Materials Mag!c
Hitachi Metals

HITACHI

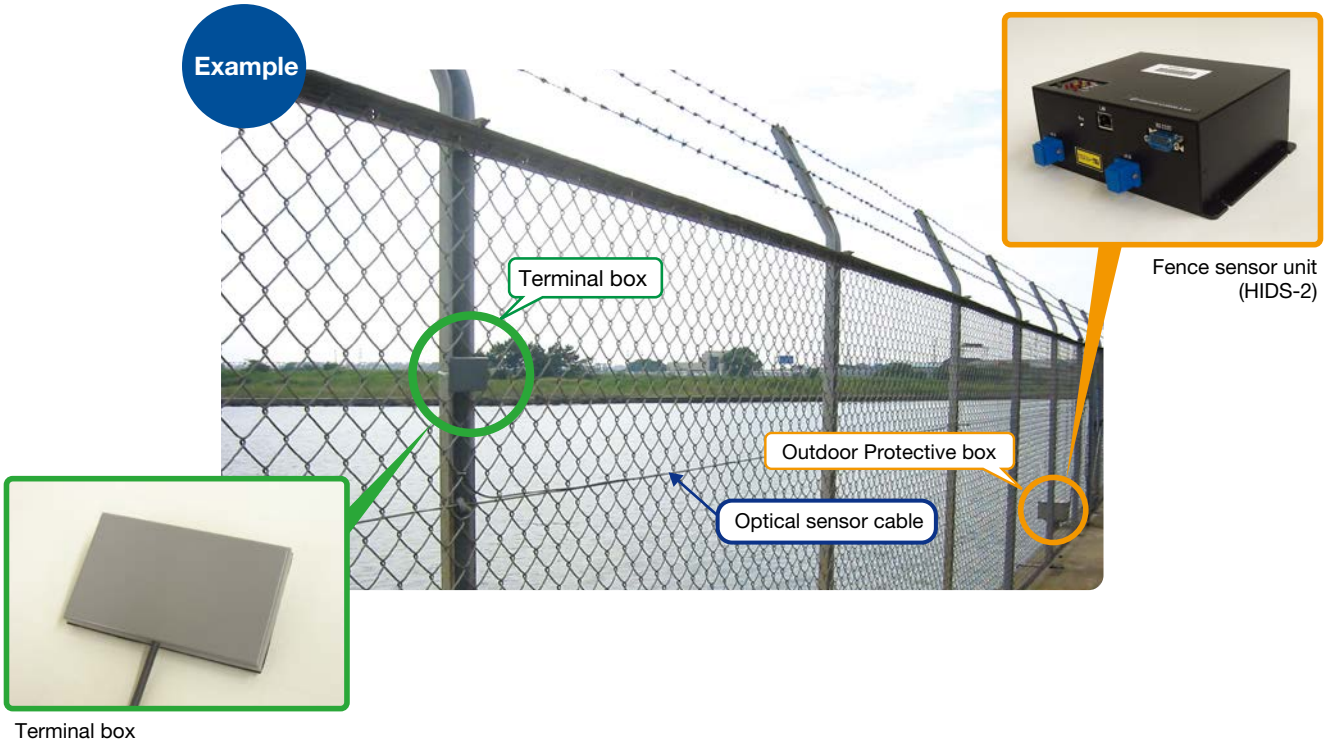
Optical fiber intrusion detection fence sensor

This is an Intrusion detection fence sensor

» 1 More accurate detection
» 2 More reliable detection
» 3 Simpler installation
» 4 Wider detection coverage
» 5 Better immunity from thunder
» 6 More flexible layouts
» 7 Easier deployment
» 8 Operating principles and functions

» 1 More accurate detection
(High repeatability of detection, fewer false alarms)

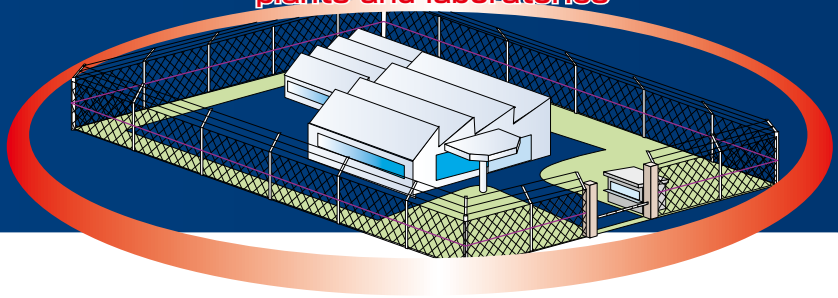
- When equivalent vibrations are applied to the high-sensitivity PMF, the waveforms obtained are nearly identical, which helps set accurate threshold values.
- Alarm thresholds can be precisely programmed.



