

# Converged Cyber & Physical Security



**NetworkIntegrity**  
SYSTEMS

[networkintegritysystems.com](http://networkintegritysystems.com)



# Converged Cyber & Physical Security



**NetworkIntegrity**  
SYSTEMS

[networkintegritysystems.com](https://networkintegritysystems.com)





Long Haul  
Optical  
Network

# LONG HAUL OPTICAL NETWORK APPLICATIONS

- 1 Long Haul Cables
- 2 Manholes
- 3 Building Distribution Cables
- 4 Repeater Sites/In-line Amplifier Huts

## SYSTEMS IN USE



VANGUARD™



INTERCEPTOR™



PULSE™  
Sensor Verification System

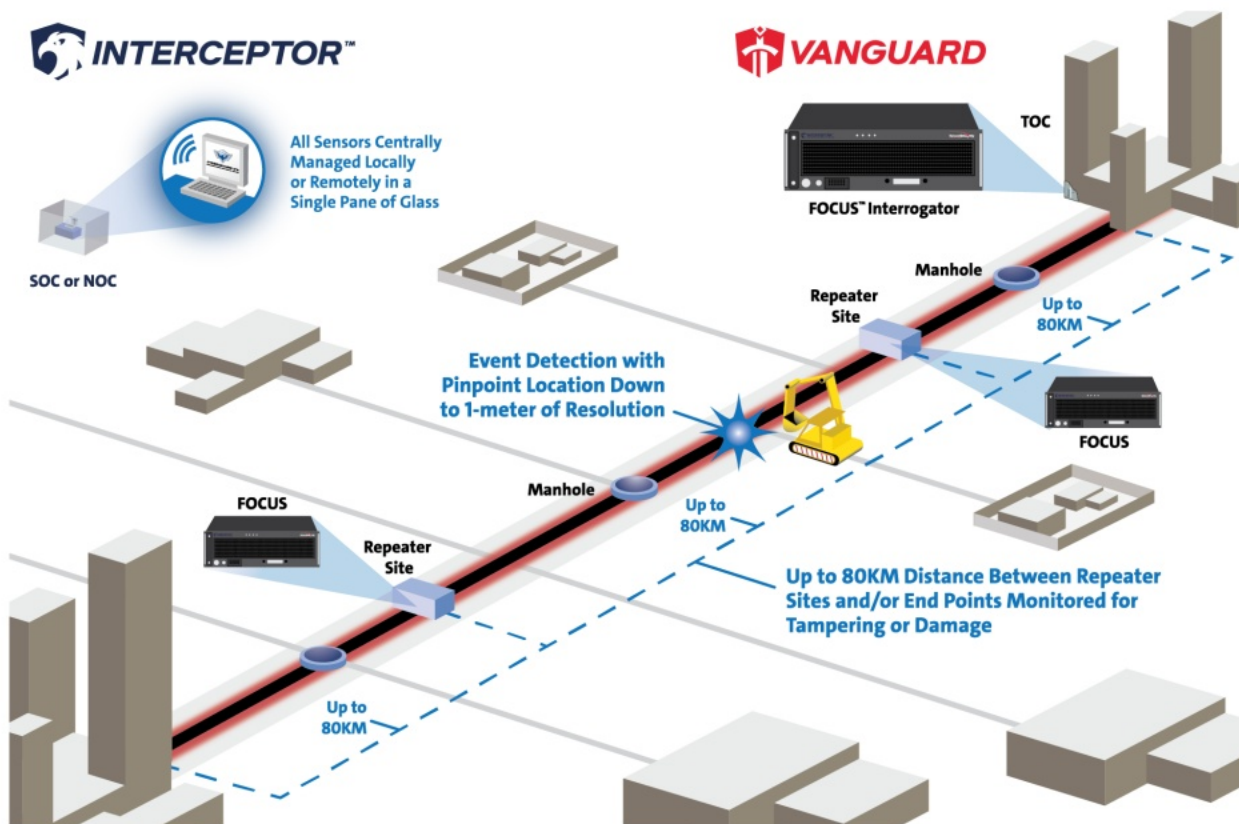
NIS

© 2021 Network Integrity Systems. All Rights Reserved.



