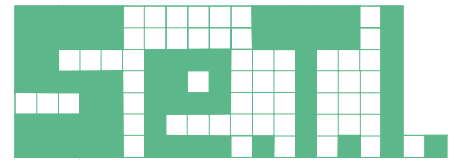


COMMITTENTE

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Provincia del V.C.O.
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LAVORO

**INTERVENTI DI AMMODERNAMENTO
ED INTEGRAZIONE DELL'IMPIANTO
DI VIDEOSORVEGLIANZA COMUNALE
CUP G69E19001040005**

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PROGETTO DEFINITIVO - ESECUTIVO

PROGETTISTI

OGGETTO

Caratteristiche dei materiali

Dott. ing.
Ferdinando ZOLESI

Dott. ing.
Luigi Pagliai - Studio tecnico K

MODIFICA	DESCRIZIONE	DATA

DATA		GRAFICA		SCALA	
27 Maggio 2021					
INCARICO	CODICE	ANNO	TIPOLOGIA	ELABORATO	REVISIONE
ZF	0486	21	ES	008	D0

TAVOLA

008

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1. PREMESSE

Il presente documento tecnico illustra le caratteristiche dei materiali presi a riferimento per il progetto di videosorveglianza del Comune di Stresa (VB).

Si tratta di modelli non obbligatori ma di riferimento per i materiali che verranno effettivamente installati dopo la gara di appalto, e che dovranno avere caratteristiche tecniche non inferiori al riferimento assunto.

2. TELECAMERE DI CONTESTO

DH-HAC-HFW2802T-Z-A

4K Starlight HDCVI IR Bullet Camera

HDCVI



- Starlight, 120dB True WDR, 3DNR
- Max. 4K resolution
- HD/SD switchable
- Audio in interface, built-in mic
- 3.7-11mm motorized lens
- Max. IR length 80m, Smart IR
- IP67, DC12V±30%



System Overview

Experience 4K video surveillance with the simplicity of reusing existing coaxial infrastructure. The 4K HDCVI camera adopts a powerful Dahua ISP and advanced 1/2" image sensor, which provides superior high quality images. It also supports Starlight and 120dB true WDR for a clear image in poor lighting conditions. In addition, the camera features broadcast-quality audio to provide enhanced supplementary evidence collection. Ultra-high definition and a complete set of features makes the 4K HDCVI camera an ideal choice for mid to large-size businesses and projects where both highly reliable surveillance and construction flexibility are demanded.

Functions

4 Signals over 1 Coaxial Cable

HDCVI technology supports 4 signals to be transmitted over 1 coaxial cable simultaneously, i.e. video, audio*, data and power. Dual-way data transmission allows the HDCVI camera to interact with the HCVR, such as sending control signal or triggering alarm. Moreover, HDCVI technology supports PoC for construction flexibility.

* Audio input is available for some models of HDCVI cameras.

Long Distance Transmission

HDCVI technology guarantees real-time transmission at long distance without any loss. It supports up to 700m transmission for 4K and 4MP HD video via coaxial cable, and up to 300m via UTP cable.*

*Actual results verified by real-scene testing in Dahua's test laboratory.

Simplicity

HDCVI technology inherits the born feature of simplicity from traditional analog surveillance system, making itself a best choice for investment protection. HDCVI system can seamlessly upgrade the traditional analog system without replacing existing coaxial cabling. The plug and play approach enables full HD video surveillance without the hassle of configuring a network.

Starlight

With the adoption of large sized high performance sensor, the camera is able to provide incomparable performance even under extreme lowlight environment. The starlight feature allows more details to be captured and accurate color to be recognized at night or in scenes with limited illumination.

Broadcast-quality Audio

Audio information is used as supplementary evidence in video surveillance applications. The HDCVI camera supports audio signal transmission over coaxial cable. In addition, it adopts unique audio processing and transmission technology that best restores source audio and eliminates noise, guaranteeing the quality and effectiveness of collected audio information.

Multiple-formats

The camera supports multiple video formats including HDCVI, CVBS, and other two common HD analog formats in the market. A DIP switch located on the cable allows you to quickly toggle formats, further simplifying installation and debugging. This feature makes the camera compatible with not only XVRs, but also most existing HD/SD DVRs.

Wide Dynamic Range

Embedded with industry leading wide dynamic range (WDR) technology, vivid pictures are achieved even in the most intense contrast lighting conditions. True WDR (120dB) optimizes both the bright and dark areas of a scene at the same time to provide usable video.

Advanced 3DNR

3DNR is noise reduction technology that detects and eliminates random noises by comparing two sequential frames. Dahua's advanced 3DNR technology allows remarkable noise reduction with little impact to sharpness, especially under limited lighting condition. Besides, the advanced 3DNR effectively decreases the band width and saves the storage space.

Protection

The camera's outstanding reliability is unsurpassed due to its rugged design. The camera is protected against water and dust with IP67 ranking, making it suitable for indoor or outdoor environments.

Supporting ±30% input voltage tolerance, this camera suits even the most unstable power supply conditions. Its 4KV lightning rating provides protection against the camera and its structure from the effects of lightning.

Technical Specification

Camera

Image Sensor	1/2" CMOS
Effective Pixels	3840(H)×2160(V), 8MP
Scanning System	Progressive
Electronic Shutter Speed	PAL: 1/4s~1/100,000s NTSC: 1/3s~1/100,000s
Minimum Illumination	0.005Lux/F1.5, 30IRE, 0Lux IR on
S/N Ratio	More than 65dB
IR Distance	Up to 80m (262feet)
IR On/Off Control	Auto / Manual
IR LEDs	4

Lens

Lens Type	Motorized lens / Fixed iris
Mount Type	Board-in
Focal Length	3.7-11mm
Max Aperture	F1.5
Angle of View	H: 112°~46°
Focus Control	Auto / Manual
Close Focus Distance	200mm 7.87"

DORI Distance

Note: The DORI distance is a "general proximity" of distance which makes it easy to pinpoint the right camera for your needs. The DORI distance is calculated based on sensor specification and lab test result according to EN 62676-4 which defines the criteria for Detect, Observe, Recognize and Identify respectively.

	DORI Definition	Distance	
		Wide	Tele
Detect	25px/m (8px/ft)	83m(272ft)	190m(623ft)
Observe	63px/m (19px/ft)	33m(108ft)	76m(249ft)
Recognize	125px/m (38px/ft)	17m(56ft)	38m(125ft)
Identify	250px/m (76px/ft)	8m(26ft)	19m(62ft)

Pan / Tilt / Rotation

Pan/Tilt/Rotation	Pan: 0° ~ 360° Tilt: 0° ~ 90° Rotation: 0° ~ 360°
-------------------	---

Video

Resolution	8MP (3840×2160)
Frame Rate	15fps@4K, 20fps@6MP, 25/30fps@4MP
Video Output	1-channel BNC high definition video output / CVBS video output (DIP switch)
Day/Night	Auto (ICR) / Manual

OSD Menu	Multi-language
BLC Mode	BLC / HLC / WDR
WDR	120dB
Gain Control	AGC
Noise Reduction	2D/3D
White Balance	Auto / Manual
Smart IR	Auto / Manual

Certifications

Certifications	CE (EN55032, EN55024, EN50130-4) FCC (CFR 47 FCC Part 15 subpartB, ANSI C63.4-2014) UL (UL60950-1+CAN/CSA C22.2 No.60950-1)
----------------	---

Interface

Audio Interface	1ch in & Built-in Mic
-----------------	-----------------------

Eelectrical

Power Supply	12V DC ±30% (It is recommended to use a power adapter to supply the power for one camera)
Power Consumption	Max 12.5W (12V DC, IR on)

Environmental

Operating Conditions	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH * Start up should be done at above-30°C (-22°F)
Storage Conditions	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection & Vandal Resistance	IP67

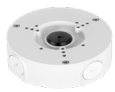
Construction

Casing	Aluminium
Dimensions	244.1mm×90.4mm×90.4mm (9.61"×3.56"×3.56")
Net Weight	0.76kg (1.68lb)

Ordering Information		
Type	Part Number	Description
4K Camera	DH-HAC-HFW2802TP-Z-A 3.7~11mm	4K Starlight HDCVI IR Bullet Camera, PAL (For centralized power supply, please select-DP model)
	DH-HAC-HFW2802TN-Z-A 3.7~11mm	4K Starlight HDCVI IR Bullet Camera, NTSC (For centralized power supply, please select-DP model)
Accessories	PFA130-E	Junction box (For use alone or with PFA152-E pole mount)
	PFA152-E	Pole mount (For use with PFA130-E junction box)
	PFA151	Corner mount bracket(For use with PFA130-E junction box)
	PFM800-E	Passive HDCVI Balun
	PFM320	12V 2A Power Adapter
	PFM320D-015	12V 1.5A Power Adapter

Accessories

Optional:



PFA130-E
Junction box



PFA152-E
Pole mount



PFA151
Corner mount bracket



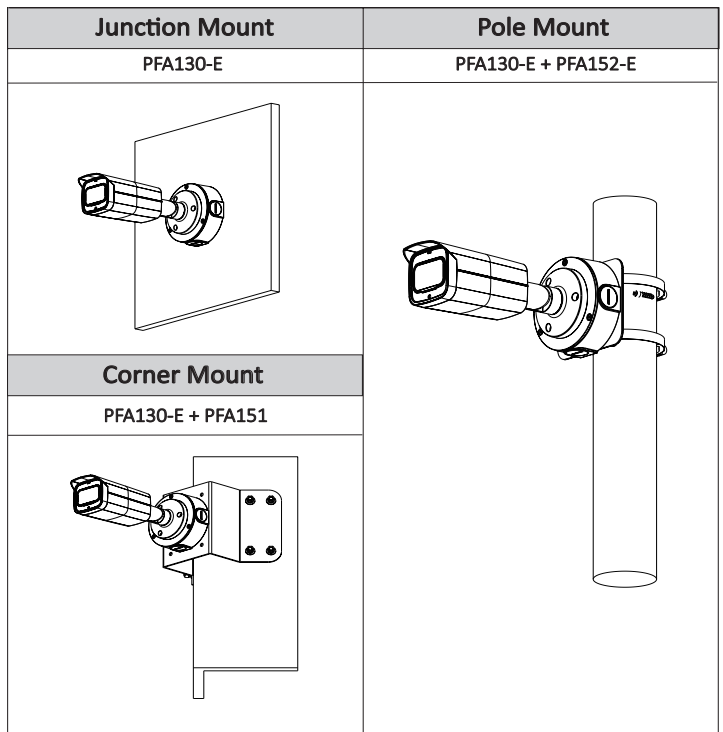
PFM800-E
Passive HDCVI Balun



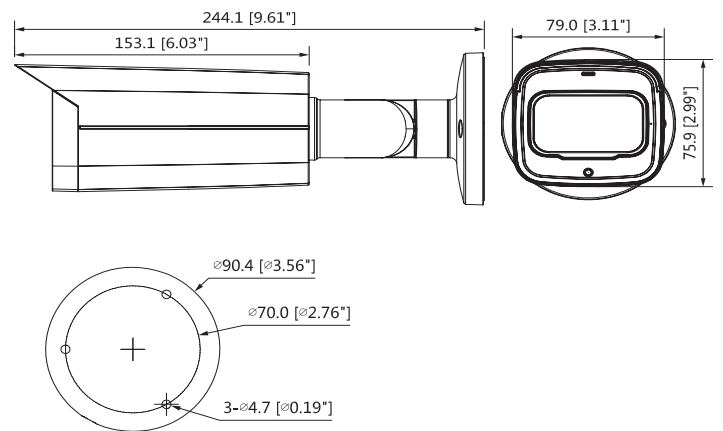
PFM320
12V 2A Power Adapter



PFM320D-015
Power Adapter



Dimensions (mm/inch)



3. TELECAMERE DI RILEVAMENTO TARGHE

Telecamere Fisse



TS 3MPX-OCR-NEMA4X

lettura targhe in doppia corsia



tecnologia
DUAL SHUTTER



nuova classificazione
MARCA e MODELLO



sensori inquinamento



fino a 2 corsie



Certificazione **10772:2016** con il 100% di letture corrette

fino al
100%
di precisione

OCR da
3MPX
di risoluzione

fino a
70°
angolo di lettura

TS 3MPX-OCR-NEMA4X

Telecamera Fissa con Streaming video e cattura immagine in contemporanea che consente video luminosi **anche in notturna** e lettura della targa.

Il sistema **OCR Deep Learning** permette il riconoscimento di **targa, tipologia, marca, modello e colore del veicolo di 33 paesi Europei**.

Possibilità di configurazione avanzata del dispositivo.

Osd, esposizione video e lettura delle targhe indipendenti.

Funzionalità

- **Tecnologia Dual Shutter** con immagini di contesto **a colori anche di notte**
- Catalogazione della **Tipologia, Marca, Modello e Colore del veicolo** (9 colori)
- Memoria Espandibile con SSD da 1 tb
- Due interfacce ethernet Lan 10/100/1000
- Interfacciamento con **sensore di inquinamento da polveri Sottili PM 10 E PM 2.5** (opzionali)
- OCR e Led IR integrati nelle telecamera
- Lettura free flow o con colleg. a dispositivi esterni
- Lettura codice Kemler e doppio FTP
- Registrazione flusso video ONVIF Rtp/Rtsp
- Interfaccia per configurazione e visione transiti
- Caricamento su memoria interna di Black list e White list

TECNOLOGIA DUAL SHUTTER
 RICONOSCE IL COLORE
 DEL VEICOLO
 RIPRESE A COLORI CON
 MASSIMA DEFINIZIONE
 ANCHE IN NOTTURNA
 SISTEMA OCR DEEP LEARNING



SOLUZIONI PROGETTATE
 PER LE FORZE DELL'ORDINE



veicoli e targhe
 rubate

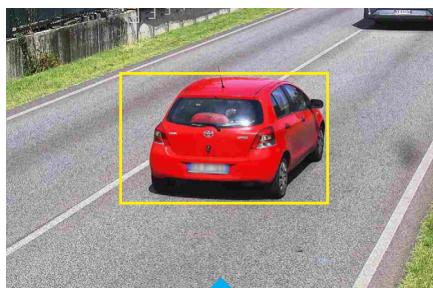


veicoli in black
 list o sequestri

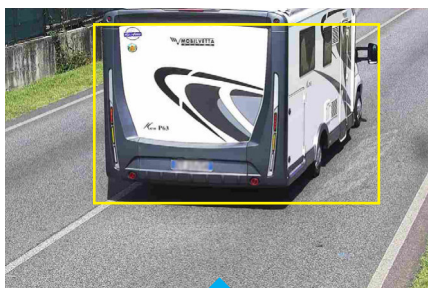


non assicurati
 o revisionati

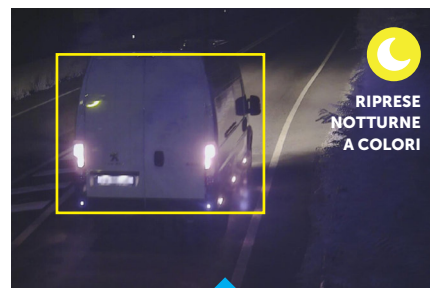
Nuova classificazione per **Marca** e **Modello**



TIPOLOGIA: Auto
 BRAND: Toyota
 MODELLO: Yaris
 COLORE: Rosso



TIPOLOGIA: Camper
 BRAND: Fiat
 MODELLO: Ducato
 COLORE: Bianco



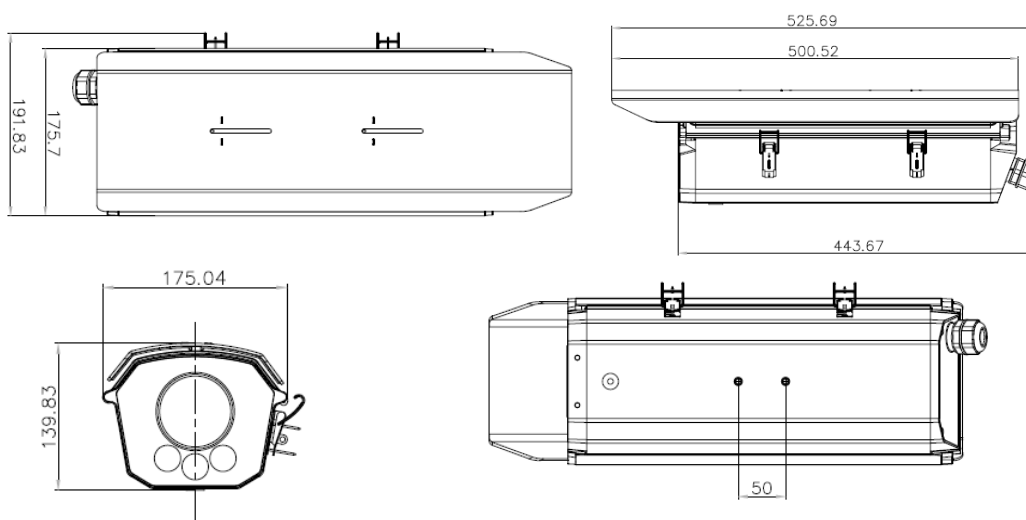
TIPOLOGIA: Van
 BRAND: Peugeot
 MODELLO: Expert
 COLORE: Bianco

Specifiche Tecniche

Model	iDS-TCE300-B6I
Software Features and Performance	
Working Distance	Up to 35m (with 11 to 40mm focal length)
Coverage	2 lanes
Detection Sensitivity	99%
LPR Accuracy	> 97% - Till 180km/h from 5 to 30 meters distance
LPR Region	Mid-East, Africa, Asia - Pacific, America, Europe, Russian - Speaking Countries
Supplement Light	Strobe light / Xenon flashlight
OCR	On - board ANPR engine
Frame rate	60fps
Vehicle Type	Car/Van/Bus/Truck (Heavy-Truck, Light-Truck) / Motorbike
License Plate Type	Front/Back, military, red and white char
Vehicle Color	Recognizable at daytime only (9 colors)
Vehicle Manufacturer	Support
Vehicle Model	Support
Capture Speed Range	5 to 250km/h
Video Compression	H.265/H.264/MJPEG
Streaming	RTSP
Configuration	
Web Server	Support
TCP/IP Server	SDK
Time Synchronization	NTP/GPS/Manually
Software Update	Web/SDK
Data Transmission	
FTP	FTP, Multiple FTP
Standard Protocols	TCP/IP, HTTP, HTTPS, FTP, DNS, DDNS, RTP, RTSP, RTCP, NTP, UPnP, IPv6, UDP
Serial Port	3 RS485 ports 1 RS232 port
Data Output	SDK/ISAPI
Trigger Mode	
By Video	Continuous video analysis with automatic vehicle detection, even without plate.
By External Interfaces	I/O, RS-485
System	
ANPR Camera / CTX	3.2 MPX (1/1.8" GMOS), max. 2064x1544 GLOBAL SHUTTER
Supplement Light	3 LED supplement lights (strobe), 850nm, angle: 40°, light supplement for license plate up to 35 m far away - Self Adaptive Power
Programming Interface	ONVIF (Version 2.1), ISAPI
Lens	CS-Mount, 11 to 40mm horizontal field: 36.7~11.5°, vertical field: 23.9°~7.6° C-Mount (with adapter ring needed)
Operating System	Linux
Digital I/O	3-ch input, 7-ch output Photoelectric coupling isolation 2500 VAC/5V TTL
Connector	Waterproof circular connector
Protection Level	IP67 IK10 - AISI 316L NEMA 4X
Communication Interface	2 RJ45 10M/100M/1000M self-adaptive Ethernet interfaces

Storage	TF card, up to 128GB (Optional: 1tb ssd usb disk)
Heating module	Support, Build - in module
GPS	Optional
Technical Data	
Certifications	CE, FCC
Operating & Storage Temperature	-40°C to +80 °C (-40°F to +176°F)
Operating & Storage Humidity	5% to 95% @ +40°C (+104°F), non - condensing
Dimensions (W×H×D)	191.83×139.83×525.69 mm
Weight	4.4kg±0.5kg
Power Supply	12VDC and POE OPTIONAL - 24VDC/ 100to 240VAC , frequency: 48 to 52 Hz
Power Consumption	20 W at 12 VDC - 25 W at 24 VDC - 35 W with POE+ 48 VDC

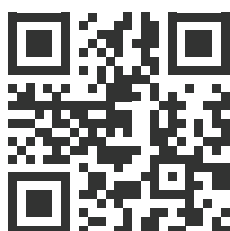
Dimensioni



Accessori



sensore di inquinamento
PM10



targasystem.it



Game Club S.r.l.

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Tel. +39 0444 18 34 094 - Fax +39 0444 88 92 09
info@targasystem.it - info@gameclub.it

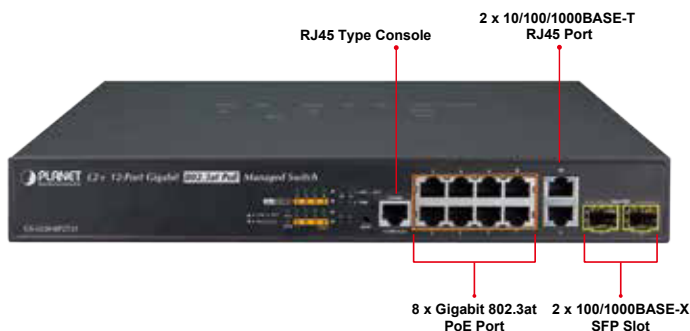
4. SWITCH DI COLLEGAMENTO

L2+ 8-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch



A Perfect Managed PoE+ Switch with Full PoE+ Power Budget

PLANET GS-5220-8P2T2S is a Layer 2+ Managed Gigabit Switch, which supports both IPv4 and IPv6 protocols and Layer 3 static routing capability, and provides 8 10/100/1000BASE-T ports featuring 30-watt 802.3at PoE+, 2 additional Gigabit copper ports and another 2 extra 100/1000BASE-X SFP fiber slots. Each of the eight Gigabit ports provides 30 watts of power, which means a total power budget of up to 240 watts can be utilized simultaneously without considering the different types of PoE applications being employed. It provides a quick, safe and cost-effective Power over Ethernet network solution to IP security surveillance for small businesses and enterprises.



Centralized Power Management for Gigabit Ethernet PoE Networking

To fulfill the needs of higher power required PoE network applications with Gigabit speed transmission, the GS-5220-8P2T2S features high-performance Gigabit IEEE 802.3af PoE (up to 15.4 watts) and IEEE 802.3at PoE+ (up to 30 watts) on all ports. It perfectly meets the power requirement of PoE VoIP phone and all kinds of PoE IP cameras such as IR, PTZ, speed dome cameras or even box type IP cameras with built-in fan and heater for high power consumption.

Physical Port

- 10-Port 10/100/1000BASE-T RJ45 copper with 8-Port IEEE 802.3at/af Power over Ethernet Injector function
- 2 100/1000BASE-X mini-GBIC/SFP slots,
- RJ45 console interface for basic management and setup

Power over Ethernet

- Complies with IEEE 802.3at High Power over Ethernet end-span PSE
- Complies with IEEE 802.3af Power over Ethernet end-span PSE
- Up to 8 ports of IEEE 802.3af/802.3at devices powered
- Supports PoE Power up to 30.8 watts for each PoE port
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100 meters
- PoE Management
 - Total PoE power budget control
 - Per port PoE function enable/disable
 - PoE Port Power feeding priority
 - Per PoE port power limitation
 - PD classification detection
 - PD alive check
 - PoE schedule
 - PD power recycling schedule

Layer 2 Features

- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- High performance of Store-and-Forward architecture and runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- Storm Control support
 - Broadcast/Multicast/Unknown unicast
- Supports VLAN
 - IEEE 802.1Q tagged VLAN
 - Up to 255 VLANs groups, out of 4094 VLAN IDs
 - Supports provider bridging (VLAN Q-in-Q, IEEE 802.1ad)
 - Private VLAN Edge (PVE)
 - Protocol-based VLAN
 - MAC-based VLAN
 - Voice VLAN

The GS-5220-8P2T2S's PoE capabilities also help to reduce deployment costs for network devices as a result of freeing from restrictions of power outlet locations. Power and data switching are integrated into one unit, delivered over a single cable and managed centrally. It thus eliminates cost for additional AC wiring and reduces installation time.

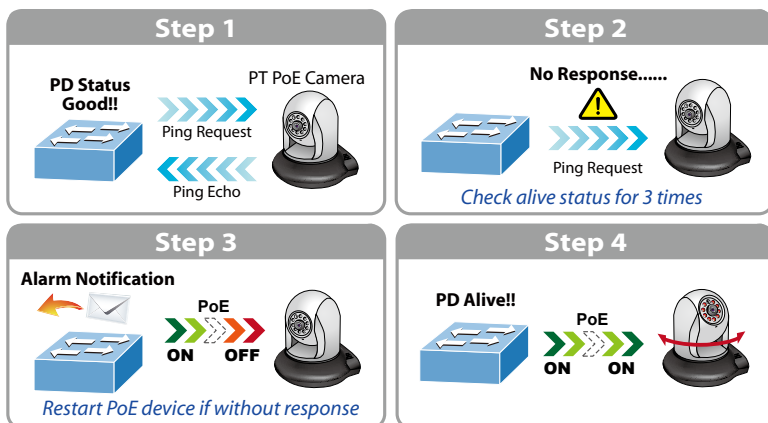
Built-in Unique PoE Functions for Surveillance Management

As a managed PoE Switch for surveillance network, the GS-5220-8P2T2S features intelligent PoE management functions:

- PD Alive Check
- Scheduled Power Recycling
- SMTP/SNMP Trap Event Alert
- PoE Schedule

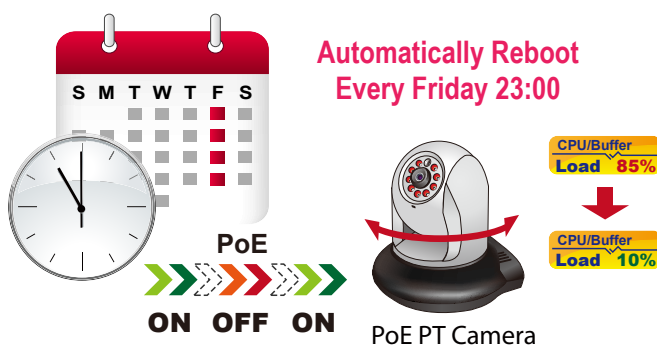
Intelligent Powered Device Alive Check

The GS-5220-8P2T2S can be configured to monitor a connected PD (Powered Device) status in real time via ping action. Once the PD stops working and it is without response, the GS-5220-8P2T2S will resume the PoE port power and bring the PD back to work. It will greatly enhance the network reliability through the PoE port resetting the PD's power source, thus reducing administrator management burden.



Scheduled Power Recycling

The GS-5220-8P2T2S allows each of the connected PDs to reboot at a specified time each week. Therefore, it will reduce the chance of PD crash resulting from buffer overflow.



