

DOKUMENTACJA POWYKONAWCZA

MIEJSKIEGO MONITORINGU WIZYJNEGO IP
Z SYSTEMEM WYKRYWANIA TABLIC
REJESTRACYJNYCH
- ETAP 1 -

Karpacz, wrzesień 2016

1. Przedmiot opracowania.

Przedmiotem opracowania jest dokumentacja powykonawcza systemu miejskiego monitoringu wizyjnego IP wraz z systemem wykrywania, identyfikacji i archiwizacji tablic rejestracyjnych samochodów wjeżdżających i wyjeżdżających z Karpacza.

2. Opis systemu monitoringu miejskiego IP w Karpaczu.

2.1. Opis ogólny systemu.

System wykonano na bazie specjalistycznego licencjonowanego oprogramowania Netstation Professional firmy Alnet Systems Sp. z o.o. które umożliwia bieżący monitoring wizyjny IP wybranych miejsc w mieście. System umożliwia także rozpoznawanie i archiwizację tablic rejestracyjnych samochodów wjeżdżających i wyjeżdżających z miasta przez całą dobę przy prędkości min 80km/h. Daje możliwość przeszukiwania archiwum pod kątem nr rej. samochodu wjeżdżającego lub wyjeżdżającego z Karpacza z podaniem kierunku ruchu.

2.2. Punkty instalacji kamer.

Kamery zainstalowano w następujących miejscach:

- lokalizacja 1 - Karpacz Górny (dz. Nr 3/9 obr.1) - 2 kamery Ganz ZN8-P5NTAF62L;
- lokalizacja 2 - ul. Kowarska (dz. Nr 6 obr.3) - 2 kamery Ganz ZN8-P5NTAF62L;
- lokalizacja 3 - ul. Wielkopolska (dz. Nr 1135 obr.3) - 2 kamery Ganz ZN8-P5NTAF62L;
- lokalizacja 4 - ul. Sikorskiego (dz. Nr 136 obr.2) - 2 kamery Ganz ZN8-P5NTAF62L;
- lokalizacja 5 - ul. Konstytucji 3 Maja - deptak (dz. Nr. 245/4, obr.4) - 1 kamera Ganz ZN8-P5NTAF62L;
- lokalizacja 6 - ul. Konstytucji 3 Maja - rondo (dz. Nr. 389/4, obr.2) - 1 kamera Ganz ZN-B6DMP55HE;
- lokalizacja 7 - ul. Konstytucji 3 Maja - skrzyżowanie ulicy Konstytucji 3 Maja, Parkowej i Kościelnej (dz. Nr. 245/4, obr.4) - 2 kamery Ganz ZN8-P5NTAF62L.

2.3. Elementy systemu. W skład systemu monitoringu miejskiego IP w Karpaczu wchodzi:

1. Serwer wideo pozwalający na archiwizację i przeglądanie obrazu przynajmniej 64 kamer IP o rozdzielczości nie mniejszej niż 2MPx. Procesor 10 rdzeniowy 20 wątkowy), RAM 4x8GB, dysk systemowy SSD 256GB, archiwum nagrań 10 dysków 8TB pracujących w systemie RAID 5, zasilacz 1000W, dysk zapisu zdjęć numerów rej. 2TB, dysk backupu dysku systemowego 750GB, karta graficzna HDMI, DVI, D-DUB, system operacyjny Win Pro 10 64Bit PL, obudowa serwerowa Rack, 10 kieszeni na dyski, Specjalistyczne oprogramowanie Netstation Professional z licencją na 13 kamer, oprogramowanie Arconis True Image 2016. Serwer zamontowany jest w serwerowni ACZM.
2. Switch 24 portowy D-Link DGS-3120-24SC Gigabit Ethernet Switch.
3. 11 kamer szybkoobrotowych Ganz ZN8-P5NTAF62L.
4. 1 kamera Ganz ZN-B6DMP55HE.

5. Dodatkowa kamera Hikvision DS-2CD2120F-I zamontowana w serwerowni ACZM.
6. Zasilanie kamer w lokalizacji 1,2,3,4,7 z akumulatorów LiFePO₄, natomiast w nocy z napięcia sieciowego z lampy ulicznej. Akumulatory są ładowane w czasie włączonych lamp.
7. Zasilanie kamery w lokalizacji nr 5 z sieci energetycznej z Urzędu Miejskiego w Karpaczu.
8. Zasilanie kamery w lokalizacji nr 6 ze skrzynki energetycznej zlokalizowanej obok słupa oświetleniowego z dodatkowym podtrzymaniem napięcia poprzez zasilanie awaryjne 12V z akumulatorem 18 Ah.
9. Mediakonwertery światłowodowe Mikrotik RouterBOARD RB260GS (7 szt.) + wkładki światłowodowe typu SFP (mini GBIC) Mikrotik przeznaczone do transmisji jednym włóknem światłowodu jednomodowego (SM) na odległość do 20 km.
10. Kamery wraz układem zasilania i mediakonwenterami zostały zamontowane na słupach oświetleniowych na wysokości od 4 do 6 m w skrzynkach montażowych MANTAR zamykanych na klucz z zamontowaną półką 10" wraz ociepleniem wewnętrznym ścian.
11. Stacja Monitoringu Wizyjnego dla Straży Miejskiej: procesor i5, RAM DDR3 4x2GB, dysk systemowy SSD 128GB, dysk archiwum 4TB, zasilacz 470W, system operacyjny Win 10 Home Premium 64bit PL, monitor 27 cali, klawiatura, mysz, nagrywarka Blu-Ray, obudowa TOWER, oprogramowanie do nagrywania płyt Blu-Ray, oprogramowanie „klienta zdalnego” CMS 4.
12. Manipulator DCZ.
13. Każdy z mediakonwenterów jest podłączony bezpośrednio poprzez włókno światłowodowe do switcha zlokalizowanego w ACZM.