## Long Haul Optical Network

### LONG-HAUL CABLE LOGICAL DESIGN



## LONG-HAUL CABLE CYBER PROTECTION

The telecommunications industry spends roughly \$2B every year repairing damage to their cabling infrastructure. This does not include revenue loss, poor public image, penalties and fees or other associated expenses. The Common Ground Alliance states that the societal cost of cable damage is \$30B a year.

Cable downtime is costly but monitoring thousands of kilometers of cable is challenging. Distributed Acoustic Sensing technology (DAS) allows you to confidently monitor your cables in real time and detect risks to within a few meters. Using DAS technology, our FOCUS systems monitor a single strand of SM cable in long-haul cables and pathways (up to 80 km in length) and pinpoint exact location of events coupled with maps, live playbacks, and video integration. This reduces the risk of downtime or data security breaches. Through daisy-chaining practices, the protection of any cable length can be achieved. FOCUS can be monitored at a centralized or remotely located facility from a network management system.

The U.S. Government and Military uses INTERCEPTOR FOCUS to protect their classified network infrastructure and the VANGUARD FOCUS is available for the commercial market to protect their network infrastructure.

Click Below to Learn More About INTERCEPTOR FOCUS

<https://www.networkintegritysystems.com/interceptor-products-3>

Click for information on VANGUARD FOCUS

<https://www.networkintegritysystems.com/Vanguard-focus>



Click below for a Security Consultation

<https://www.networkintegritysystems.com/sales-support>

Long Haul  
Optical  
Network

## MANHOLE PROTECTION LOGICAL DESIGN

 **INTERCEPTOR™**

 **VANGUARD**

Manhole Sensor  
Detects Lid Opening



Manhole

Manhole



Click Below for a Security Consultation  
<https://www.networkintegritysystems.com/sales-support>

© 2021 Network Integrity Systems. All Rights Reserved.

# MANHOLE PROTECTION CYBER PROTECTION

While our INTERCEPTOR or VANGUARD products actively protect cabling system assets, areas of likely ingress, such as maintenance manholes or other maintenance points, are often unprotected and should be monitored to detect unauthorized entry as a second layer of protection.

The CyberSecure IPS Maintenance Hole Protection System™ (MPS) was designed to provide real time monitoring of network infrastructure access points such as maintenance-holes and hand-holes over long distances utilizing zero-power fiber optic sensors. Each sensor can detect Open/Close conditions, fiber loss (dB), and fiber cuts at each sensor location. The MPS solution offers the highest level of monitoring and protection in the world and is fully integrated with CyberSecure IMS™ to provide immediate dispatching when unauthorized access is detected.

Click Below to Learn More About Securing Infrastructure Access Points  
<https://hub.networkintegritysystems.com/hubfs/CS%20Brochures/Universal+Cyber+Sensors+Product+Datasheet.pdf>



## Long Haul Optical Network

### BUILDING DISTRIBUTION CABLES LOGICAL DESIGN

**INTERCEPTOR™**

**VANGUARD**

All Sensors Centrally  
Managed Locally  
or Remotely in a  
Single Pane of Glass

FOCUS™ Interrogator

Monitored for  
Tampering  
or Damage

Event Detection with  
Pinpoint Location Down  
to 1-meter of Resolution

Manhole

Manhole

# BUILDING DISTRIBUTION CABLES CYBER PROTECTION

Once the long-haul cable is protected against intrusion, tampering or environmental factors, it is just as important to protect the building distribution cables that branch off of the long-haul trunk. This ensures that the entire circuit is protected, not just the long-haul portion.