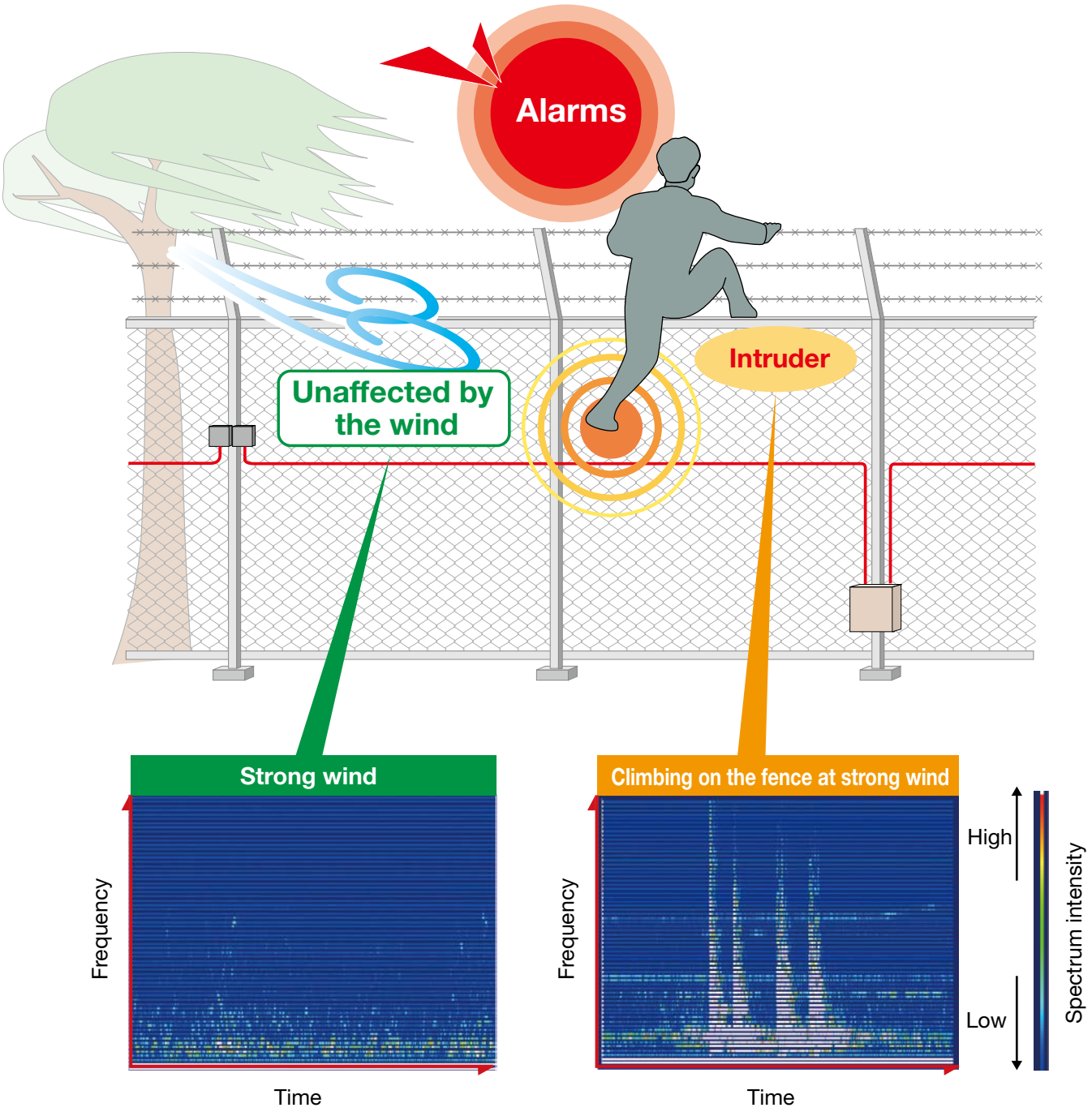
using optical fiber.

Optical fiber intrusion detection fence sensor

Intruder detection for important facilities, plants and laboratories



- Spectrum evaluation enables the reduction of false alarms by removing spectral components of environmental factors such as winds.