- Supports Spanning Tree Protocol
 - STP, IEEE 802.1D Spanning Tree Protocol
 - RSTP, IEEE 802.1w Rapid Spanning Tree Protocol
 - MSTP, IEEE 802.1s Multiple Spanning Tree Protocol, spanning tree by VLAN
 - BPDU Guard
- Supports Link Aggregation
 - 802.3ad Link Aggregation Control Protocol (LACP)
 - Cisco ether-channel (static trunk)
 - Maximum 6 trunk groups, up to 8 ports per trunk group
 - Up to 16Gbps bandwidth (full duplex mode)
- Provides port mirror (many-to-1)
- Port mirroring to monitor the incoming or outgoing traffic on a particular port
- Loop protection to avoid broadcast loops

Layer 3 IP Routing Features

- Supports maximum 32 static routes and route summarization

Quality of Service

- Ingress Shaper and Egress Rate Limit per port bandwidth control
- 8 priority queues on all switch ports
- Traffic classification
 - IEEE 802.1p CoS
 - TOS/DSCP/IP Precedence of IPv4/IPv6 packets
 - IP TCP/UDP port number
 - Typical network application
- Strict priority and Weighted Round Robin (WRR) CoS policies
- Supports QoS and In/Out bandwidth control on each port
- Traffic-policing policies on the switch port
- DSCP remarking

Multicast

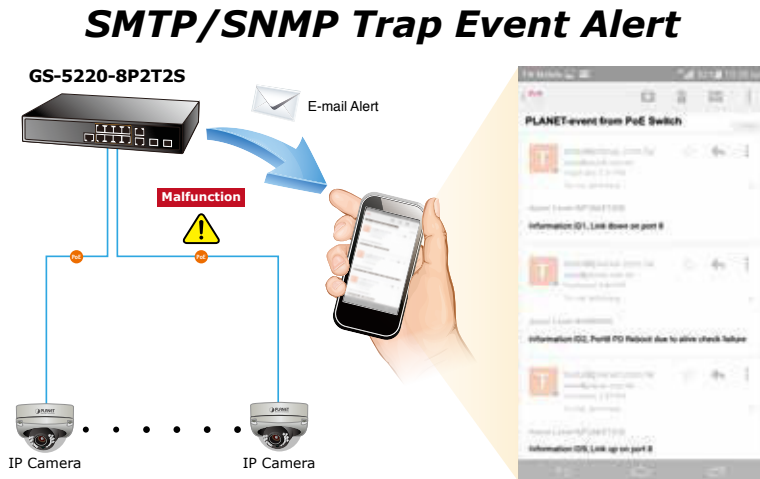
- Supports IGMP Snooping v1, v2 and v3
- Supports MLD Snooping v1 and v2
- Querier mode support
- IGMP Snooping port filtering
- MLD Snooping port filtering
- Multicast VLAN Registration (MVR) support

Security

- Authentication
 - IEEE 802.1x Port-based/MAC-based network access authentication

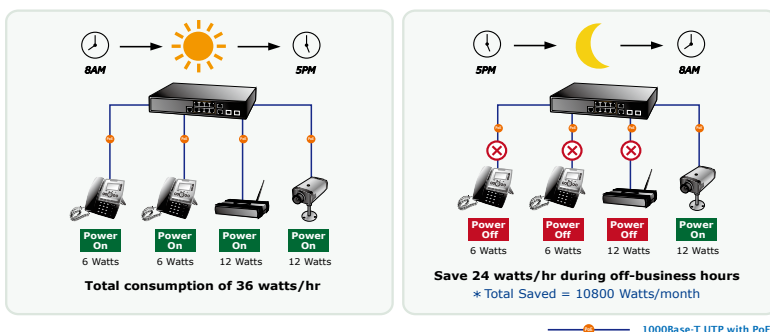
SMTP/SNMP Trap Event Alert

Though most NVR or camera management software offers SMTP email alert function, the GS-5220-8P2T2S further provides event alert function to help to diagnose the abnormal device owing to whether or not there is a break of the network connection, loss of PoE power or the rebooting response by the PD Alive Check process.



PoE Schedule for Energy Saving

Besides being used for IP surveillance, the GS-5220-8P2T2S is certainly applicable to build any PoE network including VoIP and wireless LAN. Under the trend of energy saving worldwide and contributing to the environmental protection on the Earth, the GS-5220-8P2T2S can effectively control the power supply besides its capability of giving high watts power. The “PoE schedule” function helps you to enable or disable PoE power feeding for each PoE port during specified time intervals and it is a powerful function to help SMBs and enterprises save energy and budget.



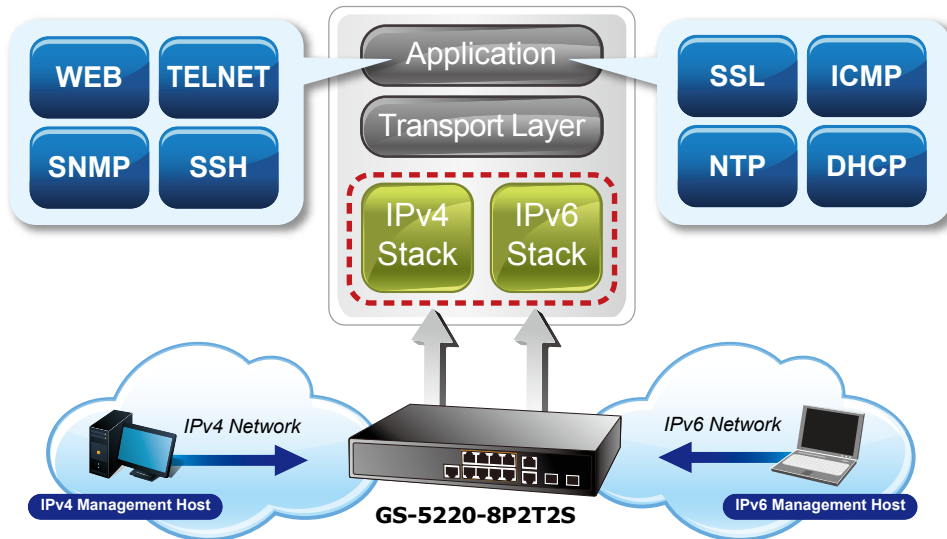
- Built-in RADIUS client to co-operate with the RADIUS servers
- TACACS+ login users access authentication
- RADIUS/TACACS+ users access authentication
- Access Control List
 - IP-based Access Control List (ACL)
 - MAC-based Access Control List
- Source MAC/IP address binding
- DHCP Snooping to filter un-trusted DHCP messages
- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- IP Source Guard prevents IP spoofing attacks
- Auto DoS rule to defend DoS attack
- IP address access management to prevent unauthorized intruder

Management

- IPv4 and IPv6 dual stack management
- Switch Management Interfaces
 - Console/Telnet Command Line Interface
 - Web switch management
 - SNMP v1, v2c, and v3 switch management
 - SSH/SSL secure access
- IPv6 IP Address/NTP/DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- System Maintenance
 - Firmware upload/download via HTTP/TFTP
 - Reset button for system reboot or reset to factory default
 - Dual Images
- DHCP Relay
- DHCP Option82
- User Privilege levels control
- NTP (Network Time Protocol)
- Link Layer Discovery Protocol (LLDP) and LLDP-MED
 - ICMPv6/ICMPv4 Remote Ping
 - Cable Diagnostic technology provides the mechanism to detect and report potential cabling issues
- SMTP/Syslog remote alarm
- Four RMON groups (history, statistics, alarms and events)
- SNMP trap for interface Linkup and Linkdown notification
- System Log
- PLANET Smart Discovery Utility for deployment management

Solution for IPv6 Networking

With the support for IPv6/IPv4 protocol, and easy and friendly management interfaces, the GS-5220-8P2T2S is the best choice for IP surveillance, VoIP and wireless service providers to connect with the IPv6 network. It also helps SMBs to step in the IPv6 era with the lowest investment and without having to replace the network facilities even though ISPs establish the IPv6 FTTx edge network.



IPv4 and IPv6 VLAN Routing for Secure and Flexible Management

To help customers stay on top of their businesses, the GS-5220-8P2T2S not only provides ultra high transmission performance and excellent layer 2 technologies, but also offers IPv4/IPv6 VLAN routing feature which allows to crossover different VLANs and different IP addresses for the purpose of having a highly-secure, flexible management and simpler networking application.

Robust Layer2 Features

The GS-5220-8P2T2S can be programmed for advanced switch management function, such as dynamic port link aggregation, Q-in-Q VLAN, Multiple Spanning Tree Protocol (MSTP), Layer 2/4 QoS, bandwidth control and IGMP/MLD snooping. The GS-5220-8P2T2S allows the operation of a high-speed trunk combining multiple ports. Supporting 6 trunk groups, it enables a maximum of up to 8 ports per trunk and supports connection fail-over as well.

Powerful Security

The GS-5220-8P2T2S offers comprehensive layer 2 to layer 4 access control list (ACL) for enforcing security to the edge. It can be used to restrict network access by denying packets based on source and destination IP address, TCP/UDP port number or defined typical network applications. Its protection mechanism also comprises 802.1x Port-based and MAC-based user and device authentication. With the private VLAN function, communication between edge ports can be prevented to ensure user privacy.

Enhanced Security and Traffic Control

The GS-5220-8P2T2S also provides DHCP Snooping, IP Source Guard and Dynamic ARP Inspection functions to prevent IP snooping from attack and discard ARP packets with invalid MAC address. The network administrator can now build highly-secure corporate networks with considerably less time and effort than before.

User-friendly Secure Management

For efficient management, the GS-5220-8P2T2S is equipped with console, web and SNMP management interfaces. With the built-in web-based management interface, the GS-5220-8P2T2S offers an easy-to-use, platform independent management and configuration facility. The GS-5220-8P2T2S supports SNMP and it can be managed via any management software based on the standard SNMP v1 and v2 protocols. For reducing product learning time, the GS-5220-8P2T2S offers Cisco-like command via Telnet or console port and customer doesn't need to learn new command from these switches. Moreover, the GS-5220-8P2T2S offers remote secure management by supporting SSH, SSL and SNMPv3 connection which can encrypt the packet content at each session.



Flexible and Extendable Solution

The 2 mini-GBIC SFP slots built in the GS-5220-8P2T2S support dual speed as it features 100BASE-FX and 1000BASE-SX/LX SFP (Small Form-factor Pluggable) fiber-optic modules. Now the administrator can flexibly choose the suitable SFP transceiver according to not only the transmission distance, but also the transmission speed required. The distance can be extended from 550 meters to 2km (multi-mode fiber) and up to 10/20/30/40/50/70/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

Intelligent SFP Diagnosis Mechanism

The GS-5220-8P2T2S supports SFP-DDM (Digital Diagnostic Monitor) function that greatly helps network administrator to easily monitor real-time parameters of the SFP transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

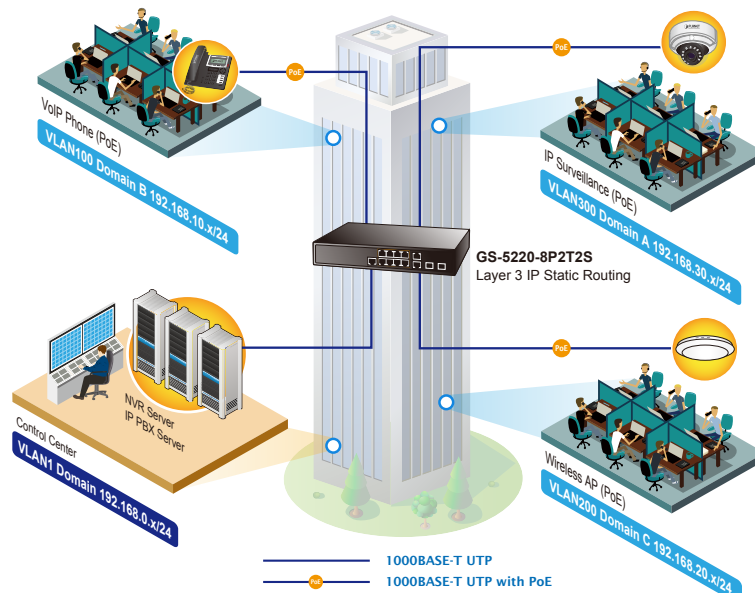
Applications

Layer 2+ VLAN Static Routing and PoE Application

With the built-in robust IPv4/IPv6 Layer 3 traffic routing protocols, the GS-5220-8P2T2S ensures reliable routing between VLANs and network segments. The routing protocols can be applied by VLAN interface with up to 32 routing entries. The GS-5220-8P2T2S is certainly a cost-effective and ideal solution for enterprises.

Providing up to 8 Gigabit High-power PoE ports and in-line power interface, the GS-5220-8P2T2S High-power PoE Switch can easily build a centrally-controlled power network shared by wireless Gigabit AP, IP phone system, or mega-pixel IP camera system group for the enterprises.

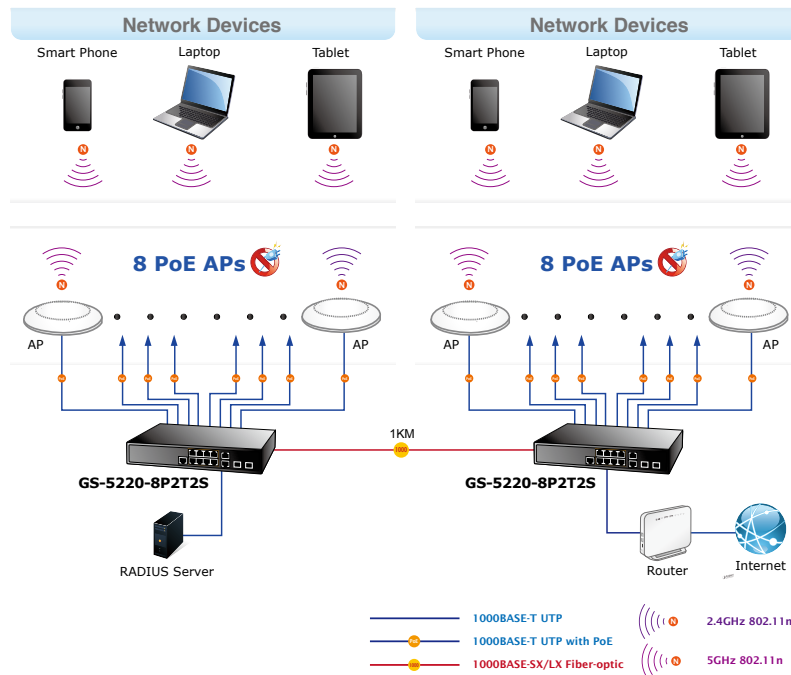
VLAN Routing + PoE Applications



PoE Wi-Fi Hotspot Solution with Extended Network Infrastructure for Public Spaces

The GS-5220-8P2T2S comes with non-blocking design, desktop size and SFP fiber-optic modules, bringing network infrastructure higher flexibility but lower in cost. Providing eight 10/100/1000BASE-T PoE ports, two 10/100/1000BASE-T copper ports, in-line power interfaces and two Gigabit SFP interfaces, the GS-5220-8P2T2S can easily build a Networking Authentication on Wireless LAN Controllers system for the enterprises. For instance, it can work with the Wireless Controller and RADIUS Server to perform comprehensive security for wireless user authentication with powered APs.

High Scalability & Best Security for Today's Wireless Networking Solution



Specifications

Model	GS-5220-8P2T2S
Hardware Specifications	
Copper Ports	10 10/100/1000BASE-T RJ45 Auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	2 x 100/1000BASE-X SFP interfaces with Port-11 to Port-12 Supports 100/1000Mbps dual mode and DDM
PoE Injector Port	8 ports with 802.3at/af PoE injector function with Port-1 to Port-8
Console	1 x RJ45 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-Forward
Switch Fabric	24Gbps/non-blocking
Throughput	17.76Mpps@64Bytes
Address Table	8K entries, automatic source address learning and aging
Shared Data Buffer	1392KB
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	9KB
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
LED	System: Fan Alert (Green), SYS (Green), PWR (Green) 10/100/1000T RJ45 Interfaces (Port 1 to Port 8): 10/100/1000Mbps LNK/ACT (Green) PoE-in-Use (Orange) 10/100/1000T RJ45 Interfaces (Port 9 to Port 10): LNK/ACT (Green) 1000Mbps (Orange) 100/1000Mbps SFP Combo Interfaces (Port 11 to Port 12): LNK/ACT (Green) 1000Mbps (Orange)

Power Requirements	100~240V AC, 50/60Hz	
Power Consumption (Full Loading)	320 watts/1091.9 BTU (max.)	
ESD Protection	6KV DC	
Dimensions (W x D x H)	330 x 200 x 43.5 mm, 1U height	
Weight	2kg	
Power over Ethernet		
PoE Standard	IEEE 802.3af/802.3at PoE/PSE	
PoE Power Supply Type	End-span	
PoE Power Output	Per port 54V DC, max. 30.8 watts	
Power Pin Assignment	1/2(+), 3/6(-)	
PoE Power Budget	240 watts (max.) @ 25 degrees C 200 watts (max.) @ 50 degrees C	
PoE Ability	PD @ 7 watts	8 units
	PD @ 15.4 watts	8 units
	PD @ 30.8 watts	8 units
Layer2 Management Functions		
Basic Management Interfaces	Console, Telnet, Web browser, SNMP v1, v2c	
Secure Management Interfaces	SSH, SSL, SNMP v3	
Port Configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow Control disable/enable	
Port Status	Display each port's speed duplex mode, link status, flow control status, auto negotiation status, trunk status	
Port Mirroring	TX/RX/Both Many-to-1 monitor	
VLAN	802.1Q tagged based VLAN, up to 255 VLAN groups Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-based VLAN Voice VLAN MVR (Multicast VLAN Registration) Up to 255 VLAN groups, out of 4094 VLAN IDs	
Link Aggregation	IEEE 802.3ad LACP/Static Trunk Supports 6 trunk groups with 8 ports per trunk	
QoS	Traffic classification based, strict priority and WRR 8-level priority for switching - Port number - 802.1p priority - 802.1Q VLAN tag - DSCP/TOS field in IP packet	
IGMP Snooping	IGMP (v1/v2/v3) Snooping, up to 255 multicast groups IGMP Querier mode support	
MLD Snooping	MLD (v1/v2) Snooping, up to 255 multicast groups MLD Querier mode support	
Access Control List	IP-based ACL/MAC-based ACL Up to 256 entries	
Bandwidth Control	Per port bandwidth control Ingress: 100Kbps~1000Mbps Egress: 100Kbps~1000Mbps	
SNMP MIBs	RFC 1213 MIB-II RFC 2863 IF-MIB RFC 1493 Bridge MIB RFC 1643 Ethernet MIB RFC 2863 Interface MIB RFC 2665 Ether-Like MIB RFC 2737 Entity MIB	RFC 2819 RMON MIB (Groups 1, 2, 3 and 9) RFC 2618 RADIUS Client MIB RFC 3411 SNMP-Frameworks-MIB IEEE 802.1X PAE LLDP MAU-MIB Power over Ethernet MIB
Layer 3 Functions		
IP Interfaces	Max. 8 VLAN interfaces	
Routing Table	Max. 32 routing entries	
Routing Protocols	IPv4 software static routing IPv6 software static routing	
Standards Conformance		
Regulatory Compliance	FCC Part 15 Class A, CE	

Standards Compliance	<p>IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3z 1000BASE-SX/LX IEEE 802.3ab 1000BASE-T IEEE 802.3x flow control and back pressure IEEE 802.3ad port trunk with LACP IEEE 802.1D Spanning Tree Protocol IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.1s Multiple Spanning Tree Protocol IEEE 802.1p Class of Service</p>	<p>IEEE 802.1Q VLAN tagging IEEE 802.1x Port Authentication Network Control IEEE 802.1ab LLDP IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus RFC 768 UDP RFC 793 TFTP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP v1 RFC 2236 IGMP v2 RFC 3376 IGMP v3 RFC 2710 MLD v1 RFC 3810 MLD v2</p>
Environments		
Operating	<p>Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 95% (non-condensing)</p>	
Storage	<p>Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)</p>	

Related Products

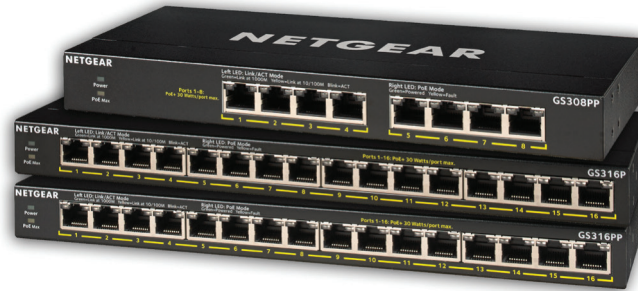
GS-5220-8P2T2S	L2+ 8-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch
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Related Products

WGSW-20160HP	16-Port 10/100/1000Mbps 802.3at PoE + 4-Port Gigabit TP/SFP Combo Managed Switch
WGSW-24040HP4	24-Port 10/100/1000Mbps 802.3at PoE + 4-Port Shared SFP Managed Switch (440 watts)
WGSW-48040HP	L2+ 48-Port 10/100/1000T 802.3at PoE + 4-Port Shared 100/1000X SFP Managed Switch with Hardware Layer3 IPv4/IPv6 Static Routing

Available Modules for GS-5220-8P2T2S series

MGB-GT	SFP-Port 1000BASE-T Module
MGB-SX	SFP-Port 1000BASE-SX mini-GBIC module
MGB-LX	SFP-Port 1000BASE-LX mini-GBIC module
MGB-L30	SFP-Port 1000BASE-LX mini-GBIC module - 30km
MGB-L50	SFP-Port 1000BASE-LX mini-GBIC module - 50km
MGB-L70	SFP-Port 1000BASE-LX mini-GBIC module - 70km
MGB-L120	SFP-Port 1000BASE-LX mini-GBIC module - 120km
MGB-LA10	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 10km
MGB-LB10	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 10km
MGB-LA20	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 20km
MGB-LB20	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 20km
MGB-LA40	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 40km
MGB-LB40	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 40km
MFB-FX	SFP-Port 100BASE-FX Transceiver (1310nm) - 2km
MFB-F20	SFP-Port 100BASE-FX Transceiver (1310nm) - 20km
MFB-F40	SFP-Port 100BASE-FX Transceiver (1310nm) - 40km
MFB-F60	SFP-Port 100BASE-FX Transceiver (1310nm) - 60km
MFB-FA20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1310nm) - 20km
MFB-FB20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1550nm) - 20km



Expanding Wired Connectivity for SOHO Networks needing PoE

NETGEAR 300 Series Gigabit Ethernet Unmanaged Switches with PoE provide easy, reliable, and affordable network connectivity for home and small offices. With these unmanaged plug-and-play switches, you can expand your network connections to multiple devices instantly.

The unmanaged switches provides power and data from a single Ethernet (CAT-5e) cable to devices such as IP cameras, VoIP/ Internet-based phones, wireless access points, etc. The majority of these models also support PoE power auto-balance and allocation feature.

NETGEAR's unique PoE technology automatically balances the PoE power based on the device needs independent of PoE class detected. These switches deliver the power the device needs, at the most granular level.

Outstanding power flexibility with NETGEAR's exclusive FlexPoE

The GS308PP, GS316P, and GS316PP support NETGEAR's exclusive FlexPoE upgradeable PoE power feature. Powered by the industry's first flexible PoE+ integrated technology, you can increase or decrease the PoE budget by simply purchasing a new NETGEAR FlexPoE power supply, effectively futureproofing small business networks and budgets. With NETGEAR's exclusive FlexPoE, these two switches help businesses cost effectively increase their power budget to expand their network as needed.

All ports support PoE/PoE+ up to 30W per port, which makes them the perfect switches for deploying Wireless APs, Pan/Tilt/Zoom and fixed IP Cameras, VoIP Phones, access-limited security door locks or any other IoT PoE-powered devices.

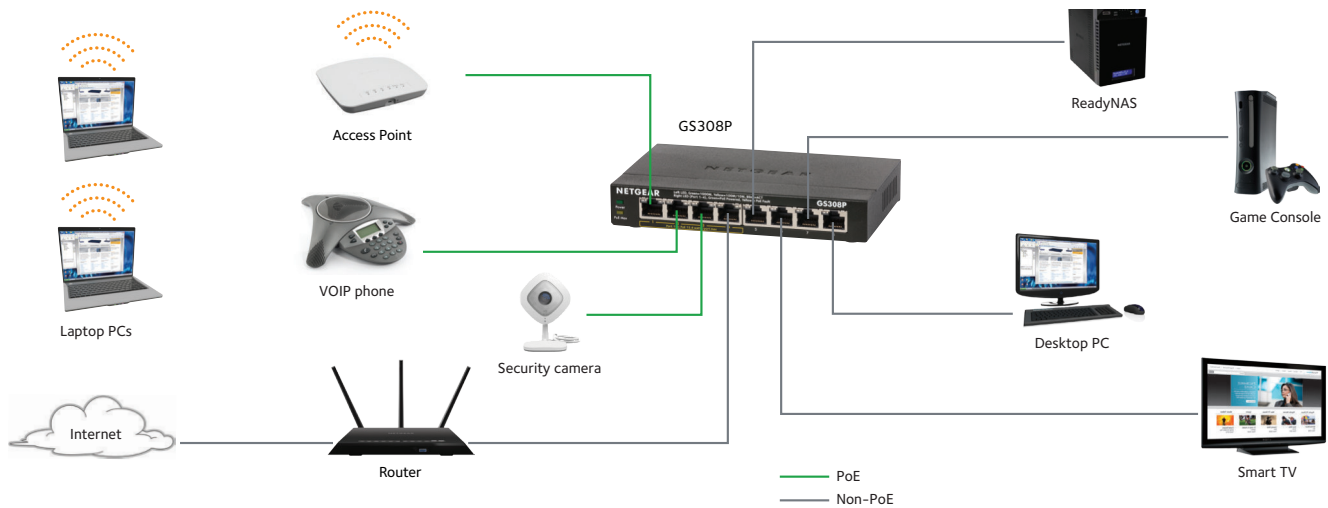
The GS308PP, GS316P, and GS316PP have copper Gigabit Ethernet PoE+ ports featuring NETGEAR FlexPoE power. The GS308PP ships with 83W^s of PoE budget, GS316P ships with 115W^s, and the GS316PP features an astounding 183W^s of PoE power budget.

Should you need more power in the future, rather than replacing the entire switch, with NETGEAR FlexPoE, you can just purchase the optional NETGEAR FlexPoE EPS130W Power Adapter, which will boost the PoE budget of your GS308PP and with the EPS200W Power Adapter, which will boost the PoE budget of your GS316P.