Załączniki:

- 1) Karta katalogowa ZN8-P5NTAF62L.
- 2) Karta katalogowa ZN-B6DMP55HE.
- 3) Karta katalogowa DCZ.
- 4) Karta katalogowa DS-2CD2120-I.
- 5) Karta katalogowa RB260GS.
- 6) Karta katalogowa DGS-3120 Series

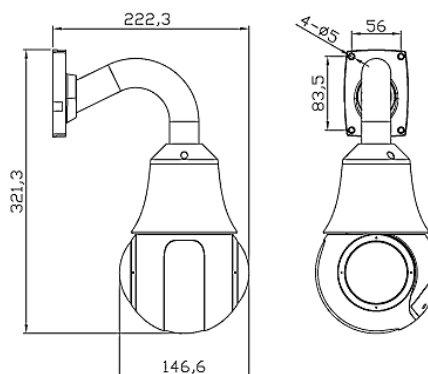

Parametry techniczne

Model	ZN8-P5NTAF62L
Przetwornik	1/2.8" CMOS --- IMX124 + S2LM55 3MP
Czułość (AGC ON)	Kolor: 0,01lux / Mono: 0,001lux / IR ON: 0lux
Tryb Dzień/Noc	Filtr automatyczny IR-Cut
Migawka elektroniczna	1/1 – 1/10.000 sek.
Przystosowana	Automatyczna/ręczna
Tryb WDR	d-WDR
Redukcja szumu	2D / 3D-DNR
Obiektyw	4.7 – 56.4mm (12x) ; kąt widzenia: 69.7° - 7.56°
Promiennik IR	6 x IR LED, zasięg do 60 metrów
Zakres ruchu głowicy	HOR: 0 – 360° / VER: 10 – 90°
Szybkość obrotowa	HOR: 0,01 - 180°/sek. VER: 0,01 - 90°/sek.
	Presety: 90°/sek.
Definicje PTZ	300x Preset / 12x Tour / 12x Scan / 6x Track
Kompresja video	H.264 / MJPEG (CBR/VBR - 100k – 12Mbit/sek.)
Kompresja audio	G.711, RAW PCM
Rozdzielczość	Maks. 2048x1536 (25kl/sek.)
Strumienie video	Strum.1: maks.2048x1536 /Strum.2: maks.FHD
Ustawienia obrazu	Obrót, nasycenie, jasność, kontrast, ostrość
Funkcje cyfrowe	HLC / ROI / DEFOG
Protokoły sieciowe	HTTP, HTTPS, TCP, UDP, RTSP, DHCP, NTP, PPPoE, Unicast, Multicast
Obsługa RTSP	Standard RFC2326 (VLC Player / QuickTime)
Zabezpieczenia	Autoryzacja użytkownika, WatchDog sprzętowy
Kompatybilność	ONVIF, CGI
Interfejs Ethernet	10/100 Base-T, RJ45
WE/WY Audio	1 x Wejście / 1 x Wyjście
WE/WY Alarm	2 x Wejście / 1 x Wyjście
RS485	Brak
Wyjście analogowe	Brak
Przycisk resetu	Tak (wbudowany)

Model: ZN8-P5NTAF62L

Cechy szczególne:

- **IR-LED** – wysokoefektywne soczewkowe diody LED z dynamiczną regulacją szerokości wiązki, osiągające zasięg do 100 metrów.
- Precyzyjna regulacja parametrów obrazu, obejmująca dostosowanie takich parametrów jak: nasycenie, jasność, kontrast, ostrość oraz obrót (rotacja).
- Wyświetlanie aktualnych współrzędnych na ekranie.
- **Sterowanie 3D PTZ** - łatwe sterowanie za pomocą myszki.
- **ROI (Region of Interest)** - na podstawie określonych przez użytkownika stref ROI (obszary zainteresowania) kamera obniża jakość obrazu poza strefami w celu zmniejszenia zapotrzebowania na przepustowość transmisji i pamięć masową, z jednoczesnym zachowaniem maksymalnej jakości obrazu w strefach ROI.
- **DEFOG (Korekcja Mgły)** - dzięki zastosowaniu algorytmu poprawy jakości obrazu, funkcja korekcji zwiększa widoczność i wyrazistość obrazu nawet przy dużym zamgleniu.
- **SMART-IR** – natężenie światła IR emitowanego przez trzy niezależne sekcje diod IR-LED jest automatycznie regulowane w celu uniknięcia efektu prześwietlenia obiektów (np. twarz osoby) znajdujących się w pobliżu kamery.
- **2D/3D-DNR** – 2 oraz 3-wymiarowa cyfrowa redukcja szumu

