

DAS-DTGS-DCH-50KM-S | D-50 Dual Channel

The FOTAS D-50 is a fiber optic Distributed Acoustic Sensing (DAS) system designed to provide early warning alerts for the protection of critical infrastructure. It detects events such as third-party intrusions, illegal crossings, unauthorized excavations, and also provides leak detection capabilities through DTGS (Distributed Temperature Gradient Sensing). This enables continuous monitoring of both mechanical and thermal anomalies along the asset.

The system can protect assets ranging from a few kilometers to several thousand kilometers. Equipped with two independent sensing channels, the D-50 supports cut-resilient configurations, ensuring uninterrupted monitoring even in the event of a fiber break.

Unit Specifications

Number of Channels	2 Channels (Suitable for Redundancy)
Range per Channel	Up to 50km per Channel (Total up to 100km)
Sensing Technology	Coherent Optical Time Domain (COTDR) + Phase OTDR

Optical Data

Laser Wavelength	1550nm
Optical Budget	10dB for 50km (Optimal), 0.25dB Loss per km
Connector Type	FC/APC
Cable Type	Single Mode
Laser Safety Classification	Class 1

Electrical Data

Supply Voltage	100V-240V AC / 47Hz to 63 Hz Auto Ranging
Power Consumption	85W (Typical) / 125W (Max)

Physical/Mechanical Data

Dimensions	490x500x89 mm / 19.29x19.69x 3.50 in / 2U
Weight	8 kg / 17.63 lb
Shipping Dimensions	1 Box / 110x71x46 cm
Shipping Weight	Gross Weight 60.0 Kg (includes external processor unit)

Interfaces

USB	1 x USB 2.0 Port
Fiber Interface	2 x FC/APC Single Mode Optical Connectors
Communication Protocols	Available in a range of data types matched to the application
Ethernet	1 Port (10/100/1000 Mbps)
Storage	External Processor Unit



Data Acquisition

Acquisition Frequency	10 Hz to 2,000 Hz
Event Accuracy Resolution	+/- 4 meters to +/- 10 meters

Environmental Data

Operating Temperature	0°C to +40°C
Sensing Cable Temperature	-40°C to +70°C
Relative Humidity	0 to 95% RH, Non-condensing
Storage Temperature	-25°C to +60°C

Operating System And Software

Operating System	Ubuntu
Software	Artificial Intelligent and Data Acquisition Engine, FOTAS Web User Interface and Database