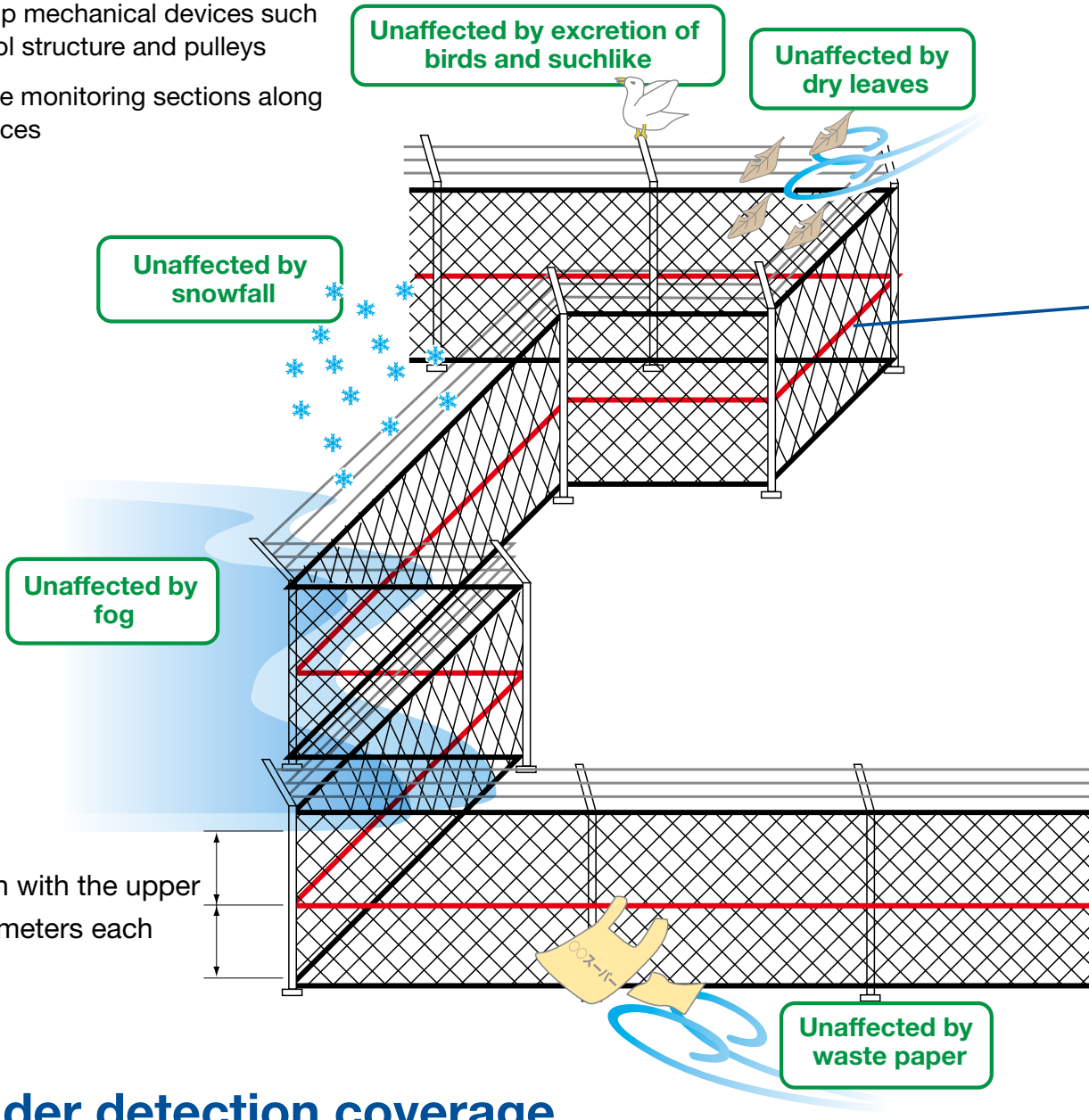
Spectrum intensity distributions of fence vibrations

>>2 More reliable detection
(Less environmental influence)

- Unaffected by dust because there is no use of free space optics.
- Unaffected by snowfall and fog

>>3 Simpler installation
(Sets up easily even for complex perimeters)

- No need to set up mechanical devices such as tension control structure and pulleys
- No need to divide monitoring sections along the corner of fences