Wymiary zewnętrzne:


Obsługa karty SD	Slot MICRO SD/SDHC/SDXC, maks. 64GB
Zasilanie	12V / POE+
Pobór prądu	Maks. 25W
Temperatura działania	-40°C ... +60°C
Maks. wilgotność	90%
Certyfikaty i klasy	CE / FCC / klasa szczelności IP66 / TVS4000V
Wymiary (ciężar)	321.3 x 222.3 x 146.6 mm (1,5kg)

Adaptery do mocowania kamery:

ZA8-CBK624A

ZA8-CBK623A




3.6~10 5MP PoE ROI H.264 SMART IR DNR WDR

Parametry techniczne

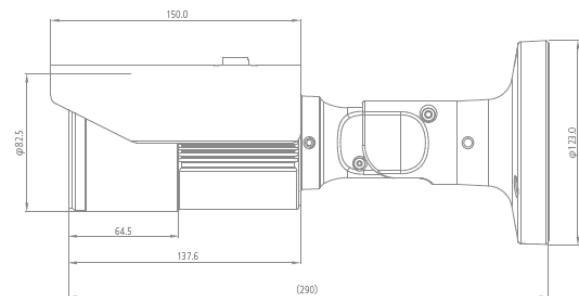
Model	ZN-B6DMP55HE
Przetwornik	1/1.8" Sony ExmorR CMOS
Czułość (AGC ON)	IR ON: 0lux
Tryb Dzień/Noc	Filtr automatyczny IR-Cut
Migawka elektroniczna	1/4 – 1/20000
Tryb WDR	True-WDR
Redukcja szumu	2D / 3D-DNR
Obiektyw	Motozoom, P-iris f=3.6~10mm, F1.5 (kął widzenia 81~37°)
Oświetlacz IR	42 x IR LED
Kompresja video	H.264 / MJPEG
Bitrate (CBR/VBR)	Strum.1/2: 512k – 12Mbit
Kompresja audio	G.711 u-law 8kHz
Rozdzielczości	2592x1944 30kl./s., 1920x1080 60kl./s. 1024x768, 1280x720 704x576, 704x480, 640x480
Strumienie video	Strum.1: maks. 2048x1536 Strum.2: maks. 640x480
RS-485	Brak
Ustawienia obrazu	Obrót, nasycenie, jasność, kontrast, ostrość
Funkcje cyfrowe	BLC / DEFOG / ROI / AGC / WDR
Tryb korytarzowy	Brak
Protokoły sieciowe	RTSP, DDNS, RTP, TCP, UDP, RTCP, DHCP ARP, FTP, IGMP, ICMP, NTP
Obsługa RTSP	VLC Player / QuickTime / www
Zabezpieczenia	Autoryzacja użytkownika
Kompatybilność	ONVIF, CGI
Interfejs Ethernet	10/100 Base-T, RJ45
Audio	1 x IN / 1 x OUT
Alarm	1 x IN / 1 x OUT
Przycisk resetu	Tak
Wyjście analogowe	1 x BNC – złącze serwisowe wideo

Model: ZN-B6DMP55HE

Cechy szczególne:

- Precyzyjna regulacja parametrów obrazu, obejmująca dostosowanie takich parametrów jak: nasycenie, jasność, kontrast, ostrość oraz obrót (rotacja).
- **ROI** (Region of Interest) - na podstawie określonych przez użytkownika stref ROI (obszary zainteresowania) kamera obniża jakość obrazu poza strefami w celu zmniejszenia zapotrzebowania na przepustowość transmisji i pamięć masową, z jednoczesnym zachowaniem maksymalnej jakości obrazu w strefach ROI.
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- **Serwisowe wyjście video BNC** – bardzo praktyczne podczas ustawiania widoku kamery w miejscu instalacji
- **2D/3D-DNR** – 2 oraz 3-wymiarowa cyfrowa redukcja szumu
- **WDR** – szeroki zakres dynamiki
- **Przystona typu P-Iris** - Służy ono do uzyskiwania optymalnej jakości obrazu przez kamery wysokorozdzielcze. Sterowanie przystoną odbywa się za pomocą silnika krokowego poprzez podawanie odpowiedniej ilości impulsów sterujących.
- **Obiektyw MFZ** – Jest to bardzo ciekawe rozwiązanie umożliwiające zdalne sterowanie obiektywem.