Highlights

- Auto-MDI/MDIX eliminates the need for crossover cables
- LED indicators for ease of use
- Energy-efficient technology for power savings
- Fanless design for silent operation
- Auto-negotiation for automatic connection at the highest common speed between switch and an end device
- Non-blocking switching architecture for maximum throughput at wire speed
- Plug-and-play; no setup required
- Durable and rugged metal case
- Desktop or wall-mountable (based on specific model)
- Ideal for small office and home networks
- Standards-based technology ensures interoperability with any standards-based devices in the existing network
- 802.3af and 802.3at Power Over Ethernet (PoE and /PoE+, depending on specific model) for IP cameras, VoIP/ Internet-based phones, wireless access points.

Small Office/Home Office Network Diagram



Expanding Wired Connectivity for SOHO Networks

Increase or decrease your PoE budget anytime by simply upgrading your switch Power Supply, without having to purchase a new switch. Future-proof your PoE budget with GS308PP or GS316P. And if you have power-hungry devices and directly need a high power PoE switch, buy G316PP. This unique combination from NETGEAR Business makes these switches the most adaptive in the market.

The following table describes the Accessory Power Adapters which are sold separately:

Switch Model	Power Adapter Model	Power Adapter Wattage	PoE+ Power Wattage
GS308PP (Comes w/90W PA)	EPS90W	90W	83W
	EPS130W	130W	123W
	EPS200W	200W	183W
GS316P (Comes w/130W PA)	EPS90W	90W	76W
	EPS130W	130W	115W
	EPS200W	200W	183W
GS316PP (Comes w/200W PA)	EPS90W	90W	76W
	EPS130W	130W	115W
	EPS200W	200W	183W

SOHO Gigabit Ethernet Unmanaged Switches with PoE

Features	GS305P	GS305PP	GS308P	GS308PP	GS316P	GS316PP
10/100/1000Mbps Ports (Auto Uplink)	5	5	8	8	16	16
Enclosure	Metal	Metal	Metal	Metal	Metal	Metal
Connector Type	Metal	Metal	Metal	Metal	Metal	Metal
Form Factor	Desktop or wall-mountable			Desktop or wall-mountable		
Power On/Off Switch	No	No	No	No	No	No
PoE Configuration						
802.3af PoE Ports	4	4	4	8	16	16
802.3at PoE+ Ports	N/A	4	N/A	8	16	16
PoE Max Power Per Port	Up to 15.4W	Up to 30W	Up to 15.4W	Up to 30W	Up to 30W	Up to 30W
Total PoE Power Budget**	55W	83W	53W	83W [§]	76W [§]	76W [§]
PoE auto-balance	Yes	Yes	No	Yes	Yes	Yes
Power Consumption						
DC Input/Power In	48V, 1.25A	54V, 1.66A	48V, 1.25A	54V, 1.66A	54V, 2.4A	54V, 3.7A
Power Consumption (Max and Standby)	60W/0.96W	88.89W/ 1.55W	60.0W/ 0.28W	87.9W/ 1.23W	127.9W/ 2.68W	195.9 W/ 2.67W
Heat Dissipation (Max and Standby) (BTU/Hr)	205.2 BTU / 3.28 BTU	304BTU/ 5.3BTU	205.20 BTU/ 0.96 BTU	300.6 BTU/ 3.69BTU	437.42 BTU/ 9.18BTU	669.9 BTU/ 9.14BTU
Performance Specification						
Bandwidth (Non-Blocking)	10 Gbps	10 Gbps	16 Gbps	16 Gbps	32 Gbps	32 Gbps
Packet Buffer Memory (Dynamically shared across only used ports)	128 KB	128 KB	192 KB	192 KB	1MB	1MB
Jumbo Frame Support	9,216 bytes	9,216 bytes	9,720 bytes	9,216 bytes	9,216 bytes	9,216 bytes
Queue WRR (Weighted Round Robin) Ratio	1:3:5:7:8:10:12:15		1:2:4:8		1:3:5:7:8:10:12:15	
Forwarding Rate (using 64-byte packets) - 1000Mbps Port	1,448,000 pps	1,448,000 pps	1,448,000 pps	1,448,000 pps	1,448,000 pps	1,448,000 pps
Latency (using 64-byte packets) - 1000Mbps Port (average)	< 2.6 μsec	< 2.6 μsec	< 3.0 μsec	< 3.0 μsec	< 3.7 μsec	< 3.7 μsec
MAC Address Table Size	2K	2K	4K	4K	4K	4K
Auto MDI/MDI-X Cable Detection	Yes	Yes	Yes	Yes	Yes	Yes
Auto-sensing Half/Full Duplex Switched Ports	Yes	Yes	Yes	Yes	Yes	Yes
Mean Time Between Failures (MTBF) @ 25° C	3,222,482 hours	6,710,127 hours	2,244,211 hours	2,752,476 hours	2,362,192 hours	2,362,192 hours
LEDs						
Per port	Speed, Link/ Activity (Left), Ports 1-4: PoE Power (Right)	Speed, Link/ Activity (Left), Ports 1-4: PoE Power (Right)	Speed, Link/Activity (Left), Ports 1-4: PoE Power (Right)	Speed, Link/Activity (Left), PoE (Right)	Speed, Link/Activity (Left), PoE (Right)	Speed, Link/Activity (Left), PoE (Right)
Per device	Power, PoE Max	Power, PoE Max	Power, PoE Max	Power, PoE Max	Power, PoE Max	Power, PoE Max

SOHO Gigabit Ethernet Unmanaged Switches with PoE

Quality of Service (QoS)	GS305P	GS305PP	GS308P	GS308PP	GS316P	GS316PP
802.1P Based (CoS) Supported	Yes	Yes	Yes	Yes	Yes	Yes
Honors DSCP (DiffServ) Tags	No	No	No	Yes	Yes	Yes
Energy Efficiency						
Energy Efficient Ethernet (EEE) IEEE 802.3az compliant	Yes	Yes	Yes	Yes	Yes	Yes
Auto Power Down	No	No	Yes	Yes	Yes	Yes
Short Cable Detection	Yes	Yes	Yes	Yes	Yes	Yes
Fan/Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless
Physical Specifications						
Dimensions (W x D x H)	158 x 101 x 29 mm (6.2 x 4.0 x 1.1 in)	158 x 101 x 29 mm (6.2 x 4.0 x 1.1 in)	158 x 101 x 29 mm (6.2 x 4.0 x 1.1 in)	236 x 102 x 27 mm (9.3 x 4 x 1.1 in)	286 x 102 x 27 mm (11.3 x 4 x 1.1 in)	286 x 102 x 27 mm (11.3 x 4 x 1.1 in)
Weight	0.41 kg (0.90 lb)	0.41 kg (0.90 lb)	0.46 kg (1.02 lb)	0.6 kg (1.32 lb)	0.88 kg (1.94 lb)	0.88 kg (1.94 lb)
Environmental Specifications						
Operating						
Operating Temperature	0° to 40°C (32° to 104°F)					
Humidity	90% maximum relative humidity (RH), non-condensing					
Altitude	10,000 ft (3,000 m) maximum					
Storage						
Storage Temperature	-20° to 70°C (-4° to 158°F)					
Humidity (relative)	95% maximum relative humidity (RH), non-condensing					
Electromagnetic Emissions and Immunity						
Certifications	CE Mark, FCC Part 15 Class B, IC Class B, RCM, VCCI	CE Mark, FCC Part 15 Class B, IC Class B, RCM, CCC, VCCI	CE Mark, FCC Part 15 Class A, IC Class A, RCM, CCC, VCCI, KC	CE Mark, FCC Part 15 Class A, IC Class A, RCM, VCCI, BSMI, KC	CE Mark, FCC Part 15 Class A, IC Class A, RCM, VCCI, BSMI, KC	CE Mark, FCC Part 15 Class A, IC Class A, RCM, VCCI, BSMI, KC
Bandwidth (Non-Blocking)						
Certifications	CB, CE LVD	CB, CE LVD, CCC	CB, CE LVD, CCC	CB, CE LVD	CB, CE LVD	CB, CE LVD
IEEE Network Protocols						

- IEEE 802.3ab 1000BASE-T Gigabit Ethernet
- IEEE 802.3u 100BASE-TX Fast Ethernet
- IEEE 802.3i 10BASE-T Ethernet

- IEEE 802.3x Flow Control
- IEEE 802.1p Priority QoS (all models)

- IEEE 802.3 CSMA/CD
- 802.3az Energy Efficient Ethernet

SOHO Gigabit Ethernet Unmanaged Switches with PoE

Warranty and Support *	GS305P	GS305PP	GS308P	GS308PP	GS316P	GS316PP
All Except China	3-year Warranty					
China	1-year Warranty					
Power Adapter Warranty	2-years					
Technical Support (online, phone)	90 days free from date of purchase					
ProSUPPORT Category	Category S1	Category S1	Category S2	Category S2	Category S2	Category S2
ProSUPPORT OnCall 24x7 Service Plan	PMB0S11-10000S (1 yr)	PMB0S11-10000S (1 yr)	PMB0S12-10000S (1 yr)	PMB0S12-10000S (1 yr)	PMB0S12-10000S (1 yr)	PMB0S12-10000S (1 yr)
	PMB0S31-10000S (3 yrs)	PMB0S31-10000S (3 yrs)	PMB0S32-10000S (3 yrs)	PMB0S32-10000S (3 yrs)	PMB0S32-10000S (3 yrs)	PMB0S32-10000S (3 yrs)
	PMB0S51-10000S (5 yrs)	PMB0S51-10000S (5 yrs)	PMB0S52-10000S (5 yrs)	PMB0S52-10000S (5 yrs)	PMB0S52-10000S (5 yrs)	PMB0S52-10000S (5 yrs)
Package Contents						
All Models	NETGEAR Gigabit Ethernet Unmanaged Switch Power adapter/cord (localized to the country of sale) Rubber footpads for desktop installation Wall mount kit Installation Guide					
Optional Modules and Accessories						
EPS90W	90W External Power Adapter					
EPS130W	130W External Power Adapter					
EPS200W	200W External Power Adapter					
Technical Specifications for Accessory Power Adapters						
Power Adapter Warranty	2-years					
Technical Support	90 days of free technical support					
ProSUPPORT Contract Option	No					
Auto-applied contracts	No					

* NETGEAR FlexPoE power - interchangeable external power adapter allows for increasing or decreasing your PoE budget at any time with optional NETGEAR FlexPoE power adapters.

Actual SKU availability may vary per region. Please check the local website for product availability.

This product comes with a limited warranty that is valid only if purchased from a NETGEAR authorized reseller, and modifications to product may void the warranty; see <http://www.netgear.com/about/warranty/> for details. 24/7 basic technical support provided for 90 days from purchase date when purchased from a NETGEAR authorized reseller.

** Maximum PoE power supplied is 15.4W per port, but not to exceed 53W total power supplied across all PoE connected devices.

† NETGEAR #1 in US Market Share according to NPD data for Unmanaged and Smart Switches, September 2019. NETGEAR #1 in Europe Market Share according to Context data for Unmanaged and Smart Switches, September 2019.

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Details

Splitter Fiber Optic Distribution Box Outdoor Wall Mounted

Description:

Fiber optic terminal box is available for the distribution and terminal connection for various kinds of optical fiber system, especially suitable for mini-network terminal distribution, in which the optical cables, patch cores or pigtails are connected.

Features:

The box is made of PC+ABS, and lifetime is more than 20 years. It also can be used under -40°C. Bi-layer structure design. The upper layer is for optical splitter, the other layer is for fiber splicing. Easy to operate. Usually installed as wall mounted in the building or at the green belt. It can accommodate 8 pcs SC-SC, or SC-FC adapters. It can be designed to client requirements. It meets YD/T988-2007 standards.

Application:

- FTTH access network
- Telecommunication Networks
- CATV Networks
- Data communications Networks

Specification:

Type	FDB-04	FDB-08	FDB-16	FDB-24	FDB-32	FDB-48
Size(mm)	210*140*40	205*215*55	260*320*90	295*335*115	350*340*120	350*340*120
Cable ports	4	8	16	24	32	48
Weight(kg)	0.35	0.75	1.4	2.1	3.5	5

Related Products



2U SC 24 Port Fiber Optic Patch Panel With Fiber Pigtails



LC 24 Port Fiber Optic Patch Panel



MPO Fiber Optic Patch Panel



Indoor and outdoor fiber optic cable box manufacture fiber box cables cable distribution box

About Us	Fiber Optic Patch cord	Fiber pigtail	MPO/MPT Fiber Optic Cable
Company Profile	MTRJ-MTRJ Duplex 9/125 Single Mode Fiber	Fiber Cable 144-SC/APC 9/125 Singlemode	4U Slidable Fiber Optic Patch Panel for MTP /
Factory preview	Patch Cable	Outdoor Fiber Pigtail	MPO Fiber Cassette Module
Contact Us	MTRJ-MTRJ Duplex Multimode 10G OM3 Fiber	12 Fibers Bunch Fiber Optic Pigtail	MPO/MTP Female to MTP Female 12 Fibers OM3
	Patch Cable	12 Fibers ST/UPC 9/125 Singlemode Bunch Fiber	50/125 Multimode Trunk Cable, LSZH
	SC/UPC-FC/UPC Simplex Multimode 10G OM3	Optic Pigtail	MPO Female to 12core LC Single mode Optic
	Fiber Patch Cable	12 Fibers SC/UPC 9/125 Singlemode Bunch Fiber	Fiber Patch cord
	LC/UPC-ST/UPC Duplex Multimode 10G OM3	Optic Pigtail	MPO to MPO 9/125 Single Mode Fiber Optic Patch
	Fiber Patch Cable	12 Fibers LC/UPC 9/125 Singlemode Bunch Fiber	Cable
	LC/UPC-ST/UPC Duplex 9/125 Single Mode Fiber	Optic Pigtail	SC Simplex Fiber Optic Adapter MTP / MPO Fiber
	Patch Cable		With Swell Clip Lock Cover

Links: [Facebook](#) | [Twitter](#) | [Linkedin](#) | [Google+](#) |

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6. ROUTER 4G

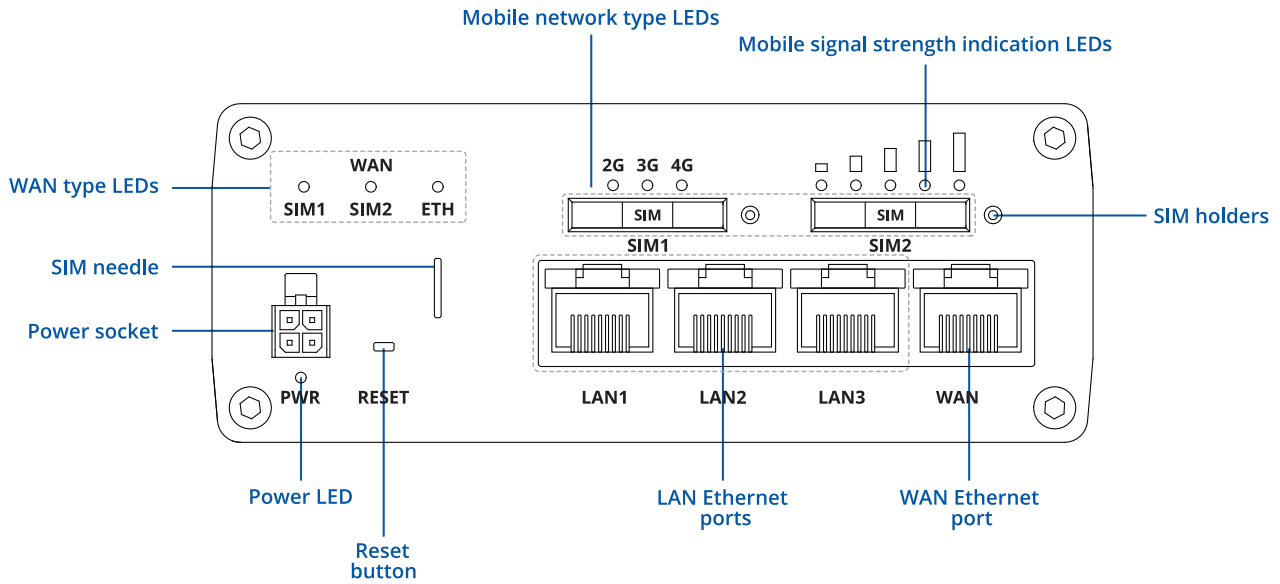


RUTX11

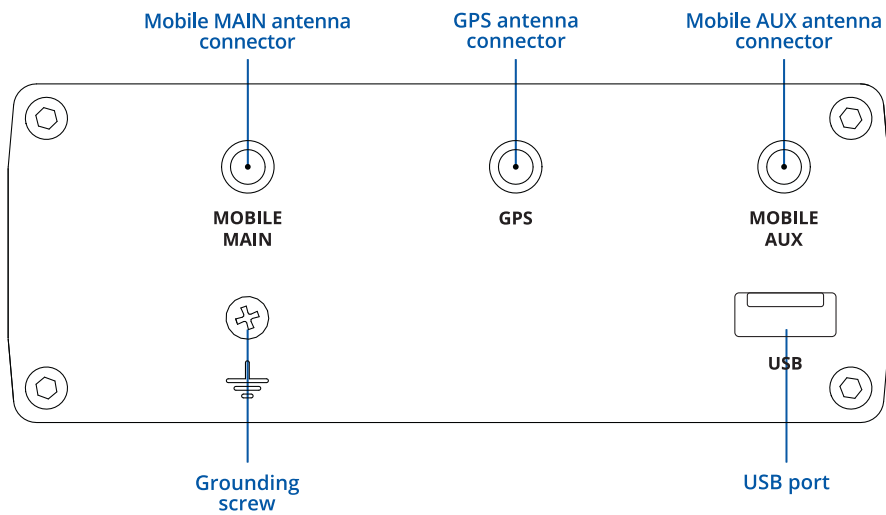


HARDWARE

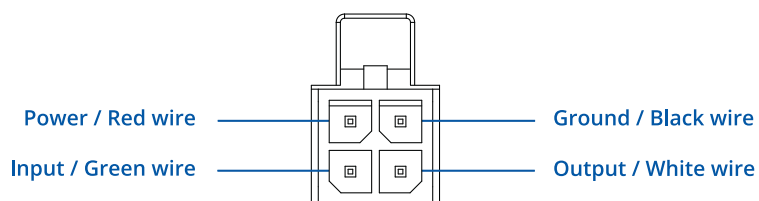
FRONT VIEW



BACK VIEW



POWER SOCKET PINOUT



FEATURES

MOBILE

Mobile module	4G (LTE) – Cat 6 up to 300 Mbps, 3G – Up to 42 Mbps
SIM switch	2 SIM cards, auto-switch cases: weak signal, data limit, SMS limit, roaming, no network, network denied, data connection fail, SIM idle protection (planned)
Status	Signal strength, SINR, RSRP, RSRQ, Bytes sent/received
SMS	SMS status, SMS configuration, send/read SMS via HTTP POST/GET, Email to SMS, SMS to Email, SMS to HTTP, SMS to SMS, SMS auto reply, scheduled SMS (planned), SMPP (planned)
Black/White list	Operator black/white list
Multiple PDN (planned)	Possibility to use different PDNs for multiple network access and services
Band management	Band lock, Used band status display
APN	Auto APN
Bridge mode	Direct connection (bridge) between mobile ISP and device on LAN

ETHERNET

WAN	1x WAN port (can be configured as LAN) 10/100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u, 802.3az standards, supports auto MDI/MDIX crossover
LAN	3x LAN ports, 10/100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u, 802.3az standards, supports auto MDI/MDIX crossover

NETWORK

Routing	Static routing, Dynamic routing (BGP, OSPF v2, RIP v1/v2, EIGRP, NHRP)
NetSnapper (optional)	Mobile connection management, data compression VPN client (not available in standard FW)
Network protocols	TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSL v3, TLS, ARP, VRRP, PPP, PPPoE, UPNP, SSH, DHCP, Telnet client, SNMP, MQTT, Wake on LAN (WOL)
VoIP passthrough support	H.323 and SIP-alg protocol NAT helpers, allowing proper routing of VoIP packets
Connection monitoring	Ping Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection
Firewall	Port forwards, traffic rules, custom rules
QoS / Smart Queue Management (SQM)	Traffic priority queuing by source/destination, service, protocol or port, WMM, 802.11e
DHCP	Static and dynamic IP allocation, DHCP Relay, Relayd
DDNS	Supported >25 service providers, others can be configured manually
Network backup	VRRP, Mobile, Wired and WiFi WAN options, each of which can be used as an automatic Failover
Load balancing	Balance Internet traffic over multiple WAN connections
SSHFS (optional)	Possibility to mount remote file system via SSH protocol (not available in standard FW)

SECURITY

Authentication	Pre-shared key, digital certificates, X.509 certificates
Firewall	Pre-configured firewall rules can be enabled via WebUI, unlimited firewall configuration via CLI; DMZ; NAT; NAT-T
Attack prevention	DDOS prevention (SYN flood protection, SSH attack prevention, HTTP/HTTPS attack prevention), port scan prevention (SYN-FIN, SYN-RST, X-mas, NULL flags, FIN scan attacks)
VLAN	Port based and tag based VLAN separation
Mobile quota control	Custom data limits for both SIM cards
WEB filter	Blacklist for blocking out unwanted websites, Whitelist for specifying allowed sites only
Access control	Flexible access control of TCP, UDP, ICMP packets, MAC address filter

BLUETOOTH

Bluetooth 4.0	Bluetooth low energy (LE) for short range communication
---------------	---

VPN

OpenVPN	Multiple clients and a server can run simultaneously, 12 encryption methods
OpenVPN Encryption	DES-CBC, RC2-CBC, DES-EDE-CBC, DES-EDE3-CBC, DESX-CBC, BF-CBC, RC2-40-CBC, CAST5-CBC, RC2-64-CBC, AES-128-CBC, AES-192-CBC, AES-256-CBC
IPsec	IKEv1, IKEv2, with 5 encryption methods for IPsec (DES, 3DES, AES128, AES192, AES256)
GRE	GRE tunnel
PPTP, L2TP	Client/Server instances can run simultaneously
Stunnel	Proxy designed to add TLS encryption functionality to existing clients and servers without any changes in the program's code
DMVPN	Method of building scalable IPsec VPNs
SSTP	SSTP client instance support

MONITORING & MANAGEMENT

WEB UI	HTTP/HTTPS, status, configuration, FW update, CLI, troubleshoot, event log, system log, kernel log
FOTA	Firmware update from server, automatic notification
SSH	SSH (v1, v2)
SMS	SMS status, SMS configuration, send/read SMS via HTTP POST/GET
TR-069	OpenACS, EasyCwmp, ACSLite, tGem, LibreACS, GenieACS, FreeACS, LibCWMP, Friendly tech, AVSystem
SNMP	SNMP (v1, v2, v3), SNMP trap
JSON-RPC (planned)	Management API over HTTP/HTTPS
MQTT	MQTT Broker, MQTT publisher
RMS	Teltonika Remote Management System (RMS)

MODBUS

Modbus TCP slave	ID range 1-255
Modbus TCP master	Supported functions 01, 02, 03, 04, 05, 06, 15, 16 Supported data formats 8 bit: INT, UINT; 16 bit: INT, UINT (MSB or LSB first); 32 bit float (Big endian, Big endian with byte-swapped, Little endian, Little endian with byte-swapped)

WIRELESS

Wireless mode	802.11ac (WiFi 5) with data transmission rates up to 867 Mbps (Dual Band, MU-MIMO), 802.11r fast transition, Access Point (AP), Station (STA)
WiFi security	WPA2-Enterprise-PEAP, WPA2-PSK, WPA-PSK, WEP; AES-CCMP, TKIP, Auto Cipher modes, client separation
ESSID	ESSID stealth mode
Wireless Hotspot	Captive portal (Hotspot), internal/external Radius server, built in customizable landing page

SYSTEM CHARACTERISTICS

CPU	Quad-core ARM Cortex A7, 717 MHz
RAM	256 MB, DDR3
FLASH memory	256 MB SPI Flash

FIRMWARE / CONFIGURATION

WEB UI	Update FW from file, check FW on server, configuration profiles, configuration backup
FOTA	Update FW/configuration from server
RMS	Update FW/configuration for multiple devices at once
Keep settings	Update FW without losing current configuration

FIRMWARE CUSTOMIZATION

Operating system	RutOS (OpenWrt based Linux OS)
Supported languages	Busybox shell, Lua, C, C++
Development tools	SDK package with build environment provided

LOCATION TRACKING

GNSS	GPS, GLONASS, BeiDou, Galileo and QZSS
Coordinates	GNSS coordinates via WebUI, SMS, TAVL, RMS
NMEA	NMEA 0183
Server software	Supported server software: TAVL, RMS
Mobile Network Geolocation	Get approximate device location on RMS based on mobile cell tower position (without using GPS)
Geofencing	Configurable multiple geofence zones

USB

Data rate	USB 2.0
Applications	Samba share, custom scripts (planned)
External devices	Possibility to connect external HDD, flash drive, additional modem, printer (planned)
Storage formats	FAT, FAT32, NTFS

INPUT/OUTPUT

Input	1x Digital Input
Output	1x Digital Output
Events	SMS, Email, RMS

POWER

Connector	4 pin industrial DC power socket
Input voltage range	9 – 50 VDC, reverse polarity protection, voltage surge/transient protection
PoE (passive)	Passive PoE. Possibility to power up through LAN port, not compatible with IEEE802.3af and 802.3at standards
Power consumption	16 W Max

PHYSICAL INTERFACES (PORTS, LEDS, ANTENNAS, BUTTONS, SIM)

Ethernet	4x RJ45 ports, 10/100/1000 Mbps
I/Os	1 Digital Input, 1 Digital Output on 4 pin power connector
Status LEDs	3x connection status LEDs, 5x connection strength LEDs, 8x LAN status LEDs, 4x WAN status LEDs, 1x Power LED, 2.4G and 5G WiFi LEDs
SIM	2x SIM slots (Mini SIM - 2FF), 1.8 V/3 V, external SIM holders
Power	4 pin DC connector
Antennas	2 x SMA for LTE, 2 x RP-SMA for WiFi, 1 x RP-SMA for Bluetooth, 1 x SMA for GNSS
USB	USB A port for external devices
Reset	Factory reset button

PHYSICAL SPECIFICATION

Casing material	Full aluminium housing
Dimensions	95 x 115 x 44 mm (L x W x H)
Weight	456 g
Mounting options	DIN rail (can be mounted on two sides), flat surface placement

EMI IMMUNITY

Standards	EN 55032:2015, EN 55035:2017, Draft ETSI EN 301 489-1 V2.2.1, ETSI EN 301 489-3 V2.1.1, Draft ETSI EN 301 489-17 V3.2.0
ESD	EN 61000-4-2:2009
RS	EN 61000-4-3:2006+A1:2008+A2:2010
EFT	EN 61000-4-4:2012
Surge protection	EN 61000-4-5:2014
CS	EN 61000-4-6:2014
DIP	EN 61000-4-11:2004

OPERATING ENVIRONMENT

Operating temperature	-40 C to 75 C
Operating humidity	10 % to 90 % non-condensing
Ingress Protection Rating	IP30

REGULATORY & TYPE APPROVALS

Regulatory & Type Approvals	CE/RED, RoHS, REACH
Vehicle	ECE R10 (E-mark)

RF

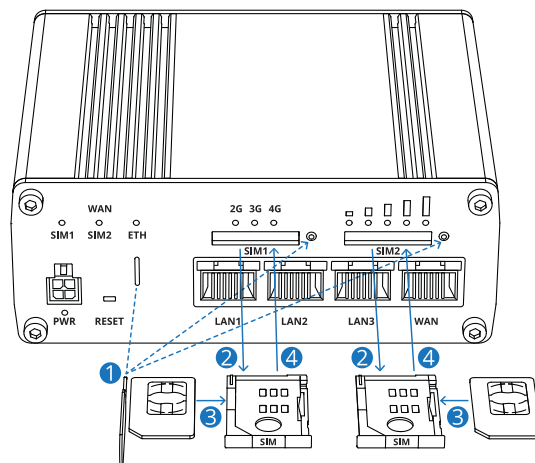
Standards	ETSI EN 300 328 V2.1.1, ETSI EN 301 893 V2.1.1, ETSI EN 300 440 V2.1.1
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SAFETY

Standards	IEC 62368-1:2014 (Second Edition) EN 62368-1:2014+A11:2017 EN 50385:2017 EN 62232:2017
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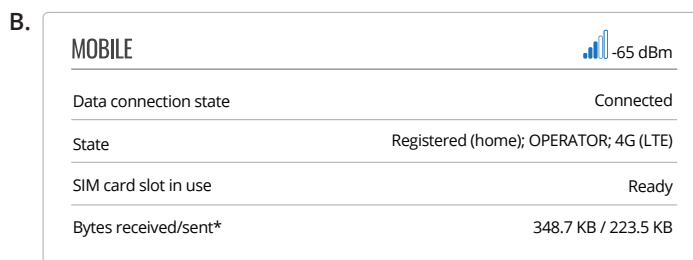
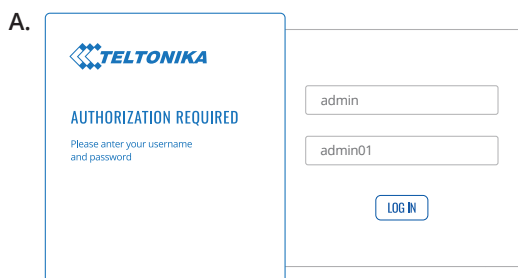
HARDWARE INSTALLATION

1. Pull out the SIM needle from the front panel of the router.
2. Push the SIM holder button with the SIM needle.
3. Pull out the SIM holder.
4. Insert your SIM card into the SIM holder.
5. Slide the SIM holder back into the router.
6. Attach all antennas.
7. Connect the power adapter to the socket on the front of the device. Then plug the other end of the power adapter into a power outlet.
8. Connect to the device via an Ethernet cable connected to LAN port.