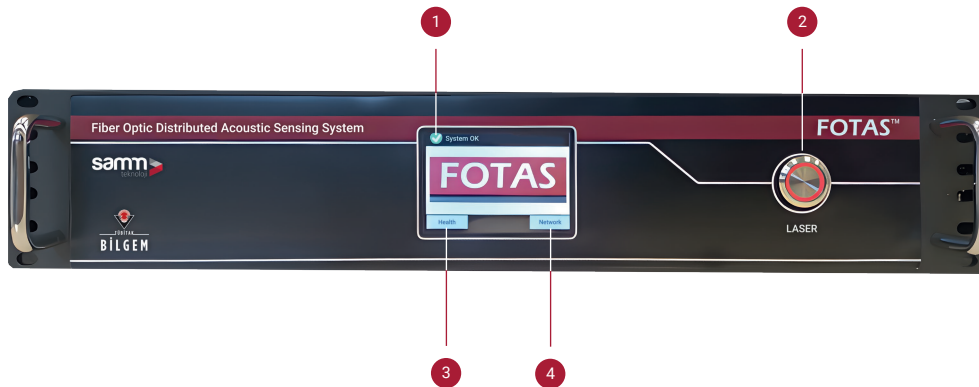
Certifications

Laser Safety	IEC 60825-1, 21CFR1040.10
Quality Management	ISO 9001 (EMC) 2014/30/EU, EN 55032:2015 Class A, EN IEC 61000-3-2:2019+A1:2019, EN 61000-3-3:2013+A1:2019, EN 55035:2017+A1:2020,
Electro-Magnetic Compatibility	EN 61000-4-2:2009, EN 61000-4-3:2020, EN 61000-4-4:2012, EN 61000-4-5:2014+A1:2017, EN 61000-4-6:2014, EN 61000-4-8:2010, EN 61000-4-11:2020.
Low Voltage Directive (LVD)	2014/35/EU, IEC 62368-1:2018, EN IEC 62368-1:2020 + A11:2020.
Reliability and Functional Safety	SIL-2 (IEC 61508 Standard)

Physical Interfaces and Controls

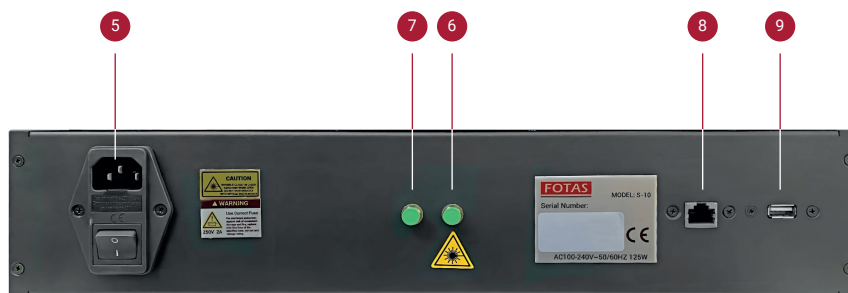
Front View

- 1 **System Status Indicator** Error or System OK
- 2 **Laser Button** Turns the laser on or off. Pressed = on
- 3 **Check System Health**
- 4 **Change Network Settings**



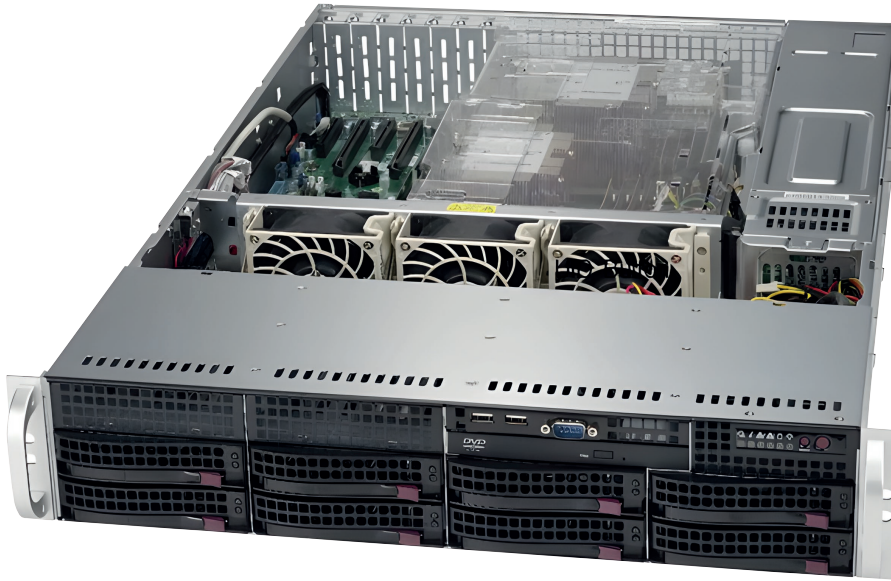
Back View

- 5 **Power Input & Fuse** 100V-240V AC / 47Hz to 63 Hz Auto Ranging
- 6 **FC-APC Connector** First Channel
- 7 **FC-APC Connector** Second Channel
- 8 **Ethernet Port** 1 Gbps
- 9 **USB Port** 2.0 Type-B



FOTAS Management and Processor Unit 2U

The management and processor unit for the FOTAS acoustic sensing system is based on the Supermicro Ultra SuperServer. This server has a slim 2U dual-socket designed for high-performance computing, virtualization, and software defined storage. In addition to the Dual Intel's newest 3rd generation scalable Xeon 10-Cores processors, this system packs 32x memory module slots with 32GB of memory. The platform also supports four PCIe 4.0 x16 slots with a NVIDIA RTX 4000 ADA professional graphics card. In addition, the FOTAS management and processor unit has a dedicated Intelligent Platform Management Interface (IPMI) port to allow remote management of the server.