Zewnętrzne wymiary:



Pozostałe informacje:

Obsługa kart SD	Slot Micro SD / SDHC / SDXC, maks. 32GB
Zasilanie	12VDC / 24VAC / PoE (802.3af)
Pobór prądu	12VDC 10.8W, 24VAC 13.3W, PoE 12.5W
Temperatura działania	-40°C ~ +50°C
Maks. wilgotność	90%
Certyfikaty i klasy	CE / FCC / IP66
Wymiary / masa	∅ 82.5mm x 290mm x 122.4 mm / 1.44Kg

DS-2CD2120-I



Key Features

- Up to 2 megapixel (1920 × 1080) resolution
- Standard video compression with high compression ratio, ROI (region of interest) encoding
- Progressive scan CMOS, capture motion video without incised margin
- Support dual stream, and the sub-stream for mobile surveillance
- High-performance and long service life Infrared LED, up to 30 meters IR range
- IR cut filter with auto switch
- PoE (Power over Ethernet)
- 3D DNR
- Ingress Protection level: IP66
- Electronic shutter for different surveillance environments
- Impact Protection: IEC60068-2-75 test, Eh, 20J; EN50102, up to IK10
- Other functions: alarm, mirror, etc
- Support intrusion detection and line crossing detection
- Support VCA, which is compatible with NVR for the second time of video searching and analysing

Specification

Model	DS-2CD2120-(I)
Parameter	2 Megapixel CMOS Vandal-proof Network Dome Camera
Camera	
Image Sensor	1/2.8" Progressive Scan CMOS
Min. Illumination	0.01Lux @ (F1.2, AGC ON) ,0 Lux with IR 0.028Lux @ (F2.0, AGC ON) ,0 Lux with IR

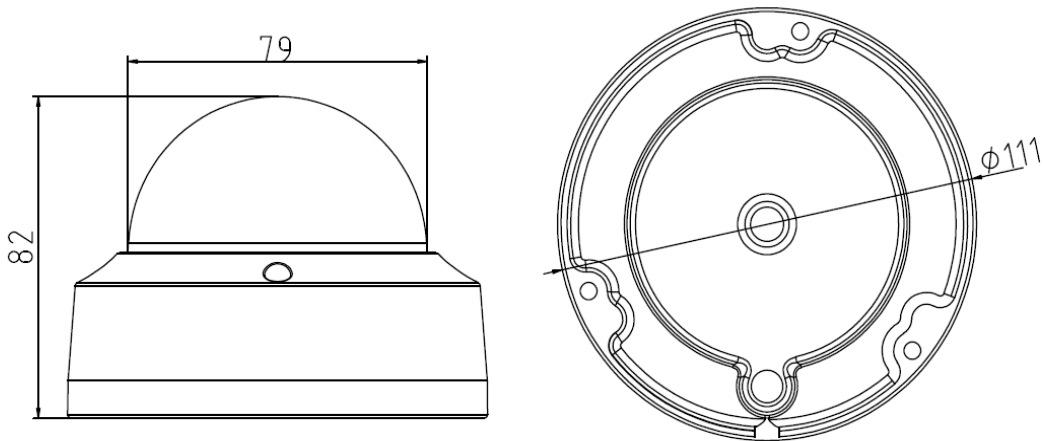
Shutter Speed	1/3 s to 1/100,000 s
Lens	4mm@ F2.0, Angle of view: 85° (2.8mm, 6mm optional)
Lens Mount	M12
Day & Night	IR cut filter with auto switch
Digital Noise Reduction	3D DNR
Wide Dynamic Range	Digital WDR
Angle Adjustment	Pan:0° - 355°, Tilt: 0° - 65°
Compression Standard	
Video Compression	H.264/ MJPEG
H.264 Type	BaselLine Profile/Main Profile
Video Bit Rate	32 Kbps – 8 Mbps
Dual Stream	Yes
Image	
Max. Resolution	1920 x 1080
Frame Rate	50Hz: 25fps(1920 × 1080), 25fps (1280 × 960), 25fps (1280 × 720) 60Hz: 30fps(1920 × 1080), 30fps (1280 × 960), 30fps (1280 × 720)
Image Settings	Rotate mode, Saturation, Brightness, Contrast adjustable by client software or web browser
Backlight compensation	Yes, zone optional
ROI	Support
Network	
Network Storage	NAS (Support NFS,SMB/CIFS)
Alarm Trigger	Line crossing detection, Intrusion detection, Motion detection, Dynamic analysis, Tampering alarm, Network disconnect , IP address conflict, Storage exception
Protocols	TCP/IP,ICMP,HTTP,HTTPS,FTP,DHCP,DNS,DDNS,RTP,RTSP,RTCP, PPPoE,NTP,UPnP,SMTP,SNMP,IGMP,802.1X,QoS,IPv6,Bonjour
General	Flash-prevention, dual stream, heartbeat, mirror, password protection, privacy mask, watermark, IP address filtering, Anonymous access
Standard	ONVIF, PSIA, CGI, ISAPI
Interface	
Communication Interface	1 RJ45 10M/100M Ethernet interface
General	
Operating Conditions	-30 °C – 60 °C (-22 °F – 140 °F) Humidity 95% or less (non-condensing)
Power Supply	12 V DC ± 10% , PoE (802.3af)

