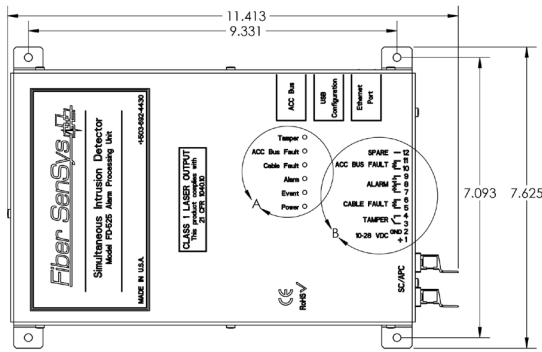
The unique capabilities of the **FD525** provide the highest levels of perimeter security in the market: detection of simultaneous events on all zones, installation of sensing elements in high-security configurations (PL-1), and mitigation of single-point failures in the environment.

An optional relay module (**RLM525™**) can be connected to the **FD525** APU to activate zone-specific alarm and fault relay outputs for up to 25 zones. Another optional output module (**OM525™**) provides zone-specific LED indicators in addition to the relay outputs.

FEATURES	APPLICATIONS
Supports up to 25 zones in a stand-alone APU	Electrical substations
Simultaneous intrusion detection (all zones)	Oil pipelines
Maximum sensor cable length (per zone) – 800 meters	Aviation and train locations
Intelligent zone assignment and zone re-ordering	Oil and chemical facilities
FD500 Series software suite for nuisance alarm discrimination	Protected Distribution Systems (PDS)
Linear, uniform sensitivity	Military facilities
XML and form C contact closure communications capability	Pharmaceutical facilities

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LED INDICATORS

- Tamper
- ACC Bus Fault
- Cable Fault
- Alarm
- Event
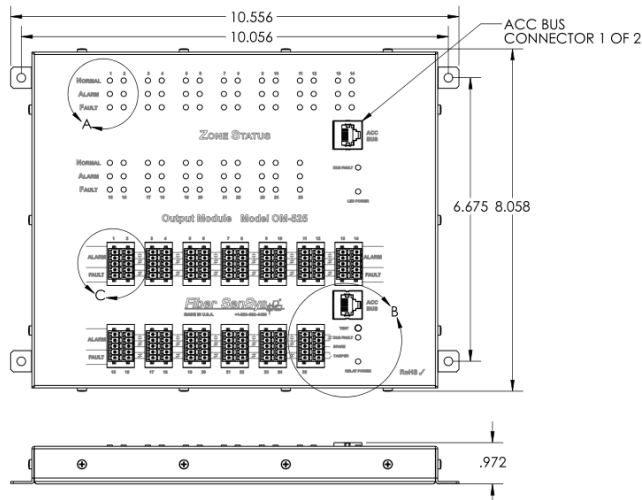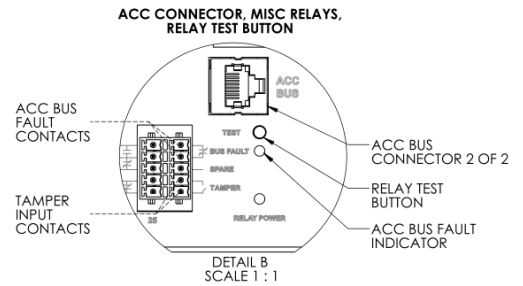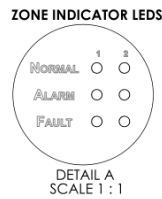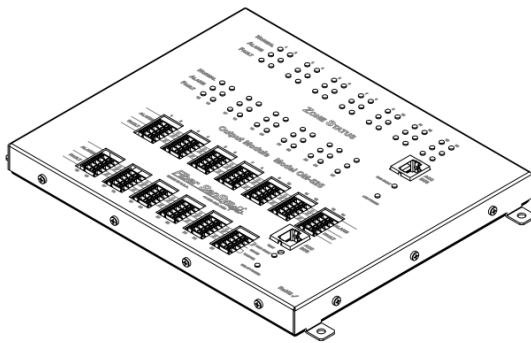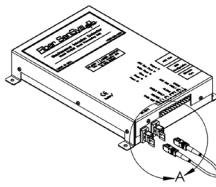- Power