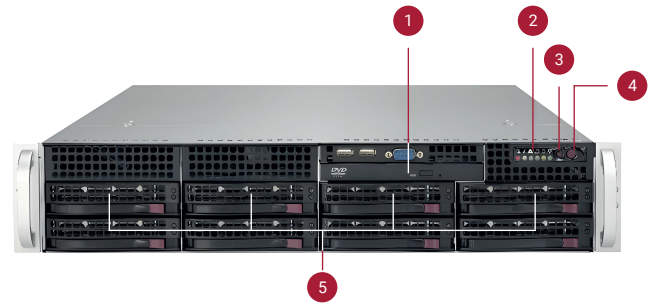
Technical Specifications

CPU	Dual Socket P+ (LGA-3647) Xeon 4210 10 Core Processor
Ram	32 GB DDR4 RAM
Drive	1 x 3.5" 12TB 7.2K RPM SATA 6Gb/s 256MiB, 4x 3.5" hot-swap SATA drive bays, RAID 0/1/5/10 support
GPU	Nvidia RTX 4000 ADA
POWER	800W redundant Titanium level power supplies, 110-240Vac / 50-60Hz
USB	Rear USB: 2 USB 3.0 + 2 USB 2.0
Network	2x 10GbE RJ45 Intel X710
IPMI	Support for Intelligent Platform Management Interface v.2.0 IPMI 2.0 with virtual media over LAN and KVM-over-LAN support
Operating Temperature	10°C ~ 35°C (50°F ~ 95°F)
Fans	3 Heavy duty 80mm fans with PWM fan speed control
LEDs	HDD, LAN1 and LAN2 activity, Power status, System information (overheat/UID)
Dimensions (WxHxD)	437 x 89 x 647 mm/Package 678 x 289 x 876 mm
Weight	Net Weight: 16.1 kg / Gross Weight: 31.2 kg

Unit Details

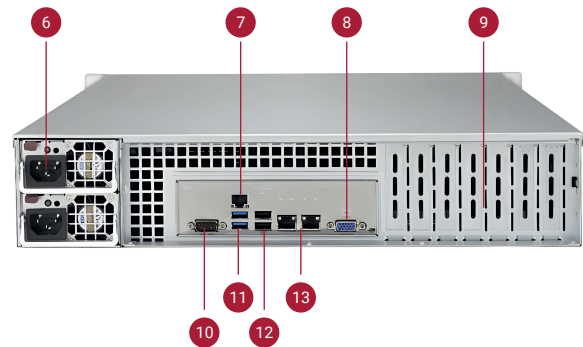
Front View

- 1 Optional DVD Drive
- 2 Status LEDs
- 3 Reset Button
- 4 Power Button
- 5 8x 3.5" Hot-swap SATA3 Drive Bays



Back View

- 6 Redundant 800W Titanium Level Power Supplies
- 7 Dedicated IPMI LAN Port
- 8 VGA Port
- 9 4 PCI-E 3.0 x16, 2 PCI-E 3.0 x8 LP Slots
- 10 Serial Port
- 11 2 USB 3.0 Ports
- 12 2 USB 2.0 Ports
- 13 2 RJ45 10G LAN Port



Top View

- 14 Dual Intel scalable Xeon processors
- 15 4 PCI-E 3.0 x16, 2 PCI-E 3.0 x8 LP Slots
- 16 16 DIMM Slots DDR4
- 17 3 Hotswap high efficiency, 9.4K RPM high power system fans