LOGIN TO DEVICE

1. To enter the router's Web interface (WebUI), type <http://192.168.1.1> into the URL field of your Internet browser.
2. Use login information shown in image A when prompted for authentication.
3. After you log in, you will be prompted to change your password for security reasons. The new password must contain at least 8 characters, including at least one uppercase letter, one lowercase letter, and one digit. This step is mandatory, and **you will not be able to interact with the router's WebUI before you change the password.**
4. When you change the router's password, the **Configuration Wizard** will start. The **Configuration Wizard** is a tool used to set up some of the router's main operating parameters.
5. Go to the **Overview** page and pay attention to the **Signal Strength** indication (image B). To maximize the cellular performance try adjusting the antennas or changing the location of your device to achieve the best signal conditions.



TECHNICAL INFORMATION

Radio specifications	
RF technologies	3G, 4G, GNSS
Max RF power	24 dBm@WCDMA, 23 dBm@LTE
Bundled accessories specifications*	
Power adapter	Input: 0.6A@100-240VAC, Output: 12VDC, 1.5A, 4-pin plug
Mobile antenna	698~960/1710~2690 MHz, 50 Ω, VSWR<3, gain** 3 dBi, omnidirectional, SMA male connector
GNSS antenna	1575.42~1602 MHz, 2.2~5 VDC, VSWR<1.5, active total gain** 28 dB (typ.), RHCP polarization, SMA male connector

*Order code dependent.

**Higher gain antenna can be connected to compensate for cable attenuation when a cable is used. The user is responsible for the compliance with the legal regulations.

WHAT'S IN THE BOX?

STANDARD PACKAGE CONTAINS

- Router RUTX11
- Euro PSU
- 2 x LTE antennas (swivel, SMA male)
- 2 x WiFi antennas (swivel, RP-SMA male)
- 1 x GNSS antenna (adhesive, SMA Male)
- 1 x Bluetooth antenna (magnetic, RP-SMA male)
- Ethernet cable (1.5 m)
- QSG (Quick Start Guide)
- Packaging box



RUTX11



2 X LTE ANTENNAS (SWIVEL, SMA MALE)



2 X WIFI ANTENNAS (SWIVEL, RP-SMA MALE)



24 W EURO PSU



1 X GNSS ANTENNA (ADHESIVE, SMA MALE)



1 X BLUETOOTH ANTENNA (MAGNETIC, RP-SMA MALE)



ETHERNET CABLE (1.5 M)

STANDARD ORDER CODES

PRODUCT CODE	HS CODE	HTS CODE	PACKAGE CONTAINS
RUTX11000000	851762	8517.62.00	Standard package

For more information on all available packaging options – please contact us directly.

AVAILABLE VERSIONS

PRODUCT CODE	REGION (OPERATOR)	FREQUENCY
RUTX11 0*****	Europe, the Middle East, Africa, APAC ² , Brasil, Malaysia, Australia	<ul style="list-style-type: none"> • 4G (LTE-FDD): B1, B3, B5, B7, B8, B20, B28, B32¹ • 4G (LTE-TDD): B38, B40, B41 • 3G: B1, B3, B5, B8
RUTX11 1*****	North America	<ul style="list-style-type: none"> • 4G (LTE-FDD): B2, B4, B5, B7, B12, B13, B25, B26, B29¹, B30, B66 • 3G: B2, B4, B5

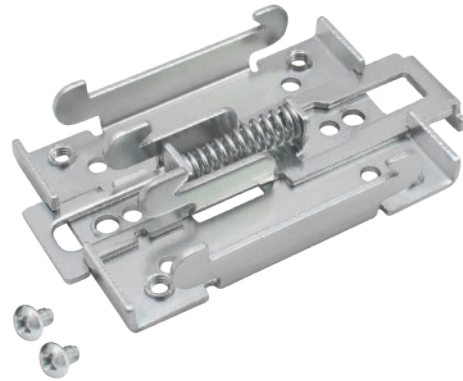
The price and lead-times for region (operator) specific versions may vary. For more information please contact us.

1 - LTE-FDD B29 and B32 Support Rx Only, and in 2×CA it is Only for Secondary Component Carrier.
 2 - Excluding Japan and CMCC.

MOUNTING OPTIONS

DIN RAIL KIT

Parameter	Value
Mounting standard	35mm DIN Rail
Material	Low carbon steel
Weight	57g
Screws included	Philips Pan Head screw #6-32×3/16, 2pcs
Dimensions	82 mm x 46 mm x 20 mm
RoHS Compliant	V



DIN RAIL KIT

- DIN Rail adapter
- Philips Pan Head screw #6-32×3/16, 2pcs for RUT2xx/RUT9xx

ORDER CODE	PRODUCT CODE	HS CODE	HTS CODE
088-00267	PR5MEC00	73269098	7326.90.98

For more information on all available packaging options – please contact us directly.

COMPACT DIN RAIL KIT

Parameter	Value
Mounting standard	35mm DIN Rail
Material	ABS + PC plastic
Weight	6.5 g
Screws included	Philips Pan Head screw #6-32×3/16, 2pcs
Dimensions	70 mm x 25 mm x 14,5 mm
RoHS Compliant	V



DIN RAIL KIT

- Compact plastic DIN Rail adapter (70x25x14,5mm)
- Philips Pan Head screw #6-32×3/16, 2pcs

ORDER CODE	PRODUCT CODE	HS CODE	HTS CODE
088-00270	PR5MEC11	73269098	7326.90.98

For more information on all available packaging options – please contact us directly.

SURFACE MOUNTING KIT

Parameter	Value
Mounting standard	Flat surface mount
Material	ABS + PC plastic
Weight	2x5 g
Screws included	Philips Pan Head screw #6-32×3/16, 2pcs
Dimensions	25 mm x 48 mm x 7.5 mm
RoHS Compliant	V



DIN RAIL KIT

- Surface mounting kit
- Philips Pan Head screw #6-32×3/16, 2pcs

ORDER CODE	PRODUCT CODE	HS CODE	HTS CODE
088-00281	PR5MEC12	73269098	7326.90.98

For more information on all available packaging options – please contact us directly.

RUTX11 SPATIAL MEASUREMENTS & WEIGHT

MAIN MEASUREMENTS

H x W x D dimensions for RUTX11:

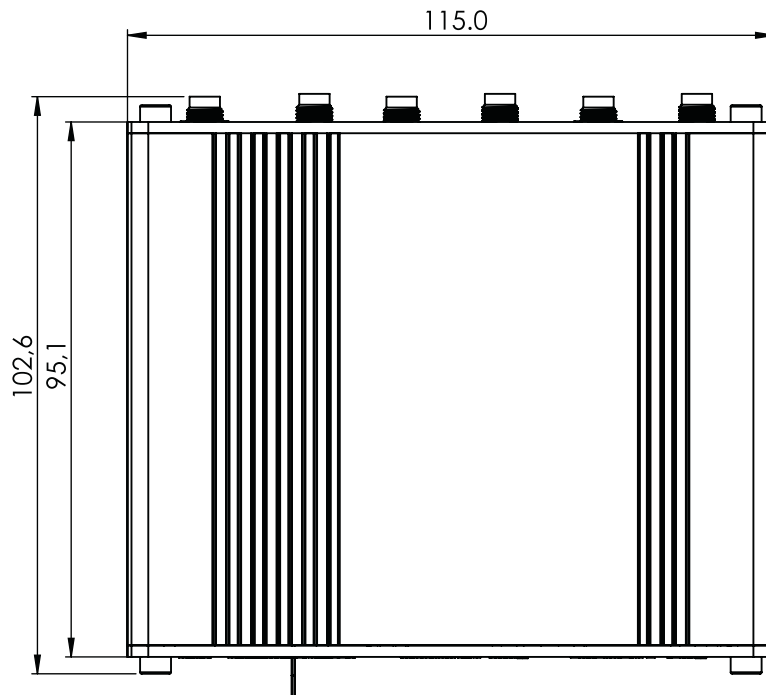
Device housing*: 95 x 115 x 44

Box: 355 x 175 x 60

*Housing measurements are presented without antenna connectors and screws; for measurements of other device elements look to the sections below.

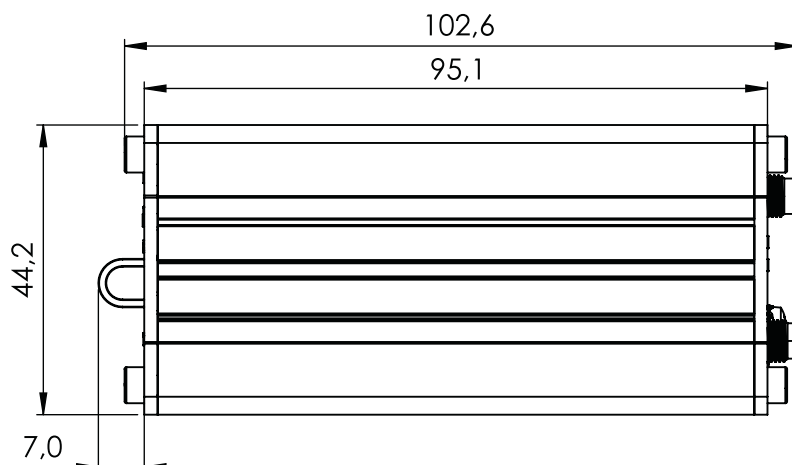
TOP VIEW

The figure below depicts the measurements of RUTX11 and its components as seen from the top:



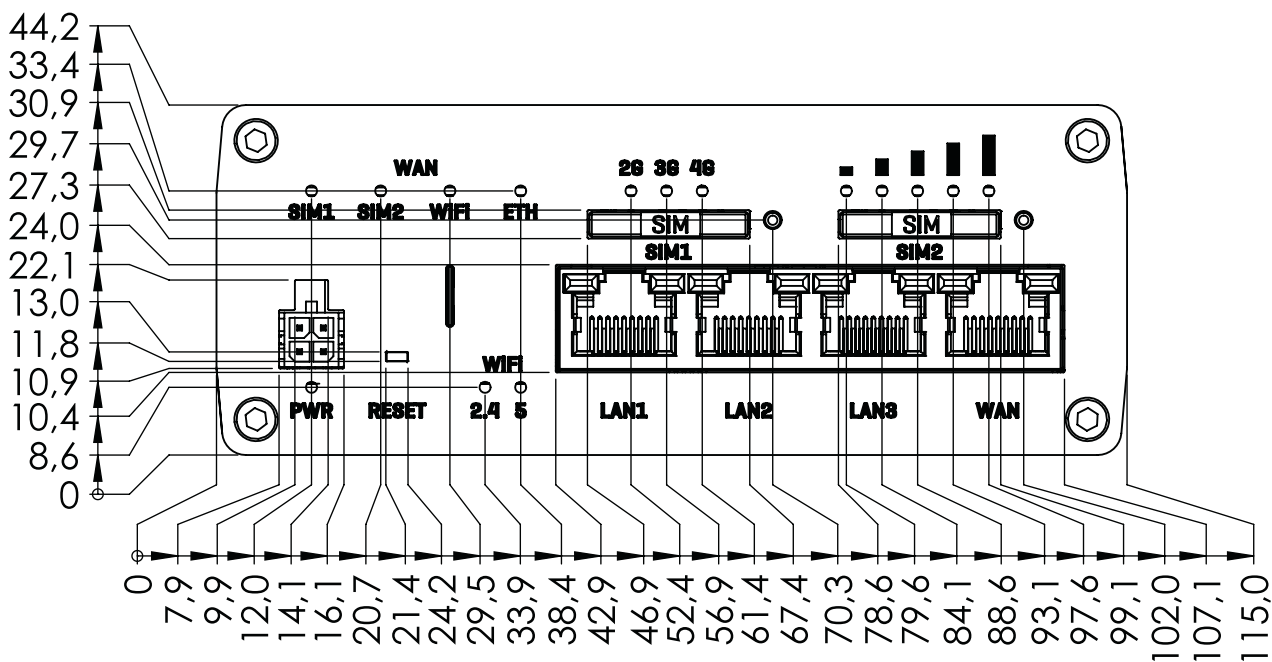
RIGHT VIEW

The figure below depicts the measurements of RUTX11 and its components as seen from the right side:



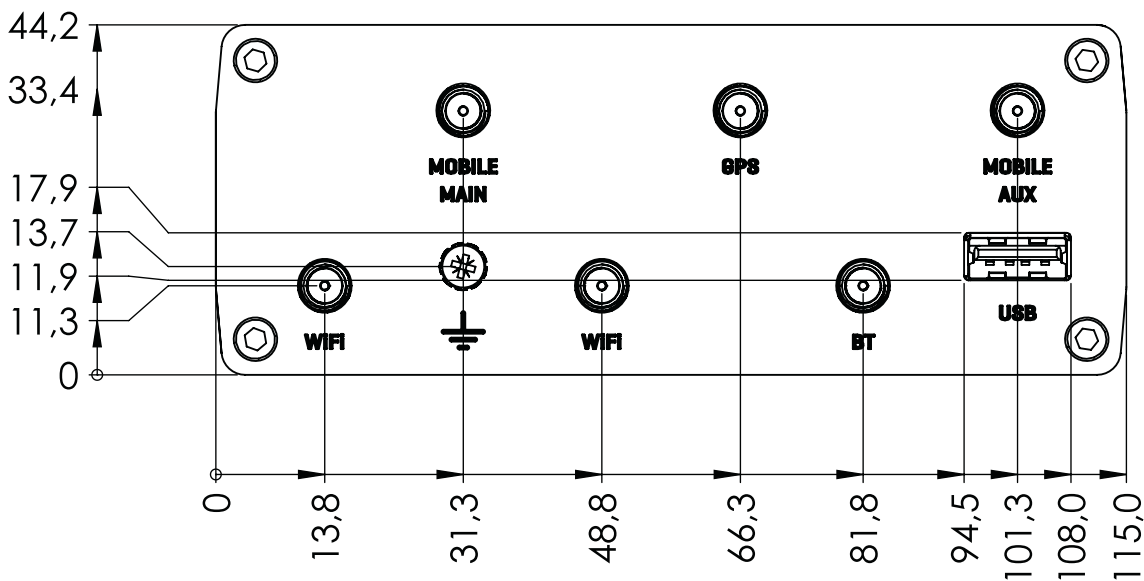
FRONT VIEW

The figure below depicts the measurements of RUTX11 and its components as seen from the front panel side:



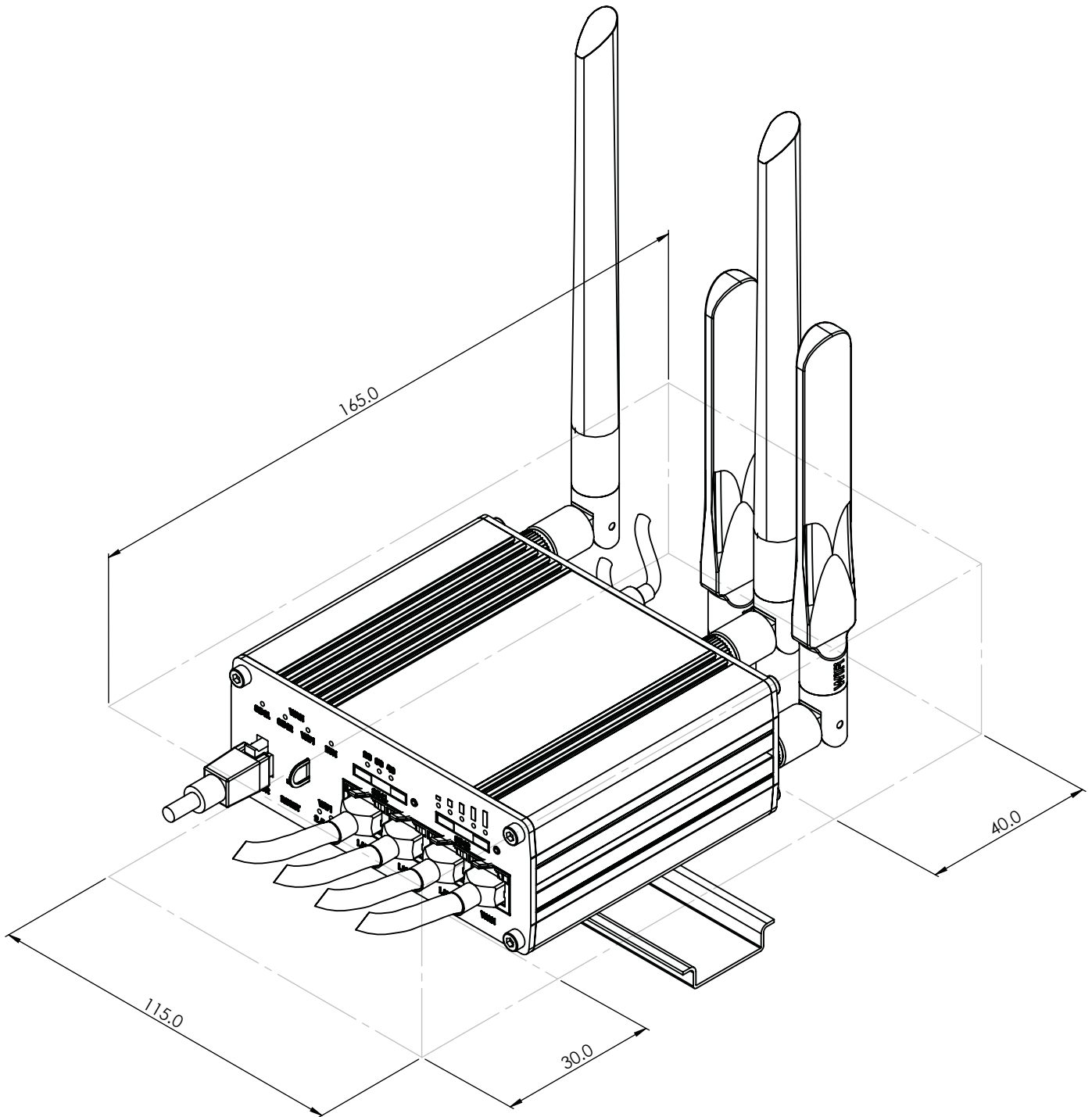
REAR VIEW

The figure below depicts the measurements of RUTX11 and its components as seen from the back panel side:



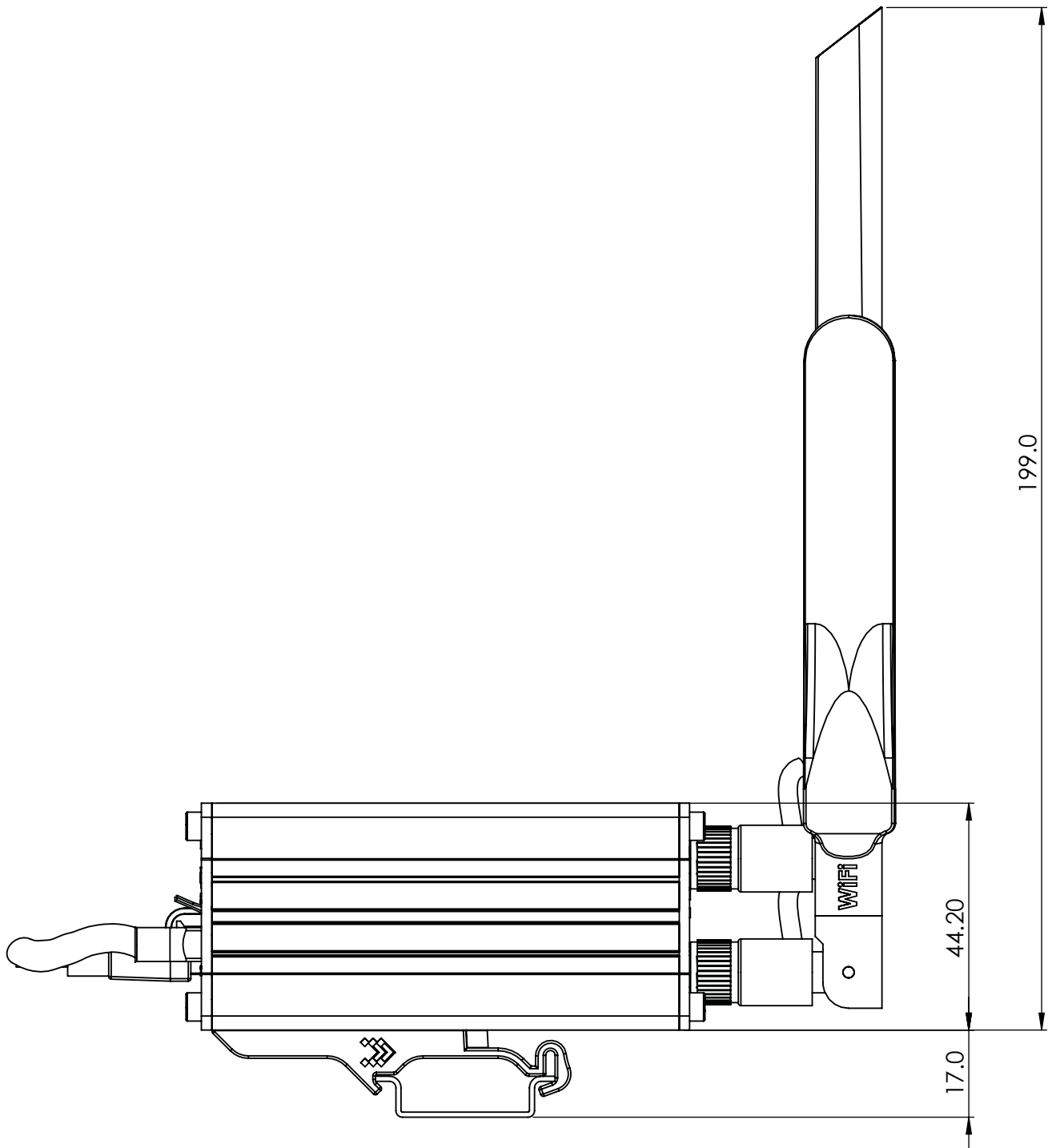
MOUNTING SPACE REQUIREMENTS

The figure below depicts an approximation of the device's dimensions when cables and antennas are attached:



DIN RAIL

The scheme below depicts protrusion measurements of an attached DIN Rail:

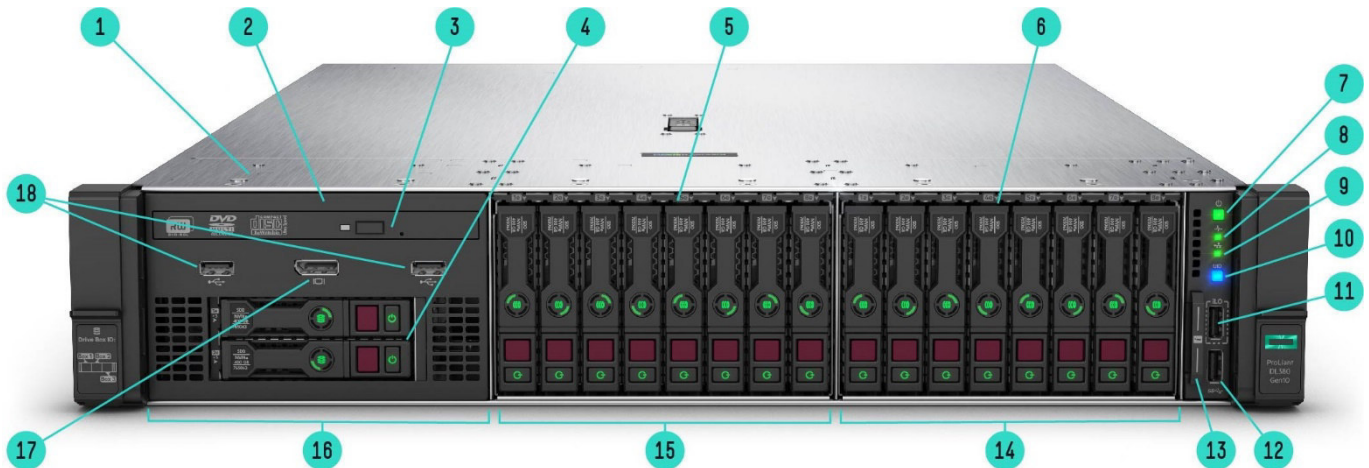


7. SERVER HPE

Overview

HPE ProLiant DL380 Gen10 Server

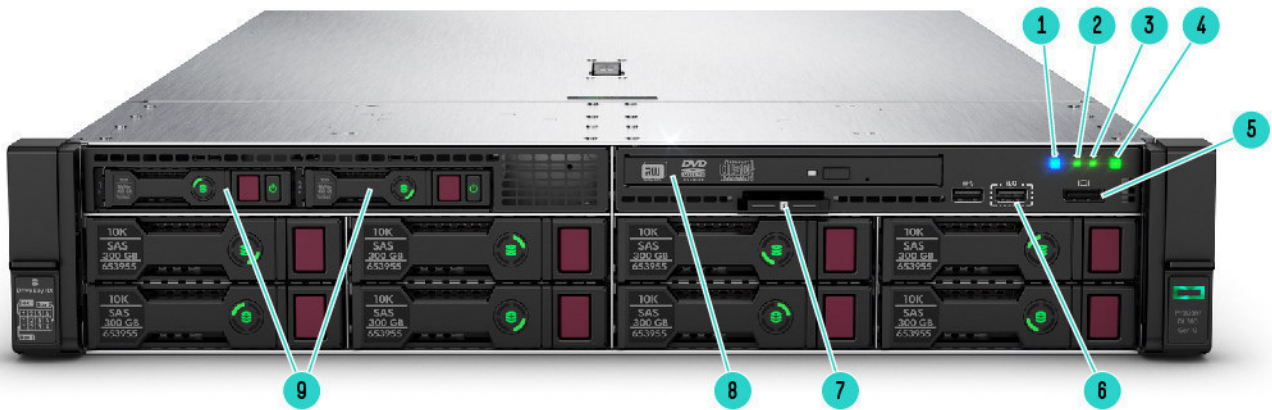
Adaptable for diverse workloads and environments, the secure 2P 2U HPE ProLiant DL380 Gen10 delivers world-class performance with the right balance of expandability and scalability. Designed for supreme versatility and resiliency while being backed by a comprehensive warranty make it ideal for multiple environments from Containers to Cloud to Big Data. Standardize on the industry's most trusted compute platform.