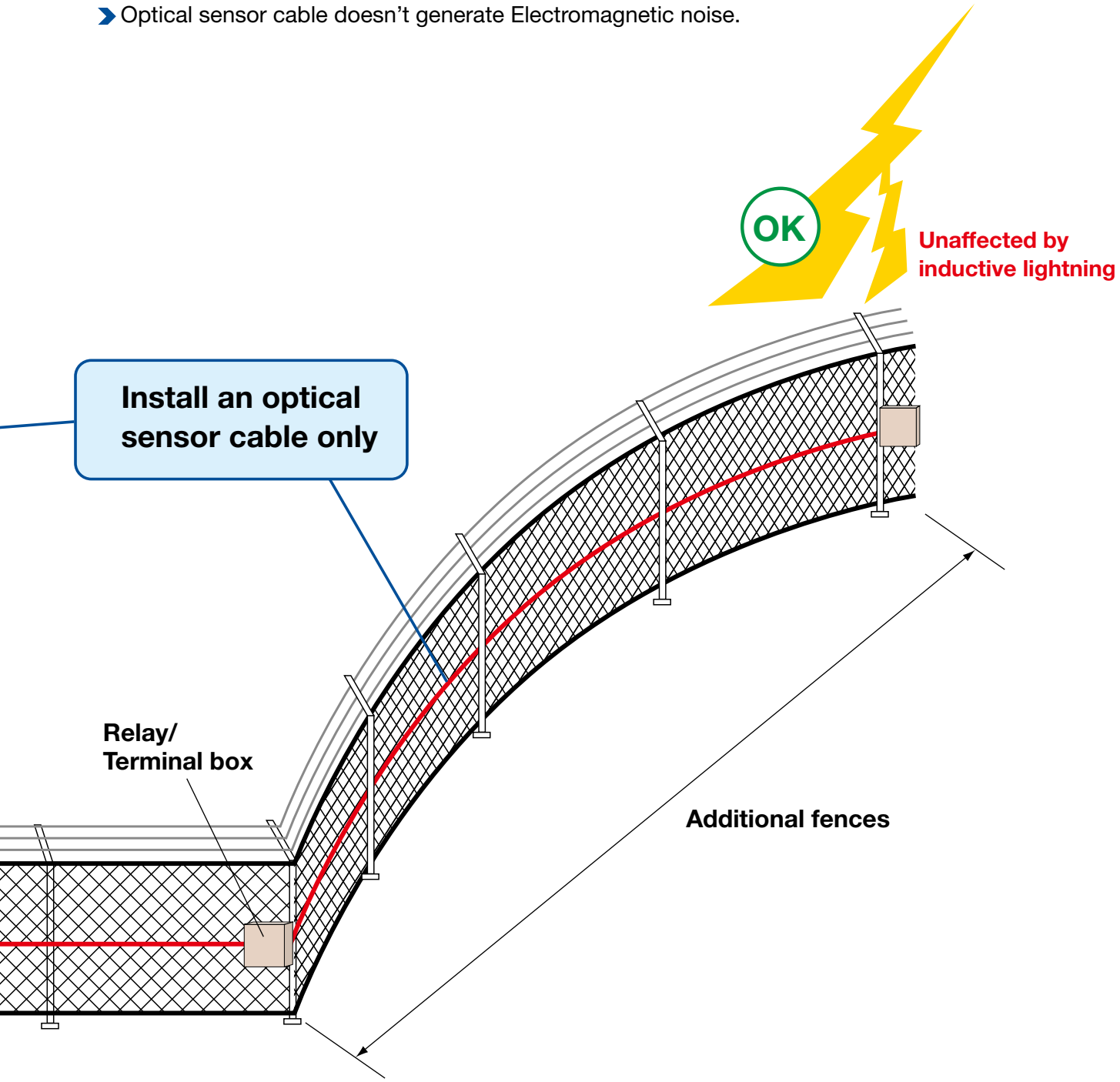


>>4 Wider detection coverage
(Makes it possible to set up two-dimensional monitoring regions)

- Fence vibrations detected up to approx. 1.5m above and below sensor (for chain-link fences).

»5 Better immunity from thunder
(Optical fiber cable is unaffected by Electromagnetic interference)

- Optical sensor cable is unaffected by inductive lightning
- Optical sensor cable doesn't generate Electromagnetic noise.



»6 More flexible layouts
(Supports changes and expansions to layout)

- Make it possible to increase monitoring section using expansion sensor cable and Relay/Terminal box.