Power Consumption	Max. 5 W (Max. 7 W as IR cut filter on)
Ingress Protection level	IP66
IR Range	30 meters
Impact Protection	IEC60068-2-75Eh, 20J; EN50102, up to IK10
Dimensions	$\Phi 111 \times 82$ (4.4" \times 3.2")
Weight	500g (1.1 lbs)

Order Models

DS-2CD2120-I

Dimensions



Accessories



Inclined ceiling mount
DS-1259ZJ



Wall mount
DS-1272ZJ-110

DCZ**UNIVERSAL KEYBOARD FOR MANAGING CCTV APPLICATIONS FROM PC****MAIN FEATURES**

USB keyboard for managing CCTV applications, with joystick and jog shuttle

Functions determined by the controlled application

Customizable features

The user can easily personalize and print several pre-cut sheets supplied for this purpose

The keyboard can be turned round so that both right- and left-handed users can use all the functions with ease

HID Game Controller emulation for the use with the most important VMS (Avigilon Control Center, Ganz-VsolP, Exacq Vision, Milestone XProtect®, Genetec Omnicast 4.2, Mirasys-DVMS, Seetec ProBox, Sony-Real Shot Manager, Luxriot DVR)*

**Functionality may be limited depending on the VMS used.*

DESCRIPTION

The DCZ keyboard comes with jog shuttle, joystick 38 backlit keys, alarm buzzer, and allows the management of CCTV applications from a PC, via USB connection. It can be easily integrated with control systems using basic programming techniques without an SDK.

The keys are recognized in any combination configured by the programmer: the application receives an event message whenever a key is pressed or released.

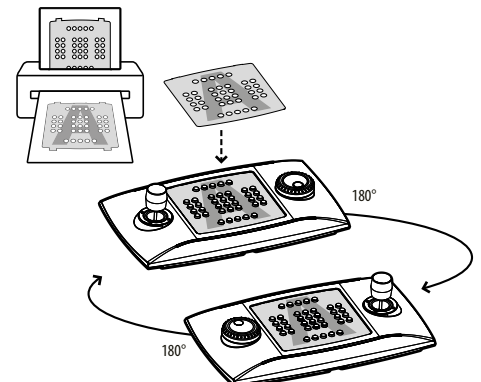
The DCZ keyboard can control PC applications already on the market, emulating a 4-axis 38 keys HID joystick. It can also be used together with ordinary PC peripheral devices such as keyboards, mouse, joysticks or other accessories.

It is USB powered and so requires only one cable.

The use of the keyboard can be made even more intuitive by personalizing the captions on the key panel: the user can easily personalize the key panel by printing the supplied pre-cut sheets (templates can be downloaded from www.videotec.com/DCZ).

The keyboard can be turned round so that both right- and left-handed users can use all the functions with ease.

This simple, user-friendly and fully implementable DCZ keyboard allows a comfortable and intuitive management of CCTV applications from PC.



THE USER CAN EASILY PERSONALIZE AND PRINT SEVERAL PRE-CUT SHEETS SUPPLIED FOR THIS PURPOSE.

THE KEYBOARD CAN BE TURNED ROUND SO THAT BOTH RIGHT- AND LEFT-HANDED USERS CAN USE ALL THE FUNCTIONS WITH EASE.

TECHNICAL DATA

GENERAL

Backlit rubber keys
Alarm buzzer

MECHANICAL

Dimensions: 379x89x224mm (15x3.5x8.8in)
Unit weight: 1.4kg (3lb)

ELECTRICAL

USB powered
Consumption: 350mA max

COMMUNICATIONS

USB 2.0

PROTOCOLS

Dedicated Virtual Com Port protocol
Joystick HID 4-axis 40 keys emulation

OPERATING SYSTEM

Windows® compatible (drivers available on www.videotec.com/DCZ): Windows® 2000, Windows® XP, Windows® Server, Windows® Vista, Windows® 7, Windows® 8
Linux® compatible

ENVIRONMENT

CERTIFICATIONS

Electrical safety (CE): EN60950-1
Electromagnetic compatibility (CE): EN50130-4, EN55022 (Class B), EN61000-6-3, FCC Part 15 (Class B)
UL certification: cULus Listed
EAC certification
Indoor
Operating temperature: 0°C (32°F)/+45°C (+113°F)