Front View – SFF chassis with optional Universal Media bay with optical and 2 NVMe plus 16 NVMe shown

- | | |
|---|---|
| 1. Quick removal access panel | 10. UID button |
| 2. Optional Universal Media bay. 2 USB 2.0 and Display port standard (8 SFF bay or 6 SFF+2NVMe or 8NVMe optional) | 11. iLO Front Service Port |
| 3. Optional Optical drive. Requires Universal Media bay | 12. USB 3.0 |
| 4. Optional 2 SFF HDD, requires optional Universal Media bay | 13. Serial label pull tag |
| 5. Drive Bay 2. NVMe shown (8 SFF, 6SFF+2NVMe or 8 NVMe PCIe SSD optional) | 14. Box 3 |
| 6. 8 SFF Drive Cage Bay | 15. Box 2 |
| 7. Power On/Standby button and system power LED button | 16. Box 1 |
| 8. Health LED | 17. Optional front display port (Via Universal Media Bay) |
| 9. NIC status | 18. Optional USB 2.0 (via Universal Media Bay) |

Overview

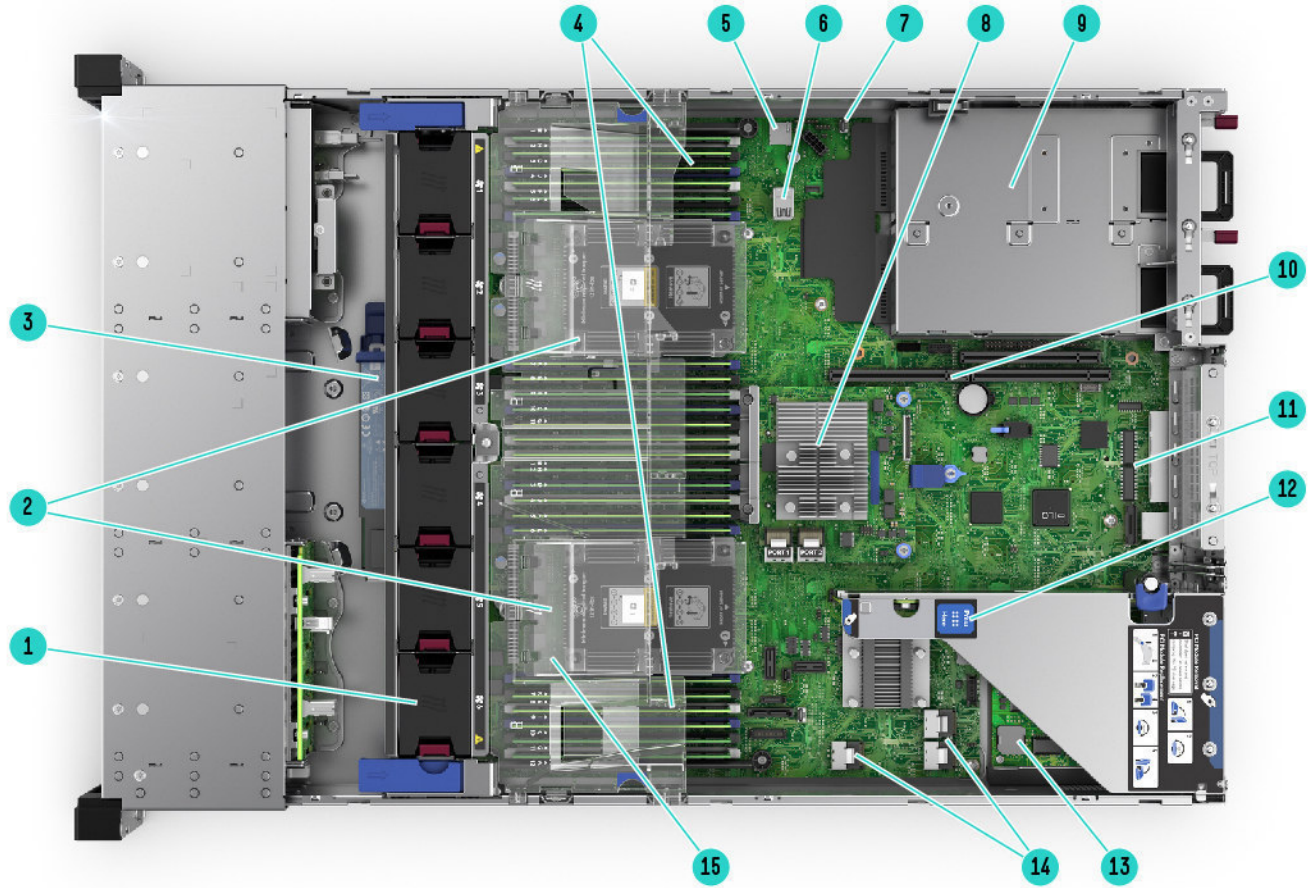


Front View – 8LFF chassis with Universal media bay and optional 2SFF and optical drive shown

- | | |
|--|---|
| 1. UID button | 6. iLO Front Service Port |
| 2. Health LED | 7. Serial label pull tag |
| 3. NIC status | 8. Optional optical drive shown (blank as standard) |
| 4. Power On/Standby button and system power LED button | 9. Optional 2 SFF Drive bay, 2 NVMe shown |
| 5. Front display port | |



Overview



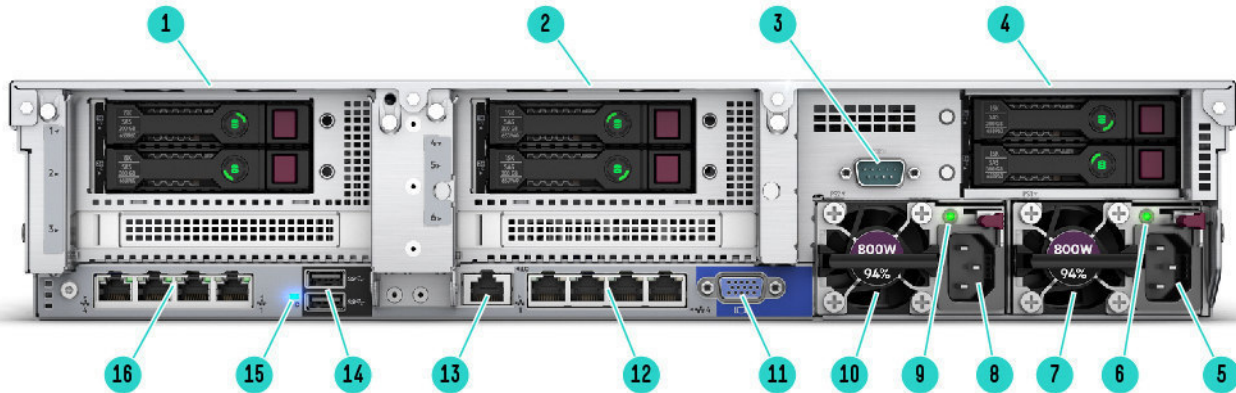
Internal View 8SFF chassis – with optional 2nd CPU, FlexLOM, Smart array shown

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Fan cage shown with 6 standard Hot-plug fans (High Performance temperature fans optional) 2. 2 Processors, heatsink showing 3. Optional HPE Smart Hybrid Capacitor or HPE Smart Storage Battery 4. DDR4 DIMM slots. Shown fully populated in 24 slots (12 per processor) 5. MicroSD card slot (Optional Dual Micro-SD option) 6. Internal USB 3.0 connector 7. Chassis intrusion detection connector 8. Optional HPE Smart Array (P408i-a shown) Clear air baffle | <ol style="list-style-type: none"> 9.. (Under) Hot Plug redundant HPE Flexible Slot Power supplies 10. Connection for second (optional) riser (Requires second CPU) 11. Embedded 4x1Gbe NIC (if equipped)¹ 12. Primary PCIe riser, standard (Optional double wide GPU riser) 13. FlexibleLOM slot (Optional, depending on model selected) 14. X4 SATA ports (1, 2 and 3) 15. Clear air baffle |
|---|---|

Notes: ¹ Networking Choice (NC) models do not include an embedded NIC and have a FlexibleLOM pre-selected for Build-to-Order (BTO) models; Configure-to-Order (CTO) models require a primary networking choice of FlexibleLOM or select networking adapters NIC adapters. See “FlexibleLOM Adapters” and/or “HPE Networking” sections for available options.



Overview



Rear View – With optional FlexLOM, Rear drives and Serial port shown.

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Primary Riser. PCI Slots (Slots 1-3 top to bottom, riser shipped standard, not shown), optional 2SFF rear drives 2. Secondary Riser. PCI Slots (Slots 4-6 top to bottom, not shown, requires second riser card, and second processor). Showing optional 2 SFF rear 3. Optional serial port 4. Tertiary Riser (Slots 7-8). Optional rear 2 SFF HDD (supported in 24 SFF or 12 LFF front end) 5. Power supply Power connection 6. Power supply Power LED 7. HPE Flexible Slot Power Supply bay 1 (800W shown) 8. Power supply Power connection | <ol style="list-style-type: none"> 9. Power supply Power LED 10. HPE Flexible Slot Power Supply bay 2 (800W shown) 11. VGA connector 12. Embedded 4 x 1GbE Network Adapter (if equipped)¹ 13. Dedicated iLO management port 14. USB connectors 3.0 (2) 15. Unit ID LED 16. FlexibleLOM ports (4 x 1GbE shown); optional, depending on model |
|--|--|

Notes: ¹Networking Choice (NC) models do not include an embedded NIC and have a FlexibleLOM pre-selected for Build-to-Order (BTO) models; Configure-to-Order (CTO) models require a primary networking choice of FlexibleLOM or select networking adapters NIC adapters. See “FlexibleLOM Adapters” and/or “HPE Networking” sections for available options.

What’s New

- New Read-Intensive SFF Value SAS SSD (960GB/1.92TB/3.84TB/7.68TB)
- New Mixed-Use SFF Value SAS SSD (960GB/1.92TB/3.84TB)
- New Mixed-Use LFF Value SAS SSD (1.92TB)
- New HPE 32GB 1Rx4 DDR4-2933 Registered Memory Kit (P38466-B21)
- New HPE Trusted Supply Chain/HPE ProLiant DL380T Gen10 option (P36394-B21)



8. UNITA' DI MEMORIA DI MASSA

DiskStation

DS3617xs



Synology DiskStation DS3617xs provides the reliable and ultra-high performance network attached storage solution for large-scale businesses that require an efficient way to centralize data protection, simplify data management, deploy virtualization solutions, and rapidly expand storage capacity with minimal time spent on setup and maintenance. Synology DS3617xs is backed with Synology's 5-year limited warranty.

Ultra-High Performance

Synology DS3617xs is a 12-bay desktop network attached storage solution with powerful network performance and easy management. The NAS integrates an **Intel® Xeon® D-1527 quad-core processor** and dual-channel **16 GB DDR4 ECC SO-DIMM (up to 48 GB)**, providing fast system response time and optimized multitasking operation. With an optional 10GbE network card installed, DS3617xs delivers outstanding network performance at over **2,358 MB/s sequential throughput reading** and **406,760 sequential IOPS reading** under a RAID 5 configuration with 10GbE Link Aggregation enabled¹.

Btrfs: Next Generation Storage Efficiency

DS3617xs integrates the **Btrfs** file system, bringing the most advanced storage technologies to meet the management needs of modern large-scale businesses:

- **Flexible Shared Folder / User Quota System** provides comprehensive quota control on all user accounts and shared folders.
- **Advanced snapshot technology** with customizable backup schedule allows up to **1,024** copies of shared folder backups and **65,000** copies of system-wise snapshots without occupying huge storage capacity and system resources.
- **File or folder level data restoration** brings huge convenience and saves time for users who wish to restore only a specific single file or folder.
- **Cloud Station with file versioning** reduces down to half of storage consumption when compared with ext4 file system.

Highlights

- Ultra-high performance of over 2,358 MB/s sequential throughput reading and 406,760 sequential IOPS reading¹
- Intel Xeon D-1527 quad-core CPU and 16 GB (up to 48 GB) DDR4 ECC SO-DIMM
- Scale up to 36 drives with 2 x Synology Expansion Unit DX1215
- PCIe 3.0 slot to support optional high performance network interface card
- Advanced Btrfs file system offering 65,000 system-wide snapshots and 1,024 snapshots per shared folder
- Complete virtualization solution for VMware®, Citrix®, Microsoft® Hyper-V® and OpenStack®
- Backed with SRS, Synology's next business day replacement service²

Virtualization Ready

DS3617xs provides seamless storage solutions for virtualization environments, including **VMware**, **Citrix**, **Hyper-V**, and **OpenStack**. With **VMware vSphere 6** and **VAAI** integration certified, DS3617xs helps offload specific storage operations and optimizes computation power for unparalleled performance and efficiency in VMware environments. As the centralized storage of a virtual environment, DS3617xs enables virtual machine migration, allowing movement from server to server whilst eliminating service downtime and disruption to users. **Windows Offloaded Data Transfer (ODX)** and **Synology Advanced LUN** support greatly improves the efficiency on massive data transfer and migration. With **OpenStack** support, DS3617xs can be used as a block-based storage component for servers complying with the **Cinder API**.

Comprehensive Business Applications

Powered by the innovative Synology **DiskStation Manager (DSM)**, DS3617xs comes fully-equipped with applications and features designed specifically for large-scale business:

- **Windows® AD and LDAP** support allows easy integration with existing business directory services without recreating user accounts.
- **Windows ACL** support provides fine-grained access control and efficient privilege settings, allowing DS3617xs to fit seamlessly into current infrastructure.
- **Application privileges** controls access to applications and packages based on each individual account, user group, or IP address.

Robust Scalability

Management of the storage space on DS3617xs is simple and flexible. **Multiple Volumes on RAID** allows you to create more than one volume on a RAID structure, providing a flexible and efficient way to manage your storage across all available hard drives. When the need for more space arises, the volume can be easily expanded without any service disruption. DS3617xs provides the ability to seamlessly expand a single volume up to **108 TB** (default) / **200 TB** (with at least 32 GB RAM installed) on the fly. When the storage capacity of DS3617xs nears its limit, expansion is easily accomplished with up to two **Synology Expansion Unit DX1215** to support up to 36 SATA drives.

Reliability, Availability & Disaster Recovery

System reliability is of paramount importance to businesses which depend upon their commercial servers every day. DS3617xs responds to these concerns with wide-ranging availability and redundancy features:

- **Synology High Availability** ensures seamless transition between clustered servers in the event of server failure with minimal impact on applications.
- **Snapshot Replication** provides schedulable, near-instantaneous data protection, ensuring business documents in shared folders, virtual machines in iSCSI LUNs, or dockerized application data remain safe and available in the event of a disaster.
- **Redundant system fans** and **network ports** with failover support ensure continual service uptime.
- High reliability system design including **fan-less CPU heat-sink** and passive cooling technology prevents single points of failure.
- **DDR4 ECC SO-DIMM** reduces power consumption and has error detection and correction capabilities during data transmission.

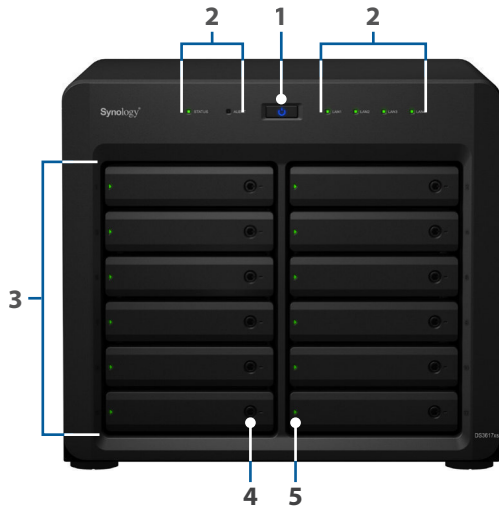


Reliability, Availability & Disaster Recovery

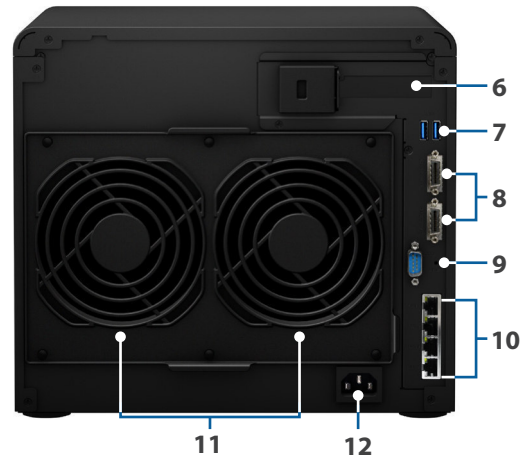
High Availability Manager ensures seamless transition between clustered servers in the event of server failure with minimal impact on businesses.

Hardware Overview

Front



Rear



1	Power button and indicator	2	LED indicator	3	Drive tray	4	Drive tray lock
5	Drive status indicator	6	PCIe expansion slot	7	USB 3.0 port	8	Expansion port
9	RESET button	10	1GbE RJ-45 port	11	System fan	12	Power port

Technical Specifications

Hardware

CPU	Intel Xeon D-1527 quad-core 2.2GHz, burst up to 2.7GHz
Hardware encryption engine	Yes (AES-NI)
Memory	16 GB DDR4-2133 ECC SO-DIMM (expandable up to 48 GB)
Compatible drive type	12 x 3.5" or 2.5" SATA SSD / HDD (drives not included)
External ports	<ul style="list-style-type: none"> • 2 x USB 3.0 port • 2 x expansion port
Size (HxWxD)	270 x 300 x 340 mm
Weight	9.8 kg
LAN	4 x 1GbE (RJ45)
Wake on LAN/WAN	Yes
PCIe 3.0 slot	One x8 slot (at 8-lane)
Scheduled power on / off	Yes
System fan	2 (120 x 120 x 25 mm)
AC input power voltage	100V to 240V AC
Power frequency	50 / 60Hz, single phase
Operating temperature	5°C to 40°C (40°F to 104°F)
Storage temperature	-20°C to 60°C (-5°F to 140°F)
Relative humidity	5% to 95% RH
Maximum operating altitude	2,000 m (6,500 ft)

General

Networking protocol	CIFS, AFP, NFS, FTP, WebDAV, CalDAV, iSCSI, Telnet, SSH, SNMP, VPN (PPTP, OpenVPN™, L2TP)
File system	<ul style="list-style-type: none">Internal: Btrfs, ext4External: Btrfs, ext4, ext3, FAT, NTFS, HFS+, exFAT³
Storage management	<ul style="list-style-type: none">Maximum single volume size: 108TB / 200TB (at least 32 GB RAM required, for RAID 5 or RAID 6 groups only)Maximum internal volumes: 1,024Maximum iSCSI target: 64Maximum iSCSI LUN: 512iSCSI LUN clone / snapshot support
Supported RAID type	Basic, JBOD, RAID 0, RAID 1, RAID 5, RAID 6, RAID 10
File sharing capability	<ul style="list-style-type: none">Maximum local user account: 16,000Maximum local group: 512Maximum shared folder: 512Maximum concurrent CIFS / AFP / FTP connection: 2,048
Privilege	Windows Access Control List (ACL)
Virtualization	VMware vSphere® 6, Microsoft Hyper-V®, Citrix®, OpenStack®
Directory service	Windows® AD integration: Domain users login via Samba (CIFS) / AFP / FTP / File Station, LDAP integration
Security	FTP over SSL / TLS, IP auto-block, firewall, encrypted network backup over Rsync, HTTPS connection
Utilities	Synology Web Assistant, Cloud Station Drive, Cloud Station Backup, Cloud Sync Decryption Tool, Evidence Integrity Authenticator, Photo Station Uploader, Snapshot Manager for VMware, Snapshot Manager for Windows, NFS Plug-in for VMware VAAI
Supported clients	Windows 7 onwards, Mac OS X® 10.10 onwards
Supported browsers	Chrome®, Firefox®, Internet Explorer® 9 onwards, Safari® 8 onwards; Safari (iOS 7 onwards), Chrome (Android™ 4.0 onwards) on tablets
Language	English, Deutsch, Français, Italiano, Español, Dansk, Norsk, Svensk, Nederlands, Русский, Polski, Magyar, Português do Brasil, Português Europeu, Türkçe, Český, 日本語, 한국어, 繁體中文, 简体中文

Applications

File Station	Virtual drive, remote folder, Windows ACL editor, compressing / extracting archived files, bandwidth control for specific users or groups, creating sharing links, transfer logs
Backup solutions	Network backup; local backup; desktop backup; configuration backup; OS X Time Machine; backup data to public cloud; shared folder sync - maximum task number: 16
FTP Server	Bandwidth control for TCP connections, custom FTP passive port range, anonymous FTP, FTP SSL / TLS and SFTP protocol, boot over the network with TFTP and PXE support, transfer logs
High Availability Manager	Combines two DS3617xs into one high-availability cluster
Security Advisor	Malware detection / removal; user account / password, network, system-related security scan
iOS / Android™ applications	DS cloud, DS file, DS finder, DS cam, DS note, MailPlus
Windows Phone® applications	DS file, DS finder

Add-on Packages

Antivirus Essential	Full system scan, scheduled scan, white list customization, virus definition auto update
Cloud Station Server	Maximum concurrent file transfers: 2,000, retain historical and deleted file versions
Cloud Sync	One or two-way synchronization with public cloud storage providers including Amazon Cloud Drive, Amazon S3-compatible storage, Baiduyun, Box, Dropbox, Google Cloud Storage, Google Drive, hubiC, Megafon Disk, Microsoft OneDrive, OpenStack Swift-compatible storage, WebDAV servers, Yandex Disk
Log Center	SSL connection, log rotation: 6 months, 1 year, 2 years, 3 years, email notification
MailPlus	Intuitive webmail interface for MailPlus Server; customizable mail labels, filters, and user interface
MailPlus Server	Secure, reliable, and private mail solution with High-availability, load balancing, security and filtering design (Includes 5 free email account licenses; additional accounts require the purchasing of additional licenses)
Note Station	Rich-text note organization and versioning, encryption, sharing, media embedding and attachments
Storage Analyzer	Volume and quota usage, total size of files, volume usage and trends based on past usage, size of shared folders, largest / most / least frequently modified files
Surveillance Station	Maximum IP camera: 75 (total of 2,250 FPS at 720p, H.264) (Includes two free camera licenses; additional cameras require the purchasing of additional licenses)
VPN Server	Maximum connections: 30; supported VPN protocol: PPTP, OpenVPN™, L2TP
Web Station	Virtual host (up to 30 websites), PHP / MariaDB®, 3rd-party applications support
Other packages	Photo Station, Audio Station, iTunes® Server, additional 3rd-party packages are available on Package Center

Environment and Packaging

Environment safety	RoHS compliant
Package content	<ul style="list-style-type: none">• DS3617xs main unit• Quick Installation Guide• Accessory pack• AC power cord
Optional accessories	<ul style="list-style-type: none">• 16 GB DDR4-2133 ECC SO-DIMM (RAMEC2133DDR4SO-16G)• Synology E10G17-F2 / E10G15-F1 10Gbps Ethernet adapters• Synology Expansion Unit DX1215• Synology VS360HD• Surveillance Device License Pack
Warranty	5 years

*Model specifications are subject to change without notice. Please refer to www.synology.com for the latest information.

1. Performance figures may vary depending on environment, usage, and configuration.
2. Available in selected countries only. For detailed terms and conditions, please visit the Synology Replacement Service (SRS) website at <https://srs.synology.com>.
3. exFAT Access is purchased separately in Package Center.

SYNOLOGY INC.

Synology is dedicated to taking full advantage of the latest technologies to bring businesses and home users reliable and affordable ways to centralize data storage, simplify data backup, share and sync files across different platforms, and access data on-the-go. Synology aims to deliver products with forward-thinking features and the best in class customer services.