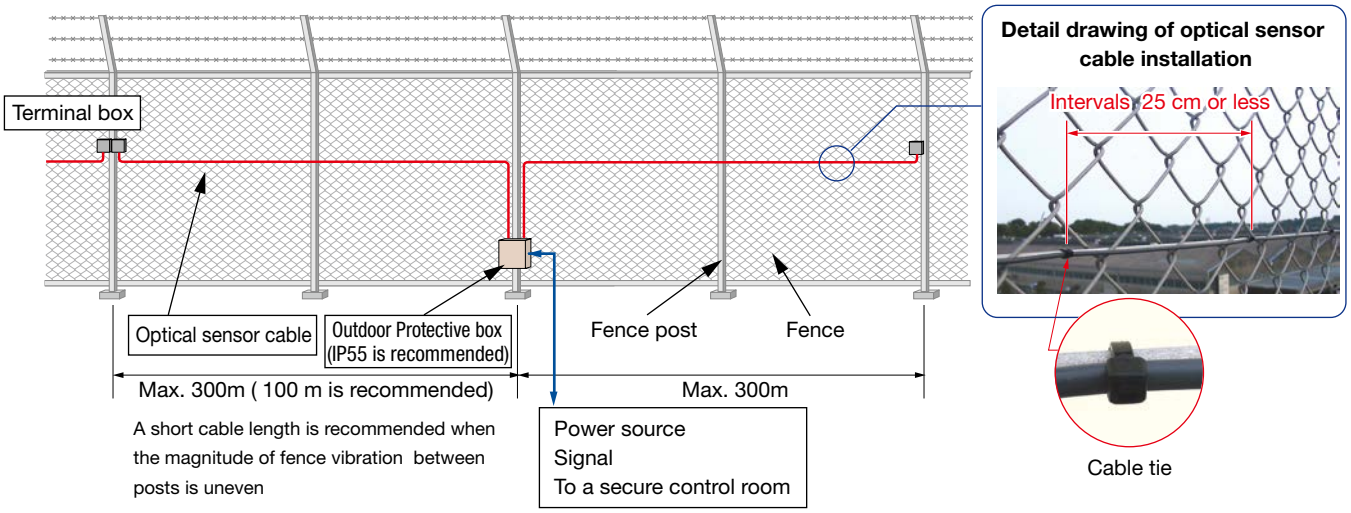
7 Easier deployment

- Easy installation using cable ties. (No need to fix cable to fence closely)