For long distance branches and where pin-point location is required, our FOCUS systems can be used. For situations where there is a shorter distance to protect and pin-point location is not required, a more economical solution exists in the form of our INTERCEPTOR or VANGUARD CS

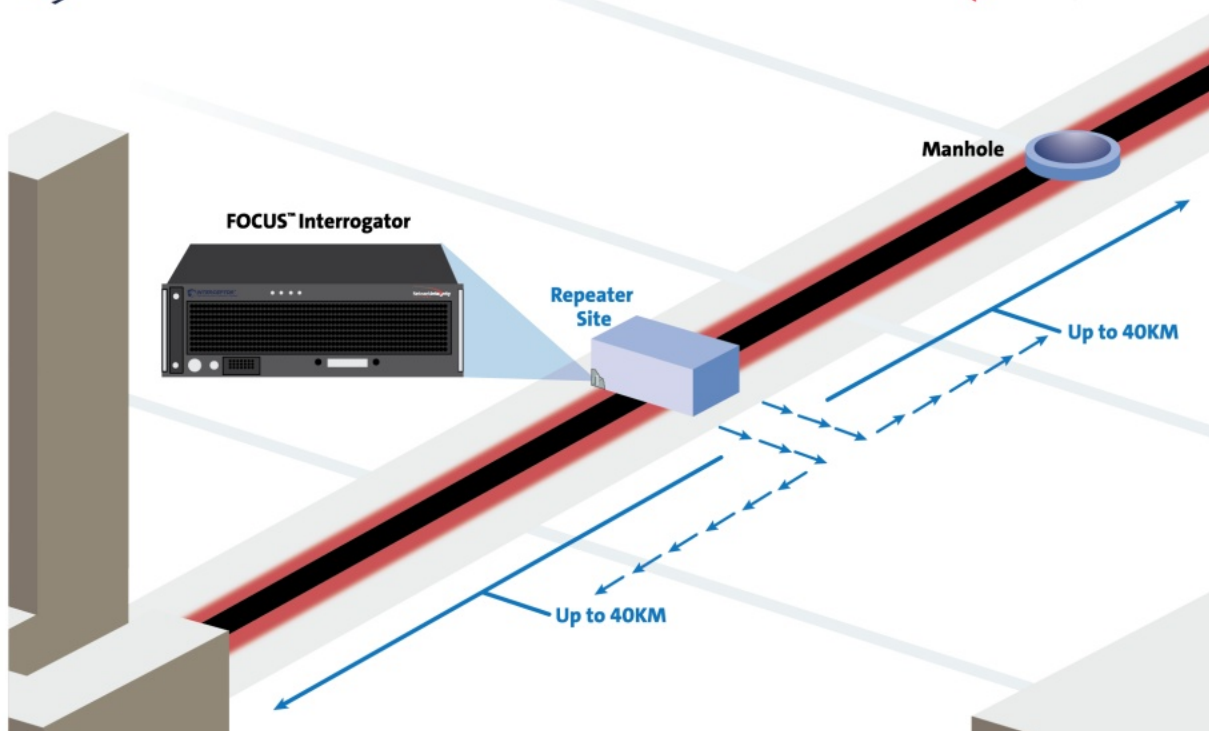
The U.S. Government and Military uses INTERCEPTOR to protect their classified network infrastructure and the VANGUARD is available for the commercial market to protect their network infrastructure.

Click Below to Learn More About INTERCEPTOR Products  
<https://www.networkintegritysystems.com/interceptor>

Click for information on VANGUARD FOCUS  
<https://www.networkintegritysystems.com/Vanguard>



Click Below for a Security Consultation  
<https://www.networkintegritysystems.com/sales-support>



## REPEATER SITES

### CYBER PROTECTION

When long-haul cable distances exceed the maximum range of a single FOCUS system, repeater sites are designed into the sensor network to incorporate additional FOCUS systems. Utilizing a daisy-chain design, end-to-end protection of long-haul cable infrastructure of any length is accomplished. Networked together, using one fiber in the monitored cable, all FOCUS systems are monitored continuously utilizing the same CyberSecure Infrastructure Management System.

The US. Government and Military uses INTERCEPTOR FOCUS to protect their classified network infrastructure and the VANGUARD FOCUS is available for the commercial market to protect their network infrastructure.

Click Below to Learn More About INTERCEPTOR FOCUS  
<https://www.networkintegritysystems.com/interceptor-products-3>

Click for information on VANGUARD FOCUS  
<https://www.networkintegritysystems.com/Vanguard-focus>



Click Below for a Security Consultation  
<https://www.networkintegritysystems.com/sales-support>