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DS3617xs-2016-ENU-REV001

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9. WORKSTATION

Overview

HP Z440 Workstation



1. Integrated Front Handle
2. Dedicated 9.5mm Optical Drive Bay
3. Power Button
4. HDD Activity LED
5. Front I/O: 4 USB 3.0 with Charging Port (topmost port), 1 Microphone, 1 Headset

Overview



- | | | | |
|-----|--|-----|---|
| 6. | 2 External 5.25" Bays | 12. | Rear I/O: Rear Power Button, 4 USB 3.0, 2 USB 2.0, PS/2 Ports, 1 RJ-45 to Integrated GbE, 1 Audio Line In, 1 Audio Line Out |
| 7. | 2 Internal 3.5" Bays | 13. | 8 DIMM Slots for DDR4 ECC Registered Memory |
| 8. | Fan and Front Card Guide Kit (optional) | 14. | Intel Xeon Processors: E5-1600 v3/v4 family (4C/6C/8C), E5-2600 v3 family (8C) |
| 9. | 6 6Gb/s SATA Ports | 15. | 2 PCIe x16 Gen 3 Slots |
| 10. | Rear Grip | 16. | 1 PCIe x8 Gen 3, 1 PCIe x1 Gen 2, 1 PCIe x4 Gen 2, 1 PCI Slot |
| 11. | 525W, 85% Efficient Power Supply or 700W, 90% Efficient Power Supply | | |

Overview

Overview

Form Factor Operating Systems

Minitower

Preinstalled:

- Windows 10 Pro 64 for Workstations
- Windows 10 Pro 64 downgrade to Windows 7 Professional 64
- Windows 10 Home 64 High-end
- Windows 8.1 Pro 64-bit
- HP Installer Kit for Linux (includes drivers for 64-bit OS versions of RHEL 6.6, RHEL 7, SUSE Linux Enterprise Desktop 11, Ubuntu 14.04)
- Red Hat® Enterprise Linux Desktop (Paper license with 1 year support; no preinstalled OS)

Supported:

- Windows 8/8.1 Enterprise 64-bit
- Windows 7 Enterprise 64-bit
- Red Hat Enterprise Linux Desktop 6, 7
- SUSE Linux Enterprise Desktop 11 SP3, 12

Notes: For detailed OS/hardware support information for Linux, see:
http://www.hp.com/support/linux_hardware_matrix

Available Processors

Name	Cores	Clock Speed (GHz)	Cache (MB)	Memory Speed (MT/s)	Hyper-Threading	Featuring Intel® vPro™ Technology	Intel® Turbo Boost Technology ¹	TDP (W)
Intel® Xeon® E5-1680 v4 processor	8	3.4	20	2400	YES	YES	2, 4, 6	140
Intel® Xeon® E5-1660 v4 processor	8	3.2	20	2400	YES	YES	2, 4, 6	140
Intel® Xeon® E5-1650 v4 processor	6	3.6	15	2400	YES	YES	2, 2, 4	140
Intel® Xeon® E5-1630 v4 processor	4	3.7	10	2400	YES	YES	1, 1, 3	140
Intel® Xeon® E5-1620 v4 processor	4	3.5	10	2400	YES	YES	1, 3	140
Intel® Xeon® E5-1607 v4 processor	4	3.1	10	2133	NO	YES	N/A	140
Intel® Xeon® E5-1603 v4 processor	4	2.8	10	2133	NO	YES	N/A	140
Intel Xeon E5-1680 v3 processor	8	3.2	20	2133	YES	YES	3, 6	140
Intel Xeon E5-1660 v3 processor	8	3.0	20	2133	YES	YES	3, 5	140
Intel Xeon E5-2630 v3 processor	8	2.4	20	1866	YES	YES	2, 8	85
Intel Xeon E5-1650 v3 processor	6	3.5	15	2133	YES	YES	1, 3	140
Intel Xeon E5-1630 v3 processor	4	3.7	10	2133	YES	YES	1, 1	140
Intel Xeon E5-1620 v3 processor	4	3.5	10	2133	YES	YES	1, 1	140
Intel Xeon E5-1607 v3 processor	4	3.1	10	1866	NO	YES	N/A	140

Overview

Intel Xeon E5-1603 v3 processor	4	2.8	10	1866	NO	YES	N/A	140
Intel Xeon E5-2637 v4 processor	4	3.5	15	2400	YES	YES	1, 2	135
Intel Xeon E5-2623 v4 processor	4	2.6	10	2133	YES	YES	2, 6	85
<p>¹The specifications shown in this column represent the following: (all core maximum turbo steps, one core maximum turbo steps). Turbo boost stepping occurs in 100MHz increments. Processors that do not have turbo functionality are denoted as N/A.</p> <p>NOTE: Although the Intel Xeon E5-2600 processor family supports dual processors, the HP Z440 Workstation does not support dual processor configurations.</p>								

Available Processors Disclaimers

Intel's numbering is not a measurement of higher performance. Processor numbers differentiate features within each processor family, not across different processor families. See: http://www.intel.com/products/processor_number/ for details.

64-bit computing on Intel® 64 architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel 64 architecture. Processor will not operate (including 32-bit operation) without an Intel 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. See: <http://www.intel.com/info/em64t> for more information.

Quad-Core, Six-Core, and Eight-Core technologies are designed to improve performance of multithreaded software products and hardware-aware multitasking operating systems and may require appropriate operating system software for full benefits. Check with software provider to determine suitability. Not all customers or software applications will necessarily benefit from use of these technologies.

Color Jack Black

Convertibility No

Expansion Slots (see system board section for more details) **Slot 1 (top):**
PCI Express Gen2 x1 with open-ended connector*
Full-height, Half-length

Slot 2:
PCI Express Gen3 x16
Full-height, Full-length (with extender)

Slot 3:
PCI Express Gen2 x4 with open-ended connector*
Full-height, Full-length (with extender)

Slot 4:
PCI Express Gen3 x8 with open-ended connector*
Full-height, Full-length (with extender)

Slot 5:
PCI Express Gen3 x16
Full-height, Full-length (with extender)

Overview

Slot 6:
PCI 32bit/33MHz
Full-height, Full-length (with extender)

* Open-ended connector allows a greater bandwidth (e.g. x16) card to be installed physically into a lower bandwidth connector/slot.

Expansion Bays (see storage section for more details) 2 internal 3.5" bays (with acoustic dampening rail assemblies pre-installed)
2 external 5.25" bays

- 3rd and 4th 3.5" HDD each occupy one external bay
- 3rd and 4th 2.5" HDD/SSD occupy a single external bay within a 2:1 carrier)

1 dedicated 9.5mm slim optical disk drive bay

Front I/O 4 USB 3.0, 1 Headset, 1 Microphone

Internal I/O 2 USB 2.0 ports available with a single 2x5 header. The 2x5 header can be converted to a standard (Type-A) USB connector through the use one HP Internal USB Port Kit (EM165AA). This port kit uses one half of the 2x5 header. The 2x5 header also supports up to one 15-in-1 Media Card Reader.
1 USB 3.0 port available by a 2x10 header.

Rear I/O 4 USB 3.0, 2 USB 2.0, 2 PS/2, 1 RJ-45 (NIC), 1 Audio Line-In, 1 Audio Line-Out.
Serial supported with optional connector on PCI bracket cabled to system board connector.

Interfaces Supported 15-in-1 Media Card Reader (optional)
6-channel SATA interface (6 @ 6.0 Gb/s). 6 channels are eSATA configurable for use with eSATA CTO/AMO Kit (No hot plug / hot swap supported).
USB 2.0, USB 3.0

On-board RAID Support RAID 0, 1, 10 (Factory integrated)
RAID 5 (NOT Factory integrated)

Factory integrated RAID available for SATA/SAS drives (RAID 0, 0 Data, 1, and 10)

Chassis Dimensions (H x W) Footprint Dimensions: x D)

H: 17.0" [431.8mm]
W: 6.65" [168.91mm]
D: 17.5" [444.7mm] (measured to the rear of service panel)

Maximum Dimensions:

H: 17.0" [431.8mm]
W: 6.65" [168.91mm]
D: 17.9" [455.7mm] (measured to the rear padlock loop)

Rack Dimensions 4U

Weight Exact weights depend upon configuration.
Minimum: 11.0 kg (24.3 lbs.)
Standard: 13.5 kg (29.8 lbs.)
Maximum: 17.5 kg (38.5 lbs.)

Temperature Operating: 5° to 35°C (40° to 95°F)
Non-operating: -40° to 60°C (-40° to 140°F)

Overview

Humidity	Operating: 8% to 85% relative humidity, non-condensing Non-operating: 8% to 90% relative humidity, non-condensing
Maximum Altitude (non-pressurized)	Operating: 3,048m (10,000ft) Non-operating: 9,144m (30,000ft)
Power Supply	ENTRY 525 watts wide-ranging, active Power Factor Correction, 85% Efficient, with no 6-pin graphics power cable The Z440 525W power supply efficiency report can be found at this link: http://www.plugloadsolutions.com/psu_reports/HEWLETT%20PACKARD_753084-001_525W_ECOS%203914_Report.pdf HIGH-END 700 watts wide-ranging, active Power Factor Correction, 90% Efficient, with two graphics power cables 700w PSU will support up to 225w of graphics The Z440 700W power supply efficiency report can be found at this link: http://www.plugloadsolutions.com/psu_reports/HEWLETT%20PACKARD_719795-001_700W_ECOS%203915_Report.pdf
Workstation ISV Certifications	See the latest list of certifications at http://www.hp.com/united-states/campaigns/workstations/partnerships.html

10.SOFTWARE VIDEO

CAYUGA. SOFTWARE FOR VIDEO MANAGEMENT.



THE HEART

Cayuga is an enterprise-class video management system with advanced roll-out capabilities. It is designed for efficient implementation and management of large multi-site installations and provides a wide spectrum of both open interfaces and deep integrations. This allows it to be embedded seamlessly into any IT and security ecosystem.

Thanks to its modular approach, Cayuga can adapt to changing project specific requirements, making it a flexible and future-proof solution even beyond physical security.

UP FOR EVERY CHALLENGE

Commissioning

- Cayuga systems can be preconfigured offline as part of an industrialized roll-out process.
- All modules and components can be installed via a central installation routine.
- Wizards help to easily add new users, devices and alarm scenarios.

Privacy

- Cayuga enables the GDPR-compliant use of video systems, e.g. by masking or blurring image areas – thus protecting the privacy rights of customers and employees.
- Cayuga is certified for use in the banking sector.

Management

- Individual organizational structures can be mapped through detailed rights and role management.
- The Cayuga AutoUpdater keeps all system components up to date at all times.



Usability

- Individually configurable alarm scenarios enable rapid reaction in the event of an occurrence.
- The intuitive video player makes it easy to browse through archive recordings efficiently.
- Different client types (Native, Web and Mobile Client) offer flexible access to Cayuga-based video systems – even when on the move.

Connectivity

- Cayuga supports almost 5,000 cameras and devices from over 80 leading manufacturers.
- Powerful, open interfaces enable the simple, bidirectional integration of third-party systems (PSIM, access, burglary, video analysis).

Reliability

- Thanks to the integrated redundancy and failover concept, Cayuga systems can be optimally protected against system failures.

CAYUGA. LIMITLESS NETWORKING.

Made-to-measure solutions can only be implemented with the greatest possible level of interconnection. Cayuga permits existing and new systems to be linked in individually due to its high degree of openness and interoperability. Cayuga meets almost every possible requirement: a large number of hardware and software components can be integrated via interfaces and protocols – this makes Cayuga the ideal solution for large and complex projects.

The outlay is low for new installations because Cayuga can be quickly and easily integrated into your existing system environment. Connectivity also means that old systems can be retained and can continue to be used. All this ensures that Cayuga delivers cost-effective and sustainable solutions.

MULTIPLE INTERFACES

Via a set of powerful interfaces, Cayuga can interact with a large number of third-party systems in your software ecosystem:

- Software Development Kit (SDK)
- Gateway Services (SGS)
- Analytics Interface (SAI)
- Event Interface (SEI)
- OPC UA Server

SYSTEM INTEGRATION

- Industry-specific systems such as cash register and ERP systems are integrated quickly and easily via a business application interface (driver-based concept).
- Security systems such as building management and PSIM systems, access control systems, burglary and fire alarm systems as well as security control centers and control center solutions can be integrated via interfaces.
- Further third-party systems can be integrated via network I/Os and TCP triggers.
- VoIP-enabled devices are connected via integration of SIP servers.
- OPC UA, the leading cross-system standard in automation and safety technology, is supported.
- Active Directory Support/Single Sign-on for central administration and rights assignment for all users and convenient system access.



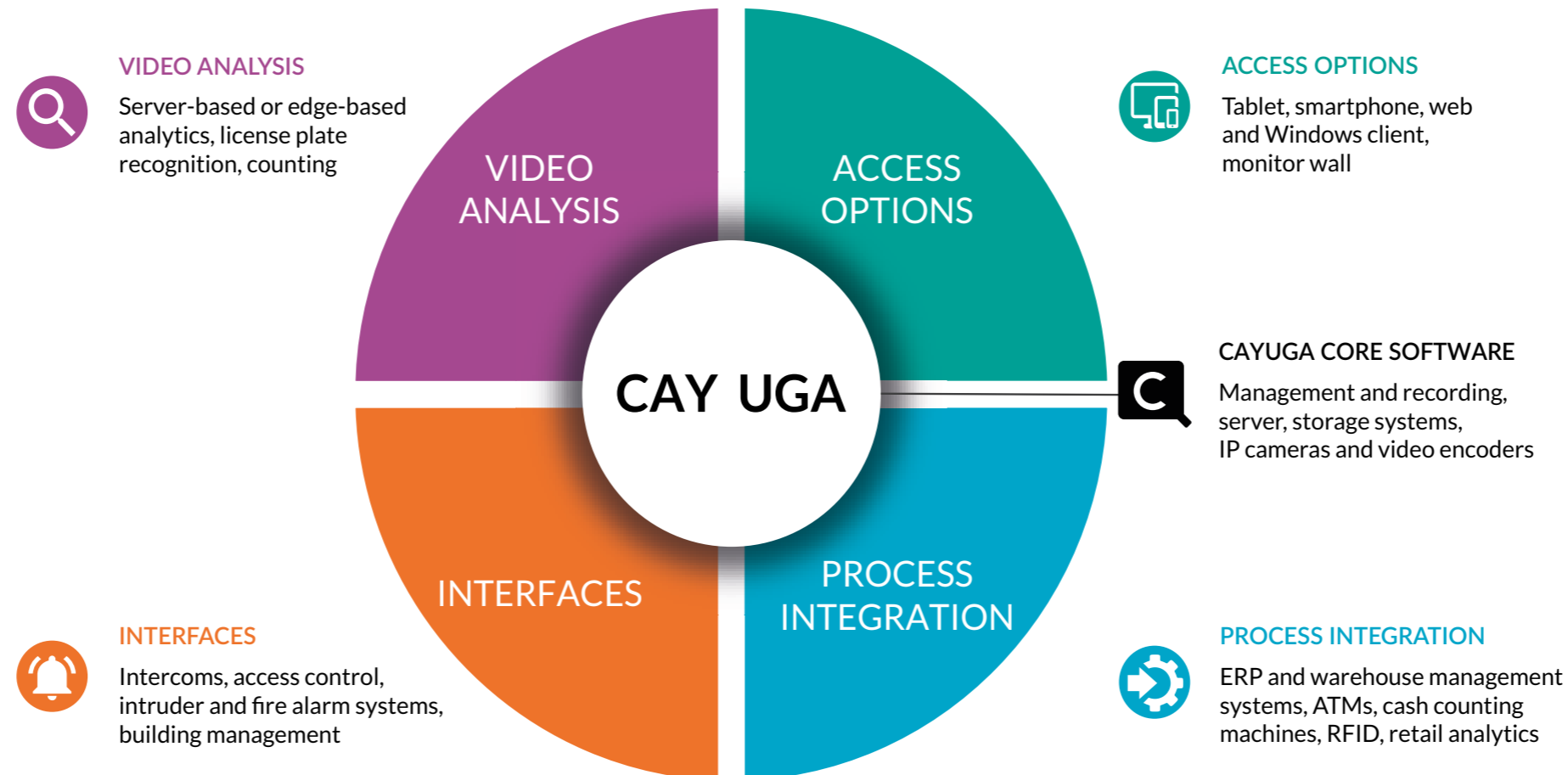
Transparency for your business: BVI
As an extension to Cayuga, BVI combines video and business process data – for optimized operations and faster response.

HARDWARE INTEGRATION

- Cayuga is manufacturer-independent – it supports a large number of camera models from various manufacturers.
- In addition, many other camera models can be integrated via the ONVIF standard.
- Analog cameras and systems are integrated via video servers.
- Smart Drivers allow for easy integration of new camera models.

SOFTWARE INTEGRATION

- Video analytics applications (server- or camera-based) from other providers can be flexibly integrated via the Analytics Interface (SAI).



CAYUGA VIDEO ANALYTICS. MAKE THE RIGHT DECISION.

The highly specialized evaluation and analysis tools in Cayuga qualify the image data received and filter out all relevant information – either directly or in combination with existing business data. A custom compiled set of analysis tools is used to issue specific information that is important to you. Intelligent analysis routines allow you to record and evaluate results more quickly – and make the right decisions as a result.

ANALYSIS FUNCTIONS

- **Cayuga Analytics Server 3D:** Powerful integrated video analysis module for perimeter protection
- Server-based **motion detection** – can be activated quickly and easily via Record on Motion function; additional support for camera-based motion detection
- **ISearch:** Ex-post search function in archive recordings for faster tracking of events
- **Counting:** Object and people counting generates a continuous flow of information to support decisions

ANALYTICS INTERFACE

The range of functions in Cayuga also allows you to use the Analytics Interface (SAI) to integrate camera and server based analysis functions from other manufacturers. This means: With Cayuga you can utilize all the latest analysis functions for your company – for optimum video management. Solutions from these manufacturers are currently supported:

- **Axis:** Perimeter Defender (camera)
- **Bosch:** IVA (camera)
- **Digital Barriers:** SafeZone (server/camera)
- **Forlan:** arealvis, gatevis, objectvis (server)
- **Siemens** (server)
- **TechnoAware** (server)

LICENSE PLATE RECOGNITION

By using automated license plate recognition, processes can be simplified and costs saved. Qognify offers flexible solutions that meet your specific requirements and objectives.

The **Cayuga LPR Module** (License Plate Recognition) can automatically read license plate formats from many countries, even formats with Cyrillic and Arabic characters. It can cover multiple lanes at the same time.

Via the **Analytics Interface**, license plate recognition tools from third-party manufacturers can also be integrated. Currently, solutions from the following manufacturers are supported:

- **Axis** License Plate Verifier (camera)
- **NumberOK** Lite (server)
- **Tattile** (camera)



Cayuga optimises the tense parking situation in Paris

A distributed installation of Cayuga with LPR helps a leading car park operator make car parks safer and processes more efficient.

Possible applications: Traffic monitoring, access control, barrier control, allocation of parking spaces and loading stations, etc. License plate recognition is also suitable for marketing purposes, e.g. to determine the geographical catchment area of customers.



LPR

License plates are read out with complex algorithms. The acquired data can be automatically provided for further applications.

CAYUGA ANALYTICS SERVER 3D



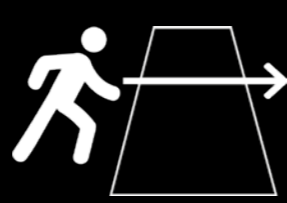
INTRUSION

An alarm will be triggered when one or several objects enter a zone.



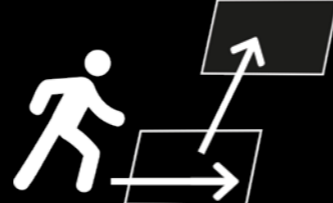
LOITERING

If an object remains in one zone longer than for a defined period, an alarm will be triggered.



ZONE CROSSING

An alarm will be triggered when an object crosses two zones in a certain order or in the wrong direction.



CONDITIONAL

The alarm is only triggered if several zones have been crossed in a certain order.

For Cayuga, Qognify offers a powerful server-based video analytics module. The video analysis automatically directs the users' attention to risks and dangers on the basis of individually definable rules, thus enabling targeted alarm processing. It can reliably distinguish between different object types (persons, vehicles).

Possible applications: perimeter security, monitoring of security-relevant areas such as railway stations, airports, prisons, power plants and companies, theft protection in retail and much more.

A special 2D analysis mode for securing facades prevents people from entering buildings via windows or skylights and reliably detects the abseiling of people or objects (e.g. for correctional facilities).

Cayuga combines maximum functionality and maximum user-friendliness. The user interface impresses with an exceptionally clear layout, which offers intuitive user guidance. Cayuga exploits the benefits of modern operating concepts and combines them with ingenious functionality and optimum ergonomics – right down to a glare-free night mode.

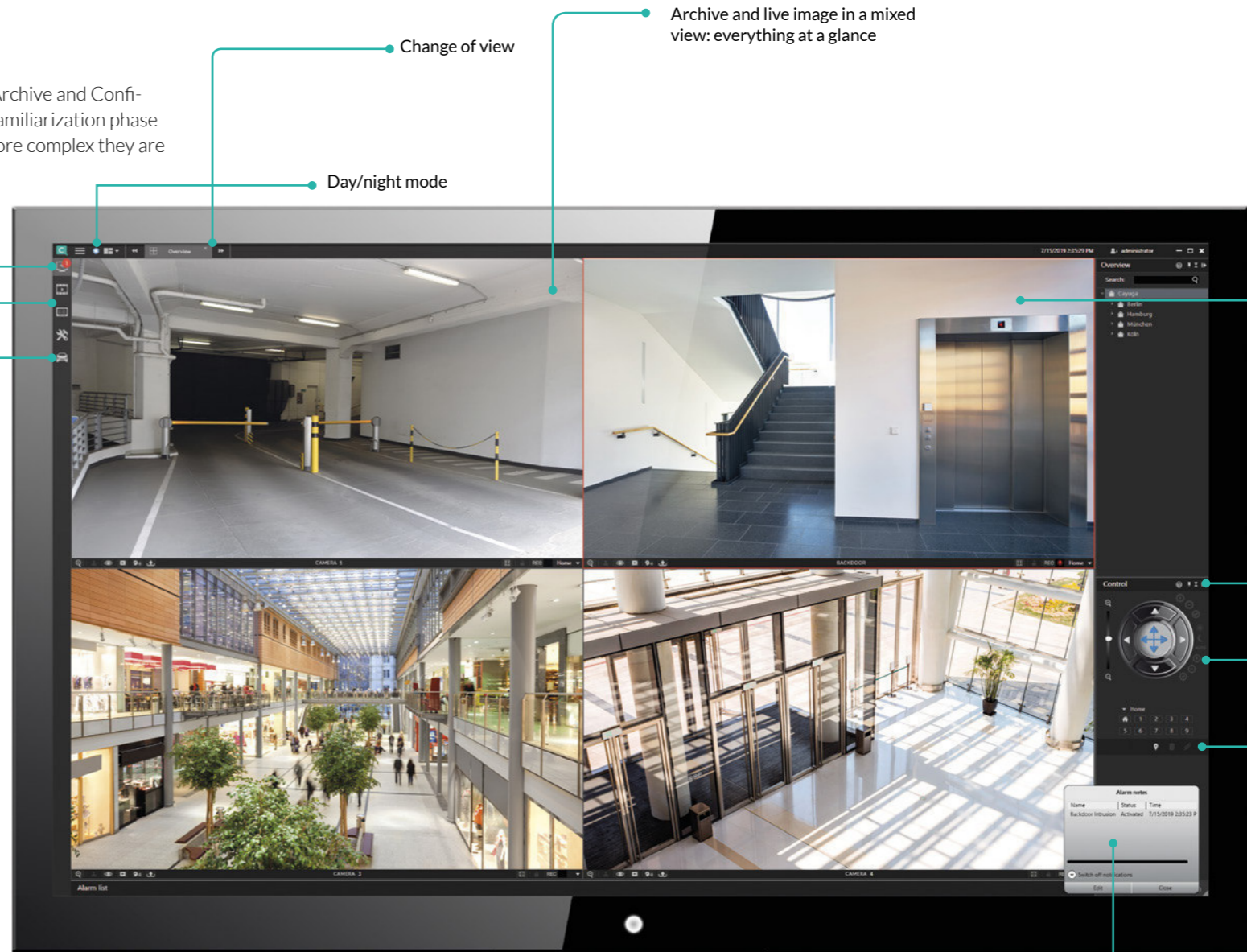
This gives you a clear overview at any time so that you can respond quickly – in Live, Archive and Configuration mode. Cayuga is easy, fast and effective in operation, even with just a short familiarization phase – an advantage that becomes all the more important for company installations, the more complex they are and the more facets they include.

TIME-SAVING FUNCTIONALITIES

- Multi camera configuration for rapid setup and modification of camera functions
- Camera selection via lasso directly in the layout plan – to understand a situation as fast as possible
- Placing views by „drag & drop“ onto video walls

EFFICIENT ALARM MANAGEMENT

- Alarm counter and toast messages – to have all current alarms always on screen even in archive mode
- Color definition – classifies alarms to always stay on top of things
- Pre-defined 2 x 2 view with Pre-Alarm-/Live/Archiv/Trigger view – to have an improved understanding of events



- Alarm counter
- Practical tabs for switching
- Icons for the direct selection of extension modules

Change of view

Day/night mode

Archive and live image in a mixed view: everything at a glance

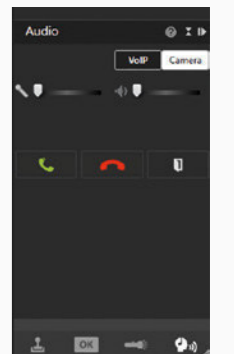
Clear and structured UI guiding the user

Hideable controls

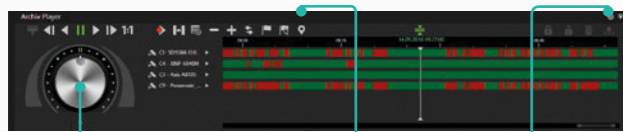
PTZ control for effortless navigation

Toast messages

All audio functions (e.g. voice over IP) in one location



ARCHIVE PLAYER



Shuttle wheel

Bookmarking and export with selection pins

Export overview

- Shuttle wheel for rapid navigation in archive mode
- Bookmarking makes it easier to find events in the archive
- Easy export of sequences in one step via selection pins (export procedures in the background are displayed via counters and progress bar)

CAYUGA. EVERYTHING UNDER CONTROL.

In a mobile world with global business relationships, video management is required to work properly regardless of location. Cayuga offers practical and state-of-the-art access options and transmission solutions that allow you to keep an eye on your company from anywhere in the world. It goes without saying that your data is secure at all times.

FLEXIBLE ACCESS OPTIONS

WEB & MOBILE CLIENT

For fast and flexible system access. Additional video plug-ins are not required as all image streams are converted into a uniform format. Cayuga Web & Mobile Client are available for various mobile devices, e.g. tablets and smartphones (iOS and Android).

CAYUGA ANYWHERE

With the Cayuga Anywhere package, you can start Cayuga on any computer without prior software installation. Depending on user rights, Anywhere offers all functions of the installed version, such as live and archive view, administration and system configuration.

DISPLAY AGENT/VIRTUAL MATRIX

For the integration of large screen systems and video walls from various manufacturers. The video walls can be controlled via the standard Cayuga client.

PORTABLE VIEWER

Light-weight version of the Cayuga client for playback of the encrypted video data exports, usable without installation, e.g. directly from a drive medium.

MULTI INSTALLATION LOGIN

Allows a user (e.g. in an alarm center) to connect to multiple installations simultaneously and access all connected cameras.