ACCESSORIES

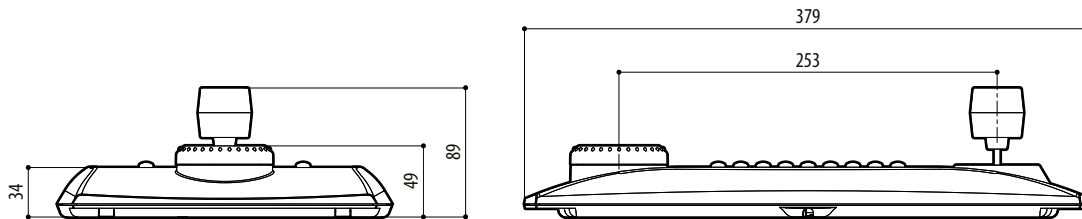
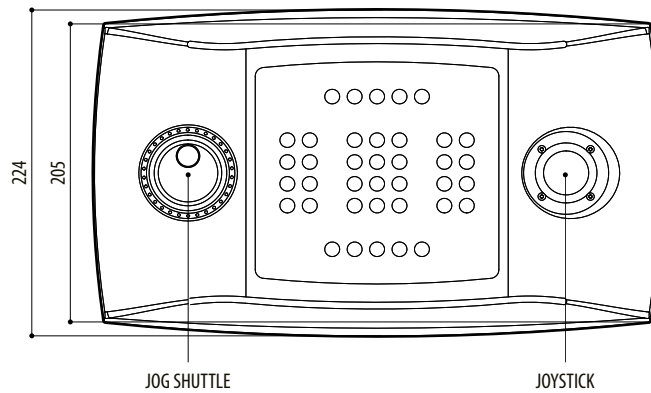
ODCZKIT38 Pre-cut sheets for printing customized masks and protective transparent plastic layer

PACKAGE

Model Number	Weight	Dimensions (WxHxL)	Master carton
DCZ	1.9kg (4.2lb)	42.5x27x17.5cm (16.7x10.6x7in)	4

TECHNICAL DRAWINGS

Sizes in millimeters.



DCZ

RB260GS series

The RB260GS is a small SOHO switch. Two models are available, the RB260GS, and the RB260GSP, which features power output on its ethernet ports. Ports 2-5 can power other PoE capable devices with the same voltage as applied to the unit.

Both devices have five Gigabit Ethernet ports and one SFP cage, switching is done by an Atheros Switch Chip.

The devices are running an operating system designed specifically for MikroTik Switch products - SwOS.

SwOS is configurable from your web browser. It gives you all the basic functionality for a managed switch, plus more: Allows to manage port-to-port forwarding, apply MAC filter, configure VLANs, mirror traffic, apply bandwidth limitation and even adjust some MAC and IP header fields.

Tested and recommended to use with MikroTik SFP modules: S-85DLC05D, S-31DLC20D and S-35/53LC20D (not included)



CPU	Taifatech TF470
Memory	Embedded 96K SRAM
Ethernet	Five 10/100/1000 Ethernet ports, Atheros switch AR8327
PoE output	RB260GSP only: Passive PoE output on ports 2-5. Max current 1A per port
SFP	One fixed Gigabit Ethernet SFP cage with DDMI support (Mini-GBIC; SFP module not included)
Serial port	No serial port
LEDs	Power, NAND activity, 5 Ethernet activity LEDs
Extras	Hardware watchdog
Power options	PoE: 8-30V DC on Ether1 (Non 802.3af). Jack: 8-30V DC
Dimensions	113x138x29mm. Without packaging and PSU: 212g
Power consumption	Up to 6W
Operating Temperature	-25C .. +65C
Operating System	MikroTik SwOS



DGS-3120 Series xStack L2 Managed Stackable Gigabit Switches



Product Highlights:

Flexible Choices

- 24, 48 10/100/1000Mbps and 16 SFP
- 4 or 8 combo Gigabit copper/SFP uplinks for connections either in cabinets or metropolitan areas.
- Selectable software images provide sophisticated feature set for your environment.
- 802.3af and 802.3at Power Over Ethernet support¹

High Bandwidth Physical/Virtual Stacking²

- 2 x10 Gigabit stacking ports per switch
- Up to 40 Gbps Full-Duplex Stacking Bandwidth
- Up to 6 units (288 Gigabit ports) per stack
- Linear or Fault Tolerant Ring Stacking Topology
- Virtual Stacking of up to 32 units
- Embedded D-Link SIM for integration of all the xStack switches

Reliability

- Redundant Power Supply (RPS) support
- 802.1D/802.1w/802.1s Spanning Tree
- Loopback Detection (LBD)
- Ethernet Ring Protection Switching (ERPS)

Security

- Multi-Layer Access Control List (ACL)
- IP-MAC-Port Binding (IMPB)
- D-Link Safeguard Engine
- DHCP Server Screening
- BPDU Attack Protection
- ARP Spoofing Prevention

Triple Play

- IGMP/MLD Snooping
- IGMP Snooping Multicast (ISM) VLAN
- Port/Flow- based bandwidth control
- Granular Bandwidth Control Down to 64Kbps

IPv6 Features

- IPv6 Neighbor Discovery (ND)
- IPv6 Management
- IPv4/v6 Dual Stack
- IPv6 Ready Logo Phase 2

¹ For DGS-3120-24PC/48PC models only.
² Stacking cables not included. Purchase separately, DEM-CB50 and DEM-CB100.
³ SD Card not included. Purchase separately.