Installation

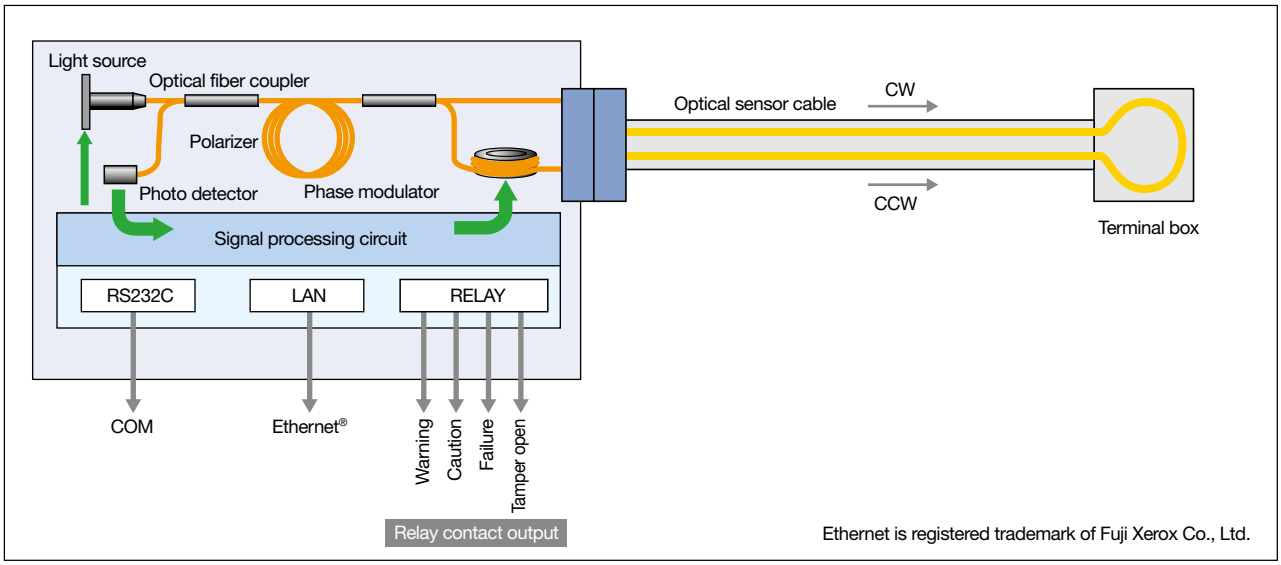
Fixing method

- Sensor unit : Put in an outdoor Protective box
- Terminal box : Fix in a fence post using stainless bands.
- Optical sensor cable : Fix in fences without a slack at intervals of 25 cm or less.



8 Operating principles and functions

- The intrusion detection fence sensor uses the principle of a Sagnac interferometer.
- When the vibration of the sensor cable stretches and contracts the PMF, light propagating in clockwise (CW) and counterclockwise (CCW) directions in the closed interferometer arrive at a vibrating point at different times. This produces a phase difference that can be detected.
- A microcomputer is used for the signal processing, and it can process a fast arithmetic processing of the vibration intensity. It can output the data with a relay contact and LAN.



Configuration of fence sensor

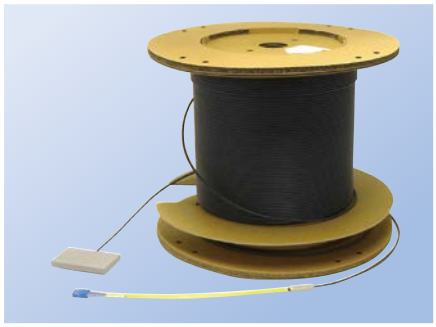
Specifications

1.Fence sensor unit

①Type	HIDS－□　□ = 1 : Single channel use,　□ = 2 : Two channels use (Hitachi metals Intrusion Detection Sensor)
②Detection condition	Climbing on the fence
③Output signal	Caution, Warning, Trouble, and Tampered
④Changeable settings	Evaluation value, Signal amplification
⑤Measurement distance	Max. 300m (100 m is recommended)
⑥Operating temperature	−30 to +70 [degC]
⑦Operating humidity range	0 to +95 [%RH] (Non condensation)
⑧Supply voltage	DC +12 V or DC +24 V
⑨External dimensions	140×190×70 mm
⑩Weight	Below 2 kg (Excluding optical sensor cable)

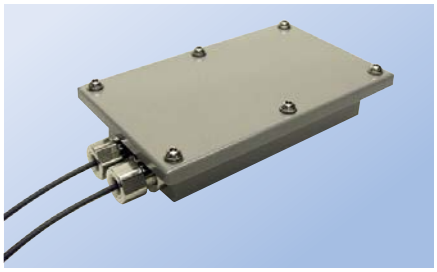
2. Optical sensor cable

①Type	● Optical sensor cable with an end box C－PMF－□M　□ = Cable length ● Optical sensor cable with both ended SC connector W－PMF－□M　□ : 50m,100m,200m Maximum distance of connected cable is 300m. Maximum connecting point is one point.
②Cable diameter	ϕ4mm
③Optical fiber	Polarization maintaining fiber
④Cable sheath	Polyethylene (Gray)
⑤Allowable bending radius	R130mm
⑥Allowable pulling tension	150N
⑦Waterproof, Dustproof	IP55 (Terminal box only)
⑧Reinforcement fiber	Aramid fibers
⑨Tension member	FRP ϕ0.4mm×1
⑩Cable weight	11g/m
⑪Bobbin size	ϕ430×340mm



3. Relay/Terminal box

①Type	CB-10 (Connector Box)
②External dimensions	150×45×230 mm
③Ingress Protection code	5 JIS C 0920
④Weight	About 1.5kg



Hitachi Metals, Ltd.

http://www.hitachi-metals.co.jp/e/

Cable Materials Company
Shinagawa Season Terrace, 2-70, Konan 1-chome, Minato-ku, Tokyo 108-8224, Japan
Tel : +81-3-6774-3730

Hitachi Cable America Inc.

Head Office
2 Manhattanville Road, Suite 301, Purchase, NY 10577, U.S.A.
Tel : +1-914-694-9200

※Specifications subject to change without notice.

CAT.NO.KSE622A
All rights reserved
Printed in Japan '16-4(D)