DETAIL **A**

POWER, RELAY, AND TAMPER CONNECTION ARRANGEMENT

- SPARE — 12
- ACC BUS FAULT — 11, 10
- — 9
- ALARM — 8, 7
- — 6
- CABLE FAULT — 5
- — 4
- TAMPER — 3
- 10-28 VDC GND — 2
- + — 1

DETAIL **B**

11.413
9.331
7.093 7.625
1.808

POWER, RELAY, AND TAMPER CONNECTIONS

SC/APC OPTICAL CONNECTIONS

SC/APC MATING SLEEVES ON SIDE OF APU

DETAIL **C**

ETHERNET, USB, AND ACC BUS CONNECTIONS

ETHERNET PORT

USB PORT FOR CONFIGURATION

ACC PORT FOR ACCESSORY MODULES

DETAIL **D**

ALLOW AT LEAST FOUR INCHES ADDITIONAL SPACE FOR OPTICAL CABLE CONNECTIONS

OUTPUT MODULE (OM525)

ZONE INDICATOR LEDS

	1	2
NORMAL	○	○
ALARM	○	○
FAULT	○	○

DETAIL A
SCALE 1 : 1

ACC CONNECTOR, MISC RELAYS, RELAY TEST BUTTON

ACC BUS

ACC BUS FAULT CONTACTS

TEST
BUS FAULT
SPARE
TAMPER
RELAY POWER

TAMPER INPUT CONTACTS

ACC BUS CONNECTOR 2 OF 2

RELAY TEST BUTTON

ACC BUS FAULT INDICATOR

DETAIL B
SCALE 1 : 1

10.556
10.056

ACC BUS CONNECTOR 1 OF 2

ZONE STATUS

Output Module Model OM-525

6.675 8.058

.972

ZONE RELAY CONTACT DETAIL

ALARM
FAULT

NORMALLY OPEN RELAY CONTACT
COMMON
NORMALLY CLOSED RELAY CONTACT
FAULT RELAY CONTACTS

DETAIL C
SCALE 1 : 1

SIDE VIEW OF MATING CONNECTOR

FD525 OPTICAL SYSTEM DEPLOYMENT DIAGRAM

FD525 Alarm Processor
(P# 980-82758)

6-Port Wall-Mount Patch Panel
(P# 974-63501)

DB32 Distribution Box
(Included with Alarm Processor)
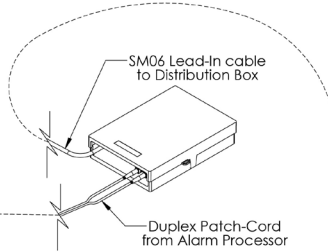
SM06 Lead-In cable to Distribution Box

to wall-mount patch panel
(P# 247-23104)

Duplex Patch-Cord from Alarm Processor
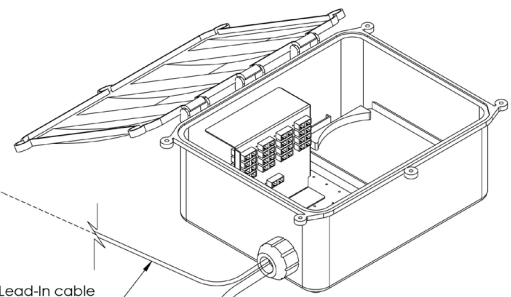
SM06 Lead-In cable from Patch-panel