The DGS-3120 xStack Series are enhanced L2 access stackable switches designed to connect end-users in a secure business network. These switches support physical stacking², multicast and enhanced security, making them an ideal Gigabit access layer solution. The DGS-3120-24TC/48TC provides 20 or 44 10/100/1000 Mbps Gigabit Ethernet ports and 4 combo 1000BASE-T/SFP Gigabit Ethernet ports. The DGS-3120-24PC/48PC provides 24 or 48 10/100/1000 Mbps PoE Gigabit Ethernet ports and 4 combo 1000BASE-T/SFP Gigabit Ethernet ports. The DGS-3120-24SC provides 16 SFP Gigabit Ethernet ports and 8 combo 1000BASE-T/SFP Gigabit ports. Each 10/100/1000 Mbps port of DGS-3120-24PC/48PC supports 802.3af and 802.3at Power over Ethernet standard. The default power budget is 370 Watts and can be expanded to 740 Watts with the DPS-700 RPS. The switches are also equipped with an SD Card slot³, allowing the user to boot images and upload configuration files directly from an SD Card³. Furthermore, syslog files can also be conveniently saved to a card.

Standard and Enhanced Images

The DGS-3120 Series is embedded with two different software images - Standard Image (SI) and Enhanced Image (EI). The Standard Image provides sophisticated features for businesses. It includes advanced Quality of Service (QoS), traffic shaping, L2 multicasting and robust security features. The Enhanced Image supports ERPS, Double VLAN (Q-in-Q), Ethernet OAM, Static Route, IMPB, sFlow, IPv6 features which are suitable for the next generation IPv6 networks or triple play applications in Metro Ethernet.

Enhanced Network Reliability

The DGS-3120 Series targets businesses and customers who require a high level of network security and maximum uptime. All the models in DGS-3120 Series support an external redundant power supply so that continued operation can be assured.

They also include other features, such as 802.1D Spanning Tree (STP), 802.1w Rapid Spanning Tree (RSTP) and 802.1s Multiple Spanning Tree (MSTP), Loopback Detection (LBD), and Broadcast Storm Control, that enhance network resilience. The G.8032 Ethernet Ring Protection Switching (ERPS) function minimises the recovery time to 50 ms. For load sharing and redundancy backup in switch cascading/server attachment configuration, the DGS-3120 Series provides dynamic 802.3ad Link Aggregation Port Trunking.

Comprehensive Security

The DGS-3120 Series provides users with the latest security features such as Multi-layer and Packet Content Access Control Lists (ACL), Storm Control, and IP-MAC-Port Binding (IMPB) with DHCP Snooping. The IP-MAC-Port Binding feature allows administrators to bind a source IP address with an associated MAC and also define the port number to enhance user access control. With the DHCP Snooping feature, the switch automatically learns IP/MAC pairs by snooping DHCP packets and saving them to the IMPB white list. In addition, the D-Link Safeguard Engine™ identifies and prioritises “CPU interested” packets to prevent malicious traffic from interrupting normal network flows, and to protect switch operation.

Identity Driven Network Policies

The DGS-3120 Series supports authentication mechanisms such as 802.1X, Web-based Access Control (WAC), and MAC-based Access Control (MAC) for strict access control and easy deployment. After authentication, individual policies such as VLAN membership, QoS policies, and ACL rules can be assigned to each host. In addition, the switch also supports Microsoft® NAP (Network Access Protection). NAP is a policy enforcement technology that allows customers to protect network assets from unhealthy computers by enforcing compliance with network health policies.

DGS-3120 Series

xStack L2 Managed Stackable Gigabit Switches



If the worst should happen to your network you need the very best support and fast. Downtime costs your business money. D-Link Assist maximises your uptime by solving technical problems quickly and effectively. Our highly-trained technicians are on standby around the clock, ensuring that award-winning support is only a phone call away.

With a choice of three affordable service offerings covering all D-Link business products, you can select the package that suits you best:

D-Link Assist Gold - for comprehensive 24-hour support

D-Link Assist Gold is perfect for mission-critical environments where maximum uptime is a high priority. It guarantees four hour around-the-clock response. Cover applies 24/7 for every day of the year including holidays.

D-Link Assist Silver - for prompt same-day assistance

D-Link Assist Silver is designed for 'high availability' businesses that require rapid response within regular working hours. It provides a four hour response service Monday to Friday from 8am to 5pm, excluding holidays.