PRIVACY PROTECTION

Cayuga offers various mechanisms to protect the privacy of employees, customers and visitors. This means that sensitive areas of the image or moving objects can be anonymized.

Cayuga is also well protected on the system level: Data between the server and client is sent encrypted – one reason why Cayuga has been certified for various use cases, e.g. within the financial sector.

OPTIMIZED IMAGE DISPLAY

TRANSCODING

For optimum image transmission with narrow-band network connections: By transcoding video streams, images can be transmitted live and in the archive from the server to the terminal device with optimized bandwidth.

SMOOTH STREAMING

Do you value smooth live playback of your video images? Smooth streaming is the default setting in Cayuga. However, if you want to minimize the time delay of recorded streams, you can switch to low latency mode at any time.

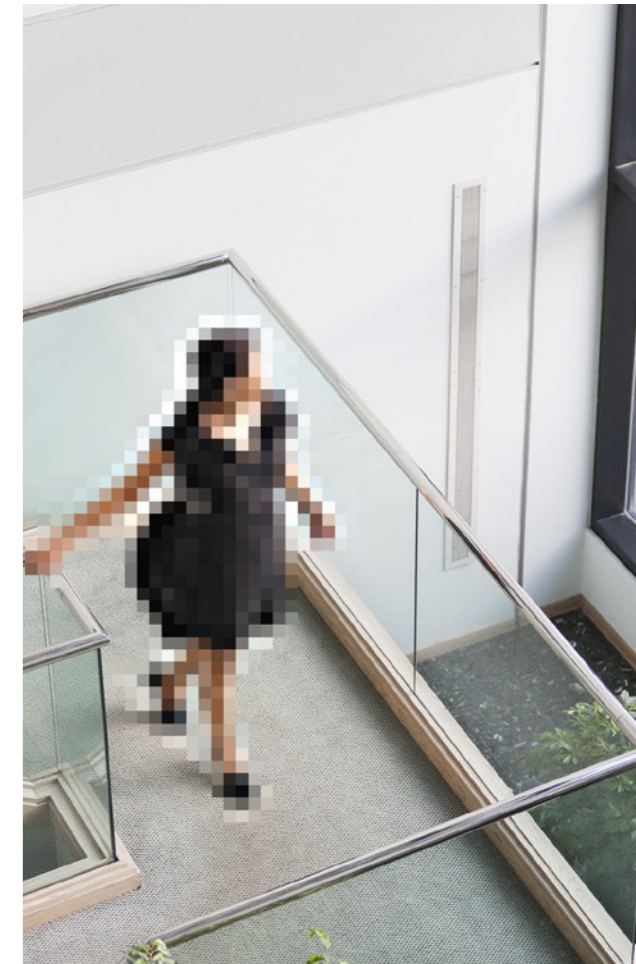
IN ACCORDANCE WITH LEGAL REGULATIONS

DATA SECURITY/GDPR

Cayuga offers a number of functions to operate video systems in a secure and GDPR-compliant manner and to provide the best possible protection of privacy. Additional administrative functions such as the four-eye principle (entering of a second password) also provides software security on who can see the data recorded.

CYBER SECURITY

Data transmission between modules as well as between server and client is carried out using 128-Bit encryption.



PRIVACY MASKING

Sensitive image areas (e.g. break and recreation rooms, public areas) are masked by a freely definable area and hidden in the live and archive images, depending on rights.

MOTION SCRAMBLING

Moving objects or objects that differ from a reference image defined in advance are displayed pixelated in the live image and thus anonymized.



Valuable insights for retail

International retail chains often use Cayuga with BVI to improve their processes and gain valuable information about the buying behavior and profitability of their stores.



CAYUGA. FLEXIBLE CONFIGURATION.

Cayuga is optimally customizable for the organizational structures of your company – up to any conceivable size. Thanks to the distributed installation of the software across multiple servers, any level of scaling is possible. This means that the servers can be positioned in different locations if required (e.g. stores).

All users of the software are included individually in line with their various rights. This means that even large systems distributed worldwide with several thousand cameras can be managed and controlled centrally using Cayuga.

The overall system architecture physically separates the clients from the server. As saving image data and communication with the cameras are integrated as system services, it is not necessary to launch a separate program on the server and no local login is required. Using this structure, even highly complex applications are made possible.

USER MANAGEMENT WITH DIFFERENT ADMINISTRATOR LEVELS

Cayuga permits the management of over a thousand users. Every user can be individually allocated detailed rights to cameras with control elements (e.g. PTZ control) and additional Cayuga components such as buttons or layout plans. The rights matrix follows the organizational chart of your company.

MULTI CONFIGURATION TOOL

Simplifies and accelerates the setup of cameras and camera groups.

ADVANCED ALARM SCENARIOS

In Cayuga you can define and specify complex alarm scenarios as to how to respond to specific events in case of an alarm, or which third party systems are actuated.

AUTOUPDATER

Helps you to always keep your version of Cayuga up to date – even automatically with a valid Support and Maintenance Agreement (SMA).

WIZARDS

Offer user-guidance dialogs to simplify the processes when creating new system elements, e.g. cameras and alarm scenarios.



FAILURE SAFETY

High availability with Cayuga is achieved by a combination of redundant system management and fail-safe recording. Using standard IT equipment, you can reduce the downtime of your system to a minimum – regardless of its complexity.

01

REDUNDANCY

If the central administration server is unavailable, a proxy server comes into play and permits error-free operation of the system with the existing user rights (island mode). Windows Cluster and virtualization are supported.

02

FAILOVER

If a recording server fails, a hot-stand-by server automatically takes over and recording continues reliably.

03

MIRRORED RECORDING

In the event that the recording server is removed or damaged, the DM failover server can be configured to mirror the recordings completely redundant.



Cut your operating costs

With umbrella, our management platform for distributed Cayuga video systems. Your benefit: Configuration, management and monitoring of independent Cayuga installations – centrally and across all sites.

CAYUGA. VARIABLE AND SCALEABLE.

Cayuga is available in license packages for three sizes – for up to 50, up to 100 and for an unlimited number of cameras. In addition to the basic packages there are extension modules adding further functions such as analytics or LPR. All details are given in the adjacent table on the right.



S50 X

Scalable VMS for small and medium-sized installations at one site

S100

Professional VMS for medium-sized to large installations at one site

Infinity

Professional VMS for large installations and complex system environments covering multiple sites

Infinity X

High-end VMS with failover functionality for large installations covering multiple sites

LANGUAGES

Cayuga is available in 14 languages: English, German, French, Danish, Swedish, Norwegian, Russian, Turkish, Dutch, Spanish, Italian, Polish, Czech and Portuguese.

FREE DOWNLOAD

Try out Cayuga free of charge, no strings attached!

At www.qognify.com you can request a fully functional 30-day test version to download.

MANUFACTURER INDEPENDENCE

There is a wide variety of camera models available on the market from a large number of camera manufacturers – each with advantages and disadvantages that need to be weighed up carefully in the project planning phase. Qognify therefore pursues a manufacturer-independent design concept.

With Cayuga you can operate network cameras and video servers from all well-known manufacturers as well as numerous I/O and SIP modules, alarm triggers and video sensors. Standard server systems from all leading manufacturers can also be used as Cayuga server hardware. The free selection of IT and camera hardware makes it easy to achieve the optimal price/performance ratio.

An up-to-date overview of all devices (cameras, encoders and hardware I/Os) supported by Cayuga can be found on our website: www.qognify.com

THE CAYUGA PRODUCT PACKAGES

Product Package	S50 X	S100	Infinity	Infinity X
Live & Archive View	✓	✓	✓	✓
Alarm Recording	✓	✓	✓	✓
PTZ Control	✓	✓	✓	✓
Maximum No. of Camera Channels	50	100	unlimited	unlimited
Maximum No. of Concurrent Users	5	10	unlimited	unlimited
Maximum No. of Recording Servers	1	2	unlimited	unlimited
Centralized Management	X	✓	✓	✓
Maximum Number of I/O Devices	5	10	unlimited	unlimited
Web & Mobile Client	✓	✓	✓	✓
Anywhere (Viewer, Client)	✓	✓	✓	✓
Redundant System Administration	X	✓	✓	✓
Failover Recording	X	X	X	✓
Mirrored Recording	X	X	X	✓
Multilevel Administration	X	X	✓	✓
Business Video Intelligence (optional)	X	✓	✓	✓
Display Agent	X	✓	✓	✓
Software Development Kit (SDK)	X	✓	✓	✓
Multimedia Application Gateway	X	✓	✓	✓
Active Directory Support	X	X	✓	✓
Maps/Floor Plans	✓	✓	✓	✓
Sequential Alarm Window	X	X	✓	✓
Extended Alarm Scenarios	X	✓	✓	✓
Encrypted Transmission	✓	✓	✓	✓
Bandw. Optimized Archive Playback	✓	✓	✓	✓
Motion Scrambling	X	✓	✓	✓
Multi Installation Login	X	✓	✓	✓
VoIP Support	X	X	✓	✓
Edge Storage Support	X	✓	✓	✓
Server Based Motion Detection	✓	✓	✓	✓
Camera Sabotage Detection	X	X	✓	✓
Analytics Server (optional)	X	✓	✓	✓
Analytics Interface (SAI) (optional)	X	✓ ¹	✓ ¹	✓ ¹
Event Interface (SEI) (optional)	X	✓	✓	✓
LPR (optional)	X	✓	✓	✓
Access Control Integration (optional)	X	✓ ¹	✓ ¹	✓ ¹
Intrusion Detection Integration	✓ ¹	✓ ¹	✓ ¹	✓ ¹
Intercom Integration	X	✓ ¹	✓ ¹	✓ ¹
Monitor Wall Integration	X	X	X	✓ ¹
OPC Integration (Server)	X	✓	✓	✓

¹ A list of supported solutions /devices will be provided by Qognify on request.



Qognify helps safeguarding your world, focusing on the outcomes of customers, who place a premium on physical security. Qognify also sees itself as a trusted partner that helps customers around the world to minimize risks, increase security, and optimize operations.

The comprehensive portfolio of Qognify contains physical security and incident management solutions, which create added value for many sectors including manufacturing companies, transportation authorities, retail chains, banks and other financial institutions, ports and seaports, logistics service providers, schools and universities, correctional facilities, critical infrastructures and cities. In 2018, Qognify acquired the OnSSI Group with its brands OnSSI and SeeTec, thus forming a leading global player in the physical security market. Headquartered in Pearl River, New York, Qognify operates major development hubs in Germany and Israel as well as sales and support offices around the globe.

QUALITY AT QOGNIFY

As one of the first providers of video management systems worldwide, Qognify is certified with its quality management according to DIN EN ISO 9001.



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11.SOFTWARE OCR

SOFTWARE TARGA SYSTEM

il sistema avanzato per la lettura targhe
destinato alle Forze di Polizia



Rendiamo più sicure le vostre strade

www.targasystem.it

TARGA SYSTEM®



Il Software

Il Software e telecamere **Targa System** sono il frutto di uno studio congiunto con le Forze di Polizia locale.

L'esperienza sul campo, ha consentito quindi di realizzare un prodotto estremamente semplice da usare ma tecnologicamente avanzato.



Come funziona

La videocamera scansiona le targhe, inviando informazioni al server che è collegato con gli archivi del **Ministero dei Trasporti** e del **Ministero dell'Interno**; dove sono contenute molte informazioni come ad esempio la data di **scadenza dell'assicurazione** o della **revisione**.

Queste informazioni tornano, nel giro di pochi decimi di secondo, in mano agli **agenti della Polizia**, che le possono controllare direttamente dal **tablet** o dallo **smartphone**.



software made in italy



veicoli e targhe rubate



veicoli in black list o sequestri



non assicurati o revisionati





Funzionalità del sistema

Targa System è uno strumento **destinato alle forze di Polizia**, con lo scopo di offrire loro un valido supporto nella protezione delle strade e nell'**individuazione delle irregolarità**. Gestisce e si interfaccia con tutte le marche di telecamere OCR e contesto, come ad esempio: Tattile, Selea, Vigilante, Hikvision.

Vi è una ricerca per merce pericolosa trasportata con codice ADR tradotti per merce trasportati e la gestione dei sensori esterni quali laser, radar, anti inquinamento, pioggia e neve, con la possibilità di importare i dati e presentarli in modo grafico.

Il software permettere di gestire in modo differenziato l'invio di notifiche di allarme per utente e per gruppo tramite mail, SMS (tramite modem GSM / UMTS), Telegram di Black List e White List, SCNTT e codici ADR - Kemler pericolosi allertati.



Riconoscimento targhe e statistiche

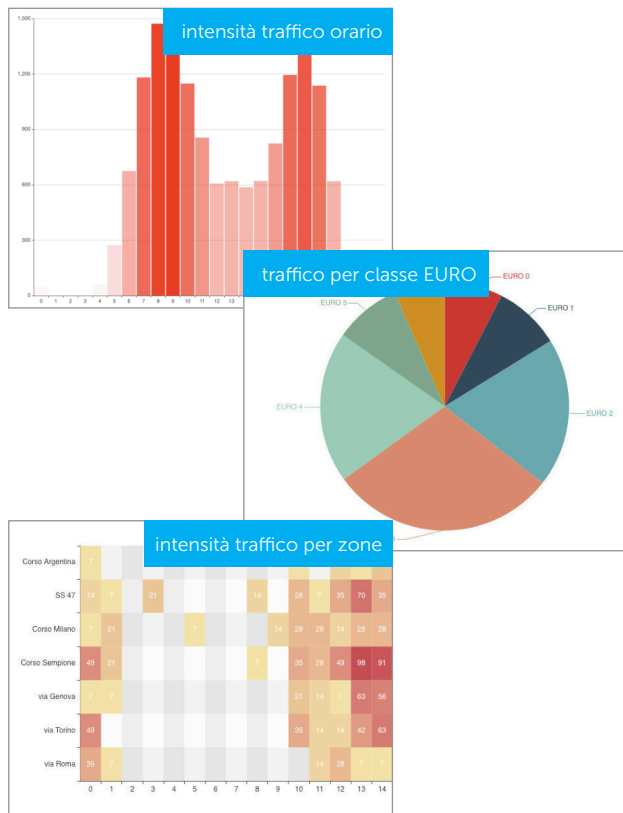
Targa System si interfaccia con db ministeriali per il controllo delle RCA / Revisioni, SCNTT per i veicoli rubati e black list della polizia di stato. È possibile fare un'esportazione in vari formati dei dati raccolti, con possibilità di stringa / immagine targa / immagine di contesto.

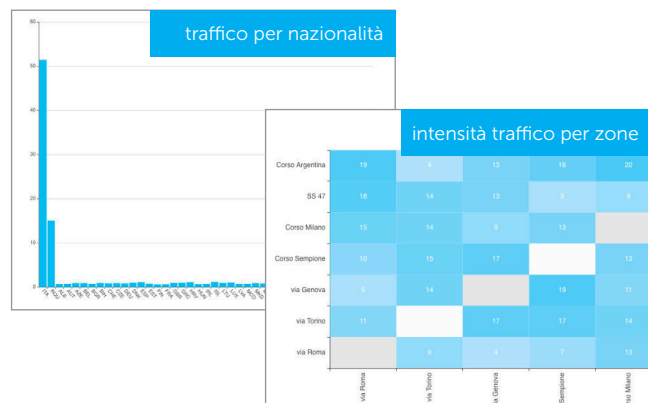
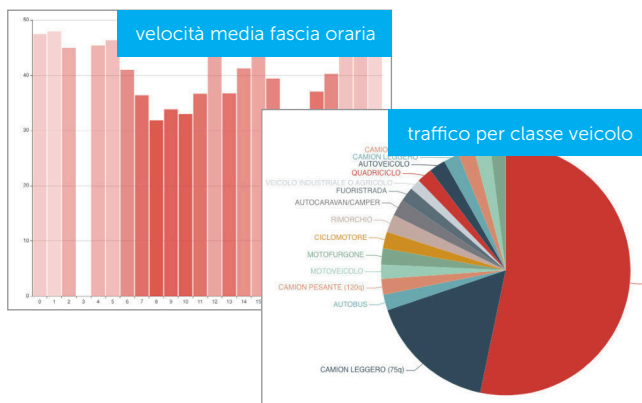
Il riconoscimento delle targhe permette le seguenti funzioni di ricerca:

- Del veicolo grazie all'intervallo di tempo impostabile
- Per le targhe correlate
- Tutti i transiti di un singolo veicolo

Tutto questo permette di poter rilevare delle statistiche grafiche con suddivisione temporale selezionabile per:

- Traffico conteggio e tempi di percorrenza
- Velocità media
- Sensori inquinamento / laser / radar
- Nazionalità
- Classe euro e anno immatricolazione
- Classe di veicolo





In riferimento al codice ADR:

- Gestione codice ADR (Kemler – ONU)
- Visualizzazione numero di codici ADR letti per ogni giornata
- Traduzione codice ADR nel nome della merce trasportata
- Notifica evento via SMS a più numeri in tempo reale in caso di transito di particolare codice ONU
- Visualizzazione classifica e grafico dei passaggi di codici ADR in determinato arco temporale
- Visualizzazione analisi e grafico del codice Kemler relativo alla pericolosità della merce trasportata
- Visualizzazione livello di rischio raggiunto (giornaliero e scala numerica progressiva) rispetto al trasporto di merci pericolose



I transiti

Targa System è conforme con la nuova normativa GDPR. Il sistema permette quindi di conservare a sistema i numeri delle targhe le fotografie nel rispetto della normativa vigente.

Caratteristiche

Il Targa System è un sistema di supporto alle Forze dell'Ordine con delle caratteristiche di rilevante importanza come di seguito riportato:

- Gestione dei dispositivi mobili e APP per smartphone con sistema operativo Android
- Tablet e Pc con sistema operativo Windows
- Lettura targhe da telecamere di videosorveglianza con protocollo RTSP
- Backup automatico dei dati e del db su Nas Esterni
- Messaggi con chat proprietaria criptata
- Trasmissione allarmi via Mail, App, radio Tetra, Telegram SMS
- In aggiunta vi sono moduli opzionali per divieto di sosta

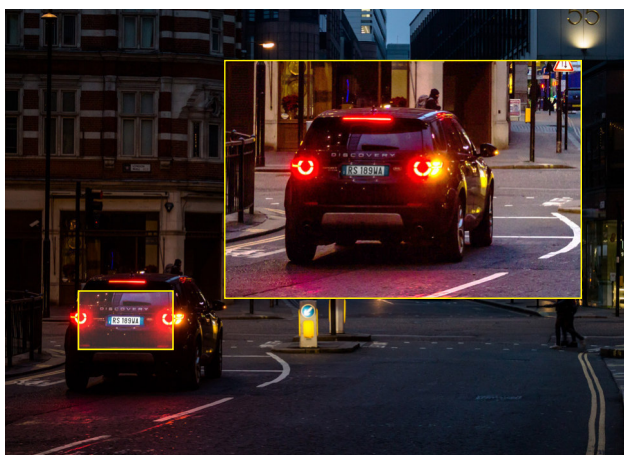


- Interfacciamento nativo con i dispositivi Targa System Mobile 3.0, 4.0 ed Extreme
- OCR integrato anche nel software per ulteriore lettura e correzione delle targhe lette
- Supporto lettura conteggio assali dei rimorchi e ingombri del mezzo da sensori laser / radar
- Supporto lettura conteggio, velocità di spostamento e tempo di stazionamento di persone e biciclette tramite appositi sensori, con graficazione
- Gestione contemporanea di più modem GSM/UMTS per instradamento automatico e differenziato di SMS
- Gestione multi – tenant: ogni utente deve poter gestire solo i varchi a lui associati, con instradamento SMS su modem di pertinenza per suddivisione costi di operatore mobile
- Installazione multi – server e multi – site, con ricerca distribuita su più server, con condivisione liste e dB
- Compatibilità con tutti i browser in commercio
- Compatibile via browser sia da postazione fissa che mobile (tablet e smartphone con sistema operativo iOS e Android)
- Statistiche tempo di attraversamento dei varchi un ingresso ed uscita dal centro con graficazione
- Supporto sensori laser e radar a singola e doppia tecnologia per classificazione del traffico
- Statistiche quantità di targhe per classe di veicolo (28 classi) rilevate tramite sensori laser / radar con graficazione

Funzionalità di analisi

Targa System permette quindi di fare ricerche e gestione delle targhe con un riepilogo giornaliero, settimanale e mensile. In modo particolare:

- Targhe anche parziali
- Per colore
- Per tipo del veicolo
- Intervalli di tempo
- Nazionalità
- Tipo di infrazione
- Varco e direzione di marcia
- Provincia di immatricolazione
- Codici kemler
- Targhe non riconosciute
- Black list e white list



Integrazioni di Targa System con altri sistemi

Targa System è perfettamente integrabile con i prodotti Milestone, Avigilon, Arteco, Genetec e Hikvision 5200. Tutto questo permette di creare un'integrazione di alta affidabilità e qualità per l'utente che ne fa utilizzo.

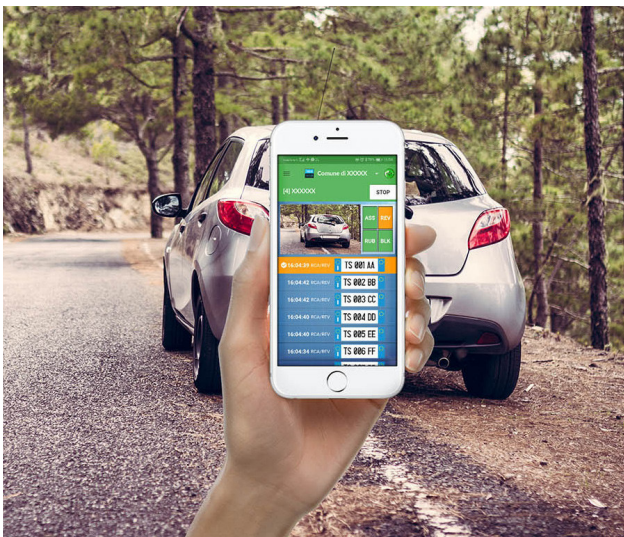
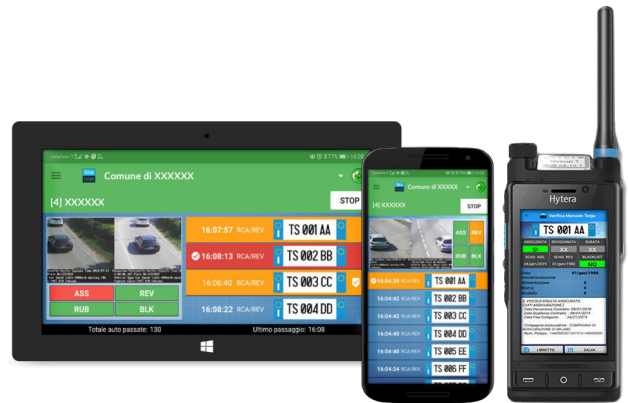




Componenti aggiuntivi

Una soluzione innovativa a portata di mano con un'App

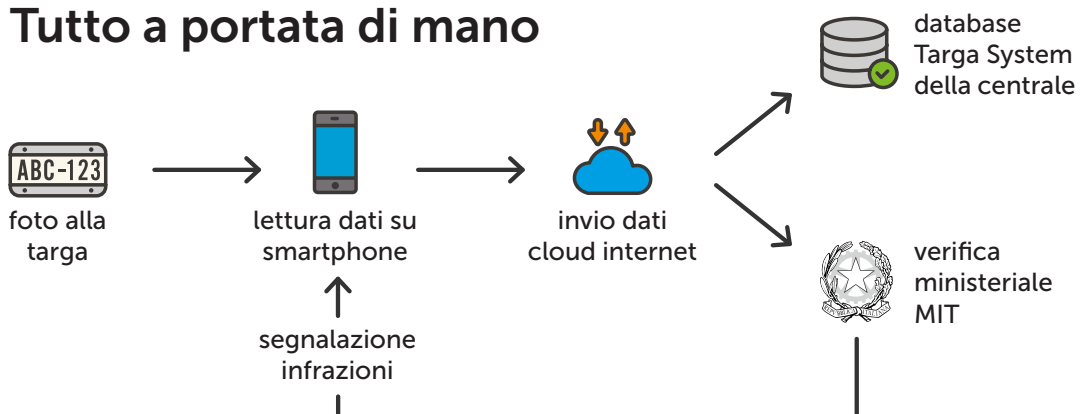
Il telefono o il Tablet diventano un'estensione del tuo Targa System. Ogni scatto viene caricato nel database centrale, che può essere consultato in un momento successivo per **Ricerche, Statistiche e Verbalizzazione**.

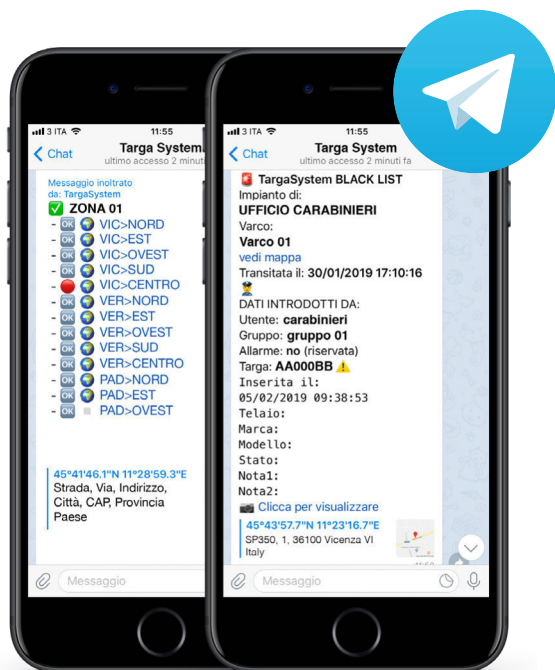


Le funzionalità principali dell'App sono:

- Interfaccia Touch a Icone
- Ricezione in background dei messaggi di allarme e della Chat
- Foto targa geolocalizzata con caricamento sul server
- Controllo manuale targa
- Libretto di circolazione
- Controllo patente e inserimento Black List
- Consultazione Database transiti
- Allarmi differenziati per ogni tipo di infrazione
- Modulo soste per contravvenzioni immediate (modulo opzionale)
- Verifica ZTL

Tutto a portata di mano





Notifiche istantanee su Telegram

Con TST (Targa System® Telegram) è possibile fornire un accesso alle forze dell'ordine a qualsiasi impianto TARGA SYSTEM® installato.

Telegram è un valore aggiunto ai nostri sistemi per 3 motivi:

1. Tracciamento veicolo con lista completa dei passaggi su server Targa System
2. Segnalazioni di blacklist per le forze dell'ordine
3. Stato e posizione impianto telecamere.

Attraverso i server TELEGRAM ogni agente di polizia potrà accedere a tutti gli impianti Targa System in cui sia stato preventivamente abilitato.