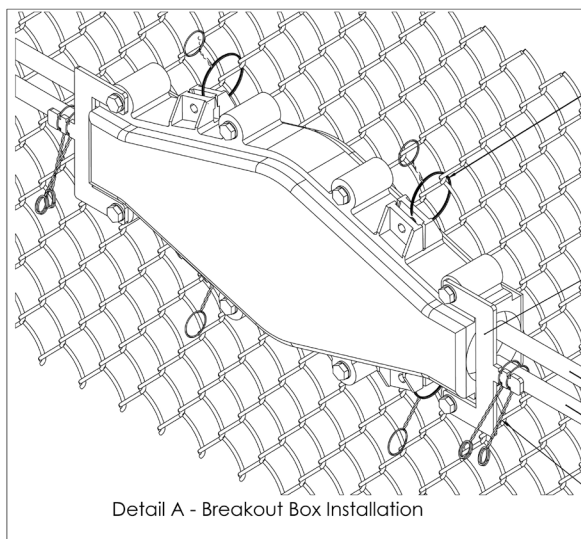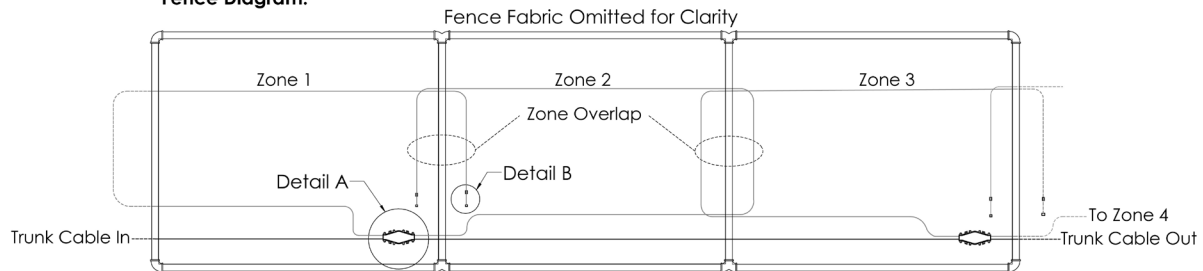Trunk cable to all sensing zones see DW-ENG-023 for details
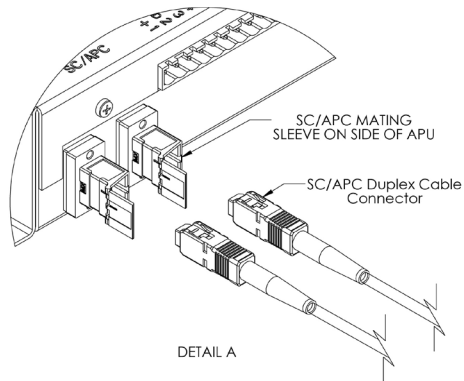
SC/APC MATING SLEEVE ON SIDE OF APU

SC/APC Duplex Cable Connector

DETAIL A

FD500 SERIES FENCE INSTALLATION

Fence Diagram:

Fence Fabric Omitted for Clarity

Zone 1

Zone 2

Zone 3

Zone Overlap

Detail A

Detail B

To Zone 4

Trunk Cable In

Trunk Cable Out

Wire Ties Attaching Breakout Box to Fence

Coupler

Sensor Bracket

Trunk Cable

End Cap

Sensor Conduit

Detail B - Sensor Termination

Wire Ties Attaching Sensor Conduit to Bracket

Detail A - Breakout Box Installation

ALARM PROCESSING UNIT

System type	Vibration-sensing intrusion detection system
Number of zones per APU	Up to twenty-five fully independent zones.
APU power requirements	• 11-28 VDC input • 14 watts power consumption without an OM525 accessory • 18 watts power consumption with OM525 accessory
Communications	• USB serial port for assigning zones to optical ports and for tuning • TCP/IP port for alarm output and XML communication • Individual dry contact alarm and fault relays for each zone • Dry contact alarm relay for tamper
Contact ratings	100 mA @ 24 VDC non-inductive
Fault relay default	Normally closed
Alarm relay default	Normally open, and normally closed
ACC bus fault relay default	Normally closed
Relay Impedance rating	11Ω typical, 17Ω max
Network port	Ethernet 10 Base-T/100 Base-TX (RJ-45)
Dimensions	Height = 4.60 cm (1.810 inch) Width = 19.11 cm (7.525 inch) Length = 25.92 cm (10.206 inch)
Operating temperature range	-40˚ C to 70˚ C (-40⁰ F to 158⁰ F)
Operating humidity range	0 to 95% non-condensing
Compliance	CE, FCC Part 15, RoHS

STANDARD CABLE ASSEMBLY

Sensor configuration	Fully independent zones, time-domain multiplexed through a multi-fiber trunk cable and breakout boxes.
Sensing fiber	Multimode fiber, custom manufactured to Fiber SenSys, Inc. (FSI) specifications
Insensitive lead-in fiber	• Single-mode fiber, custom manufactured to FSI specifications • Maximum length: 5 km
Sensing cable / Zone lengths	• Sensing fiber ≤ 800 m (2625 ft.) • For each zone, sensing fiber + insensitive trunk cable ≤ 5.8 km (3.6 mi)
Trunk cable	Outside plant type cable containing (minimum) one single-mode insensitive fiber for each zone.

CE **RoHS** ✓

CLASS 1 LASER OUTPUT
This product complies with 21 CFR 1040.10

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