Le forze dell'ordine interessate ad accedere alle notifiche del Targa System® della propria zona di competenza, possono richiedere il **codice di accesso** alla Polizia Locale che gestisce l'impianto. Per questo è necessario aver installato TELEGRAM sul proprio telefono (<https://play.google.com/store/apps/details?id=org.telegram.messenger&hl=it>) ed essersi connessi al bot di Telegram: **@TargaSystem**

Utilizzando il BOT "TargaSystem" si ha la possibilità di poter utilizzare lo smartphone come dispositivo su cui ricevere allarmi; non solo, si ha la possibilità di poter consultare le targhe e inserirle nelle blacklist del medesimo dispositivo. Si ha quindi la possibilità di poter effettuare controlli relativi alle assicurazioni e revisioni.



VELOCE

ricevi notifiche istantanee



FACILE

pratico, e sempre a portata di mano



SICURO

protezione dei dati trasmessi



CONTROLLO

strumento ideale per le forze dell'ordine

Rendiamo più sicure le vostre strade



Controllo

Controllo targhe, accessi
e videosorveglianza



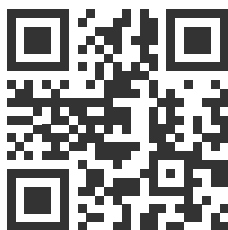
Verifica

Verifica in tempo reale
i dati della targa



Sicurezza

Soluzioni progettate per
le forze dell'ordine




targasystem.it



Game Club S.r.l.

Via L.Negrelli, 42 - 36040 Brendola (VI)
Tel. +39 0444 18 34 094 - Fax +39 0444 88 92 09
info@targasystem.it - info@gameclub.it

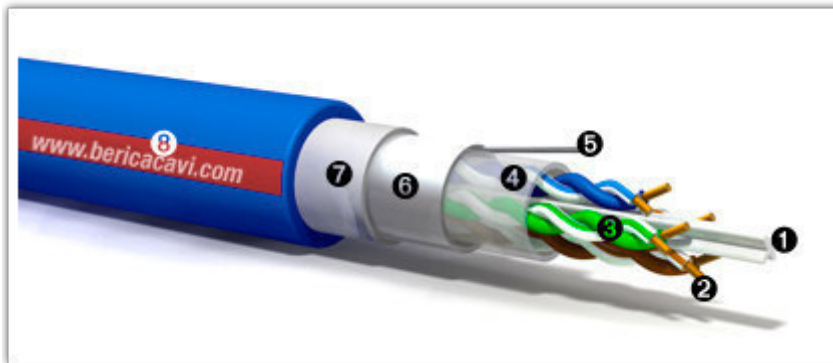
12. CAVO IN FIBRA OTTICA

 (/index.php/en/5-uso-esterno-2/274-utp-ftp-4x2x23-awg-cat-6-blu-per-esterno)

 (/images/pdf/utp6_blu.pdf)

UTP-FTP 4x2x23 AWG CAT. 6 BLU PER ESTERNO

Cavi per trasmissione dati, non propaganti la fiamma a ridotta emissione di alogeni e resistenti ai raggi UV




1. Crocetta
2. Conduttore
3. Isolante
4. Separatore
5. Drenaggio
6. Schermatura
7. Guaina interna
8. Guaina esterna



IMPIEGO: Impiegati per la trasmissione di dati fino a 250 MHz nei sistemi di cablaggio strutturato LAN (CEI EN 50173 classe E), dove è richiesta una maggiore protezione contro gli agenti atmosferici ed in particolare i raggi ultravioletti.

POSA: Per posa fissa all'interno e all'esterno. Possono essere installati su passerelle, tubazioni, canalette e sistemi simili. Possibilità di posa insieme con cavi energia aventi marcatura sia 450/750 V sia 0,6/1 kV utilizzati per sistemi a tensione nominale verso terra (U_0) fino a 400 V.


CARATTERISTICHE	DESCRIZIONE	NORME
Conduttori:	rame rosso ricotto (23AWG)	
Isolante:	polietilene a bassa densità LDPE	
Colori anime:	biancoblu/blu - biancoarancio/arancio - biancoverde/verde - biancomarrone/marrone	
Crocetta:	crocetta separatrice in polietilene	
Separatore:	nastro Pet	
Drenaggio:	rame stagnato ricotto	
Schermatura:	nastro Al/Pet	
Guaina interna:	mescola termoplastica	CEI EN 50363
Guaina esterna:	PVC di qualità Rz	CEI EN 50363

CARATTERISTICHE	DESCRIZIONE	NORME
Colore della guaina:	 (/index.php/en/5-uso-esterno-2/274-utp-ftp-4x2x23-awg-cat-6-blu-per-esterno)	
Non propagante la fiamma:	blu RAL 5015 con riga rossa RAL 3000	CEI EN 60332-1-2
Ridotta emissione di alogeni:	(< 22%)	CEI EN 50267-2-1 - IEC 60754-1
Resistente agli olii:		CEI 20-34/0-1
Resistente ai raggi UV:		HD 605
Resistenza elettrica:	< 190 Ω/km (loop)	CEI EN 50288-5-1/6-1
Impedenza caratteristica:	100 ± 5Ω a 100 MHz	
Tensione di prova:	700 Vac x 1 min.	
Temperatura max d'esercizio:	70 °C	
Temperatura min. di posa:	0 °C	
Raggio di curvatura:	Ø x 8	
Marcatura:	BERICA CAVI S.P.A. ITALY UV RESISTANT Formazione CEI UNEL 36762 C-4 (U ₀ = 400 V) 100 OHM CE - Anno/Lotto - 00000 m	

	Mhz	4	20	62,5	100	155	200	250
Attenuazione:	dB/100 m	3,8	8,5	15,5	19,9	25,3	29,1	33,0
NEXT:	dB/100 m	65,3	54,8	47,4	44,3	41,4	39,8	38,3
Return loss:	dB/100 m	24,5	25,0	21,5	20,1	18,8	18,0	17,3

TIPO	Ø ESTERNO MEDIO mm	PESO MEDIO kg/km	CODICE
UTP 4x2x23AWG	8,2	76,0	B7304CA24BLU
FTP 4x2x23AWG	9,3	92,0	B7404CA24BLU

Berica Cavi S.p.a si riserva il diritto di modificare tutte le informazioni presenti nel sito internet senza fornire alcun preavviso a clienti e/o utilizzatori

 (</index.php/en/5-uso-esterno-2/274-utp-ftp-4x2x23-awg-cat-6-blu-per-esterno>)



[ALLARME BLU PER ESTERNO \(/index.php/5-uso-esterno/79-allarme-blu-per-esterno\)](/index.php/5-uso-esterno/79-allarme-blu-per-esterno)

[FR2OHH2R BLU PER ESTERNO \(/index.php/5-uso-esterno/78-fr2ohh2r-blu-per-esterno\)](/index.php/5-uso-esterno/78-fr2ohh2r-blu-per-esterno)

[FROE PER POSA INTERRATA \(/index.php/5-uso-esterno/87-froe-per-posa-interrata\)](/index.php/5-uso-esterno/87-froe-per-posa-interrata)

[FROR BLU PER ESTERNO \(/index.php/5-uso-esterno/77-fror-blu-per-esterno\)](/index.php/5-uso-esterno/77-fror-blu-per-esterno)

[MINI RG 59 + ... BLU PER ESTERNO \(/index.php/5-uso-esterno/82-mini-rg-59-blu-per-esterno\)](/index.php/5-uso-esterno/82-mini-rg-59-blu-per-esterno)

[MINI RG 59 +3x1+9x0,50 mm2 BLU PER ESTERNO \(ELVOX\) \(/index.php/5-uso-esterno/81-mini-rg-59-3x1-9x0-50-mm2-blu-per-esterno-elvox\)](/index.php/5-uso-esterno/81-mini-rg-59-3x1-9x0-50-mm2-blu-per-esterno-elvox)

[RG 59 B/U 75Ω BLU PER ESTERNO \(/index.php/5-uso-esterno/80-rg-59-b-u-75-blu-per-esterno\)](/index.php/5-uso-esterno/80-rg-59-b-u-75-blu-per-esterno)

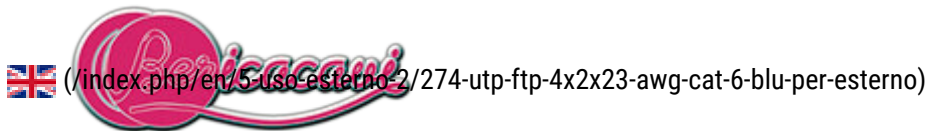
[UTP-FTP 4x2x23 AWG CAT. 6 ARMATO BLU PER ESTERNO \(/index.php/5-uso-esterno/86-utp-ftp-4x2x23-awg-cat-6-armato-blu-per-esterno\)](/index.php/5-uso-esterno/86-utp-ftp-4x2x23-awg-cat-6-armato-blu-per-esterno)

[UTP-FTP 4x2x23 AWG CAT. 6 BLU PER ESTERNO \(/index.php/5-uso-esterno/84-utp-ftp-4x2x23-awg-cat-6-blu-per-esterno\)](/index.php/5-uso-esterno/84-utp-ftp-4x2x23-awg-cat-6-blu-per-esterno)

[UTP-FTP 4x2x24 AWG CAT. 5E ARMATO BLU PER ESTERNO \(/index.php/5-uso-esterno/85-utp-ftp-4x2x24-awg-cat-5e-armato-blu-per-esterno\)](/index.php/5-uso-esterno/85-utp-ftp-4x2x24-awg-cat-5e-armato-blu-per-esterno)

[UTP-FTP 4x2x24 AWG CAT. 5E BLU PER ESTERNO \(/index.php/5-uso-esterno/83-utp-ftp-4x2x24-awg-cat-5e-blu-per-esterno\)](/index.php/5-uso-esterno/83-utp-ftp-4x2x24-awg-cat-5e-blu-per-esterno)

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P.IVA 05499110962



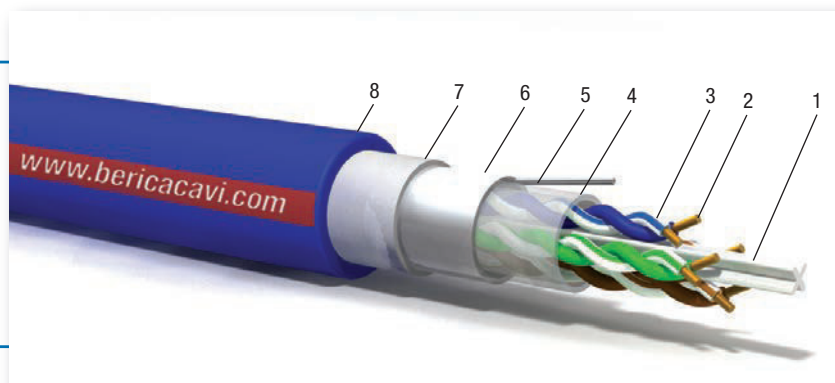
[Privacy Policy \(/index.php/2-non-categorizzato/523-privacy-policy\)](/index.php/2-non-categorizzato/523-privacy-policy)

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Cavi per trasmissione dati, non propaganti la fiamma a ridotta emissione di alogeni e resistenti ai raggi UV



1. Crocetta
2. Conduttore
3. Isolante
4. Separatore
5. Drenaggio
6. Schermatura
7. Guaina interna
8. Guaina esterna



IMPIEGO: Impiegati per la trasmissione di dati fino a 250 MHz nei sistemi di cablaggio strutturato LAN (CEI EN 50173 classe E), dove è richiesta una maggiore protezione contro gli agenti atmosferici ed in particolare i raggi ultravioletti.

POSA: Per posa fissa all'interno e all'esterno. Possono essere installati su passerelle, tubazioni, canalette e sistemi simili. Possibilità di posa insieme con cavi energia aventi marcatura sia 450/750 V sia 0,6/1 kV utilizzati per sistemi a tensione nominale verso terra (U₀) fino a 400 V.


VARIANTE: Con doppino per alimentazione.

CARATTERISTICHE	DESCRIZIONE	NORME
Conduttori:	rame rosso ricotto (23AWG)	
Isolante:	polietilene a bassa densità LDPE	
Colori anime:	biancoblu/blu - biancoarancio/arancio - biancoverde/verde - biancomarrone/marrone	
Crocetta:	crocetta separatrice in polietilene	
Separatore:	nastro Pet	
Drenaggio:	rame stagnato ricotto	
Schermatura:	nastro Al/Pet	
Guaina interna:	mescola termoplastica	CEI EN 50363
Guaina esterna:	PVC di qualità Rz	CEI EN 50363
Colore della guaina:	blu RAL 5015 con riga rossa RAL 3000	
Non propagante la fiamma:		CEI EN 60332-1-2
Ridotta emissione di alogeni:	(< 22%)	CEI EN 50267-2-1 - IEC 60754-1
Resistente agli olii:		CEI 20-34/0-1
Resistente ai raggi UV:		HD 605
Resistenza elettrica:	< 190 Ω/km (loop)	CEI EN 50288-5-1/6-1
Impedenza caratteristica:	100 ± 5Ω a 100 MHz	
Tensione di prova:	700 Vac x 1 min.	
Temperatura max d'esercizio:	70 °C	
Temperatura min. di posa:	0 °C	
Raggio di curvatura:	Ø x 8	
Marcatura:	BERICA CAVI S.P.A. ITALY UV RESISTANT Formazione CEI UNEL 36762 C-4 (U ₀ = 400 V) 100 OHM CE Anno/Lotto 00000 m	

	Mhz	4	20	62,5	100	155	200	250
Attenuazione:	dB/100 m	3,8	8,5	15,5	19,9	25,3	29,1	33,0
NEXT:	dB/100 m	65,3	54,8	47,4	44,3	41,4	39,8	38,3
Return loss:	dB/100 m	24,5	25,0	21,5	20,1	18,8	18,0	17,3

TIPO	Ø ESTERNO MEDIO mm	PESO MEDIO kg/km	CODICE
UTP 4x2x23AWG	8,2	76,0	B7304CA24BLU
FTP 4x2x23AWG	9,3	92,0	B7404CA24BLU

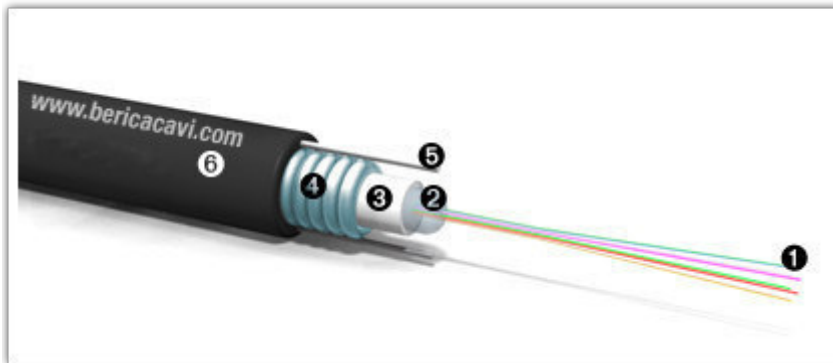
13.CAVO UTP

 (/index.php/en/8-fibra-ottica-2/235-os1-fibra-monomodale-acciaio)

 (/images/pdf/fibra_ottica.pdf)

OS1 FIBRA MONOMODALE

Cavi f.o. LOOSE con armatura in acciaio corrugato



1. Fibra ottica
2. Gel protettivo
3. Tubo PBT
4. Armatura
5. Filo acciaio
6. Guaina

IMPIEGO: Impiegati per la trasmissione di dati nei canali che utilizzano i seguenti protocolli trasmissivi: ITU-T G.652B; ISO/IEC 11802 OS-1; TIA/EIA-492AAAA; Telcordia GR-20-CORE

POSA: Per posa fissa all'interno e all'esterno.

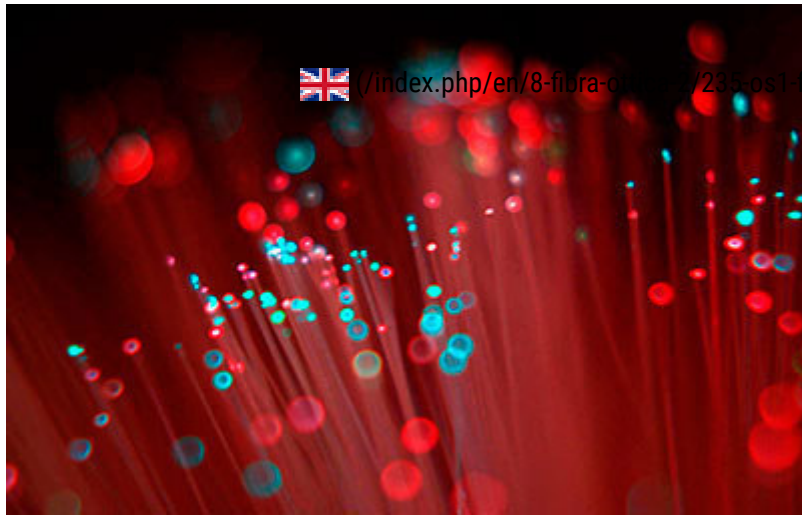
CARATTERISTICHE	DESCRIZIONE	
Fibra ottica:	Diametro nucleo:	9 ± 2,5 µm
	Non circolarità del nucleo:	< 6%
	Diametro mantello:	125 ± 1 µm
	Non circolarità del mantello:	< 1%
	Errore di concentricità nucleo/mantello:	< 0,6 µm
	Errore di concentricità rivestimento/mantello:	< 12 µm
	Non circolarità del rivestimento/mantello:	< 6%
	Diametro esterno:	242 ± 7 µm
Gel protettivo:	per garantire resistenza all'acqua e all'umidità	
Tubo PBT:		
Armatura:	acciaio corrugato per la protezione antiroditore	
Fili d'acciaio:	per la resistenza alla trazione	
Guaina:	Termoplastico senza alogeni (Posa interna) o Polietilene (Posa esterna)	

CARATTERISTICHE	DESCRIZIONE			
Colore della guaina:	 (/index.php/en/8-fibra-ottica-2/235-os1-fibra-monomodale-acciaio)			
Resistenza allo schiacciamento:	1000 N/100 mm			
Resistenza alla trazione:	breve 1500 N ; prolungata 600 N			
Raggio di curvatura:	4÷12 fibre / 16÷48 fibre (in posa 15 / 16 cm) (installato 10 / 11 cm)			
Temperatura di esercizio:	-30 °C ÷ +70 °C			
Lunghezza d'onda:	1310 nm	1383 nm	1550 nm	1625 nm
Attenuazione:	≤ 0,36 dB/km	≤ 0,35 dB/km	≤ 0,22 dB/km	≤ 0,24 dB/km
Diametro modale:	9,2 ± 0,4 µm		10,4 ± 0,8 µm	
Indice di rifrazione:	1466		1467	
Coefficiente di dispersione:	1285-1340 nm	(≥ -3 ≤ 3 MHz x km)	≤ 18 MHz x km	≤ 22 MHz x km
Lunghezza d'onda:	≥ 1302 nm ≤ 1320 nm			
Profilo d'indice:	≤ 0,091 ps / (nm ² x km)			

TIPO (**) N° fibre	Ø ESTERNO MEDIO mm	PESO MEDIO kg/km	CODICE
4	7,5	85	LSAOS1004(*)
6	7,5	85	LSAOS1006
8	7,5	85	LSAOS1008
12	7,5	85	LSAOS1012
16	8,5	110	LSAOS1016
24 (1x24)	8,5	110	LSAOS1024
48 (2x24)	9,5	130	LSAOS1048

* Aggiungere "P" per guaina in polietilene

** Disponibili a richiesta versioni con n° fibre >48 e con carichi alla trazione >1500 N per applicazioni particolari.



</index.php/en/8-fibra-ottica/238-os1-fibra-monomodale-acciaio>

[OM1 FIBRA MULTIMODALE \(/index.php/8-fibra-ottica/40-om1-fibra-multimodale\)](/index.php/8-fibra-ottica/40-om1-fibra-multimodale)

[OM1 FIBRA MULTIMODALE ACCIAIO \(/index.php/8-fibra-ottica/42-om1-fibra-multimodale-acciaio\)](/index.php/8-fibra-ottica/42-om1-fibra-multimodale-acciaio)

[OM2 FIBRA MULTIMODALE \(/index.php/8-fibra-ottica/37-om2-fibra-multimodale-iec-60793-2-10-type-a1a-1\)](/index.php/8-fibra-ottica/37-om2-fibra-multimodale-iec-60793-2-10-type-a1a-1)

[OM2 FIBRA MULTIMODALE ACCIAIO \(/index.php/8-fibra-ottica/39-om2-fibra-multimodale-acciaio\)](/index.php/8-fibra-ottica/39-om2-fibra-multimodale-acciaio)

[OM3 FIBRA MULTIMODALE \(/index.php/8-fibra-ottica/41-om3-fibra-multimodale\)](/index.php/8-fibra-ottica/41-om3-fibra-multimodale)

[OM3 FIBRA MULTIMODALE ACCIAIO \(/index.php/8-fibra-ottica/43-om3-fibra-multimodale-acciaio\)](/index.php/8-fibra-ottica/43-om3-fibra-multimodale-acciaio)

[OS1 FIBRA MONOMODALE \(/index.php/8-fibra-ottica/36-os1-fibra-monomodale\)](/index.php/8-fibra-ottica/36-os1-fibra-monomodale)

[OS1 FIBRA MONOMODALE ACCIAIO \(/index.php/8-fibra-ottica/38-os1-fibra-monomodale-acciaio\)](/index.php/8-fibra-ottica/38-os1-fibra-monomodale-acciaio)

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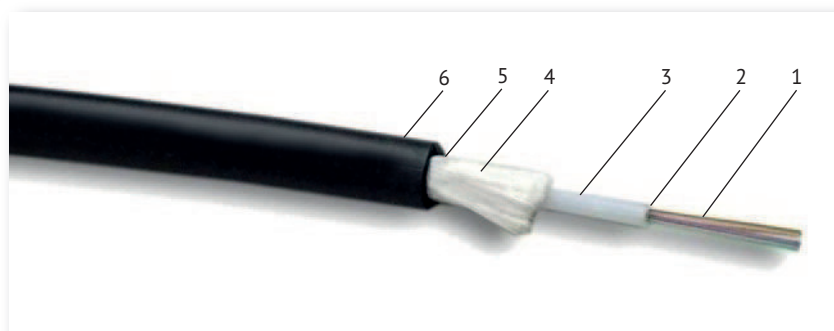
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[/index.php/en/8-fibra-ottica-2/235-os1-fibra-monomodale-acciaio](#)

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1. Fibra ottica
2. Gel protettivo
3. Tubo PBT
4. Fibra di vetro
5. Filo tagliaguaina
6. Guaina

Variante: con doppino per alimentazione

MULTIMODALI OM1 CON GUAINA LSZH PER POSA INTERNA/ESTERNA

	N° FIBRE	VERSIONE	CODICE
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	4	OM1	LSAOM1004
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	8	OM1	LSAOM1008
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	12	OM1	LSAOM1012
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	24	OM1	LSAOM1024
Cavi f.o. MULTILOOSE con armatura acciaio corrugato e guaina LSZH	48	OM1	LSAOM1048

MULTIMODALI OM1 CON GUAINA PE PER POSA ESTERNA

	N° FIBRE	VERSIONE	CODICE
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	4	OM1	LSAOM1004P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	8	OM1	LSAOM1008P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	12	OM1	LSAOM1012P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	24	OM1	LSAOM1024P
Cavi f.o. MULTILOOSE con armatura acciaio corrugato e guaina Polietilene	48	OM1	LSAOM1048P

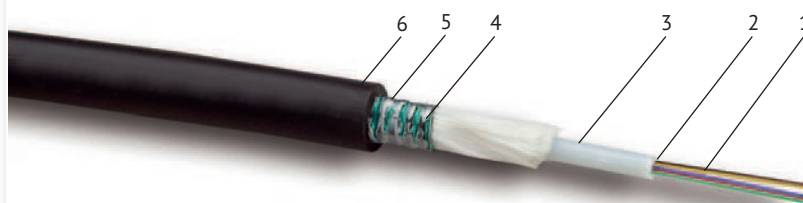
MULTIMODALI OM2 CON GUAINA LSZH PER POSA INTERNA/ESTERNA

	N° FIBRE	VERSIONE	CODICE
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	4	OM2	LSAOM2004
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	8	OM2	LSAOM2008
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	12	OM2	LSAOM2012
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	24	OM2	LSAOM2024
Cavi f.o. MULTILOOSE con armatura acciaio corrugato e guaina LSZH	48	OM2	LSAOM2048

MULTIMODALI OM2 CON GUAINA PE PER POSA ESTERNA

	N° FIBRE	VERSIONE	CODICE
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	4	OM2	LSAOM2004P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	8	OM2	LSAOM2008P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	12	OM2	LSAOM2012P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	24	OM2	LSAOM2024P
Cavi f.o. MULTILOOSE con armatura acciaio corrugato e guaina Polietilene	48	OM2	LSAOM2048P

1. Fibra ottica
2. Gel protettivo
3. Tubo PBT
4. Armatura
5. Filo acciaio
6. Guaina



MULTIMODALI OM3 CON GUAINA LSZH PER POSA INTERNA/ESTERNA

	N° FIBRE	VERSIONE	CODICE
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	4	OM3	LSAOM3004
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	8	OM3	LSAOM3008
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	12	OM3	LSAOM3012
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	24	OM3	LSAOM3024
Cavi f.o. MULTILOOSE con armatura acciaio corrugato e guaina LSZH	48	OM3	LSAOM3048

MULTIMODALI OM3 CON GUAINA PE PER POSA ESTERNA

	N° FIBRE	VERSIONE	CODICE
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	4	OM3	LSAOM3004P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	8	OM3	LSAOM3008P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	12	OM3	LSAOM3012P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	24	OM3	LSAOM3024P
Cavi f.o. MULTILOOSE con armatura acciaio corrugato e guaina Polietilene	48	OM3	LSAOM3048P

MONOMODALI OS2 CON GUAINA LSZH PER POSA INTERNA/ESTERNA

	N° FIBRE	VERSIONE	CODICE
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	4	OS2	LSAOS1004
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	8	OS2	LSAOS1008
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	12	OS2	LSAOS1012
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina LSZH	24	OS2	LSAOS1024
Cavi f.o. MULTILOOSE con armatura acciaio corrugato e guaina LSZH	48	OS2	LSAOS1048

MONOMODALI OS2 CON GUAINA PE PER POSA ESTERNA

	N° FIBRE	VERSIONE	CODICE
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	4	OS2	LSAOS1004P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	8	OS2	LSAOS1008P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	12	OS2	LSAOS1012P
Cavi f.o. LOOSE con armatura acciaio corrugato e guaina Polietilene	24	OS2	LSAOS1024P
Cavi f.o. MULTILOOSE con armatura acciaio corrugato e guaina Polietilene	48	OS2	LSAOS1048P