D-Link Assist Bronze - for guaranteed response on the next business day

D-Link Assist Bronze is a highly cost-effective support solution for less critical environments. Response is guaranteed within eight business hours Monday to Friday from 8am to 5pm, excluding holidays.

D-Link Assist can be purchased together with any D-Link business product. So whether you're buying switching, wireless, storage, security or IP Surveillance equipment from D-Link, your peace of mind is guaranteed. D-Link Assist also offers installation and configuration services to get your new hardware working quickly and correctly.

Traffic Management for Triple Play

The DGS-3120 Series implements a rich set of multilayer QoS/CoS features to ensure that critical network services like VoIP, video conference, IPTV and IP Surveillance are served with high priority. The Traffic Shaping features guarantee bandwidth of these services when the network is busy. With L2 Multicast support, the DGS-3120 Series shows its ability to handle growing IPTV applications. Host-based IGMP/MLD Snooping allows multiple multicast subscribers per physical interface and ISM VLAN sends multicast streams in a multicast VLAN to save bandwidth and to provide better security to the backbone network. The ISM VLAN profiles allow system administrators to bind/replace the pre-defined multicast registration information to subscriber ports quickly and easily.

Proactive, Effective Network Management

To uphold business customers' Service Level Agreements (SLA), service providers must reduce the Mean Time to Repair (MTTR) and increase service availability. Ethernet OAM features address these challenges and enable service providers to offer carrier-grade services. The DGS-3120 Series supports industry-standard OAM tools, including IEEE 802.3ah, IEEE802.1ag, and ITU-T Y.1731. Connectivity Fault Management (CFM) provides tools to monitor and troubleshoot end-to-end Ethernet networks, allowing service providers to check connectivity, isolate network issues, and identify customers affected by network issues.

IPv6 Technology

The DGS-3120 Series is fully compliant with the future IPv6 networks. It supports remote IPv6 manageability from telnet, HTTP, or SNMP. To create secure IPv6 networks, the DGS-3120

Series uses IPv6 ACL, DHCPv6 Snooping and Neighbour Discovery (ND) Snooping functions to protect the network from illegal IPv6 clients. The DGS-3120 Series has been certified with IPv6 Ready Logo Phase 2 from the IPv6 forum, a worldwide IPv6 advocacy consortium. The IPv6 Ready Logo Program provides conformance and interoperability of IPv6 products.

Manageability

D-Link's Single IP Management (SIM) simplifies and speeds up management tasks, allowing multiple switches to be configured from any workstation running a web browser through one unique IP address. This virtual stack is managed as a single object, having all units maintained by one IP address. The DGS-3120 Series also supports standard-based management protocols such as SNMP, RMON, Telnet, Console, Web-based GUI and SSH/SSL security authentication.

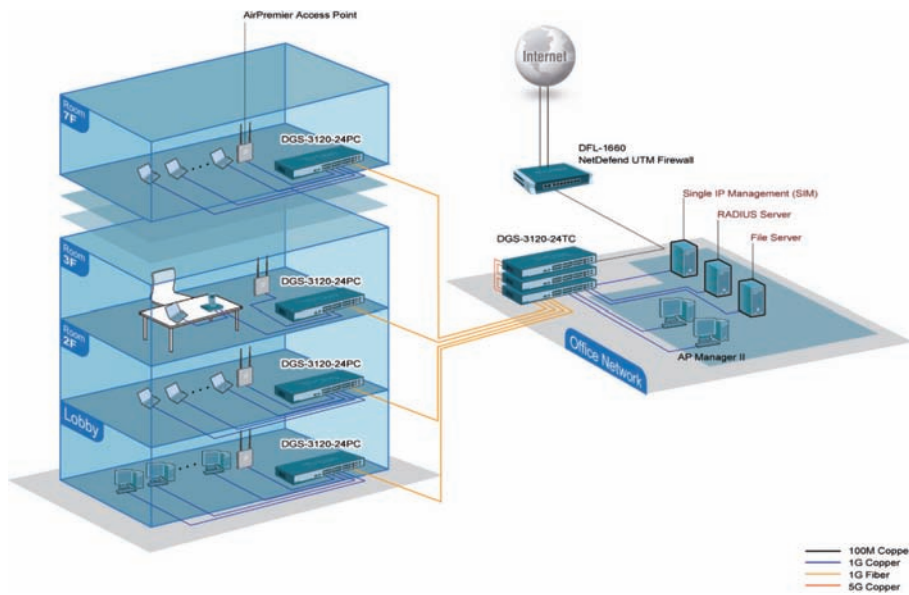
D-Link Green Technology

D-Link is striving to take the lead in developing innovative and power-saving technology that does not sacrifice functionality. The DGS-3120 Series implements the D-Link Green Technology, which includes a power saving mode, smart fan, reduced heat dissipation, and cable length detection. The power saving feature automatically powers down ports that have no link or link partner. The Smart Fan feature allows for the built-in fans to automatically turn on at a certain temperature, providing continuous, reliable and eco-friendly operation of the switch.

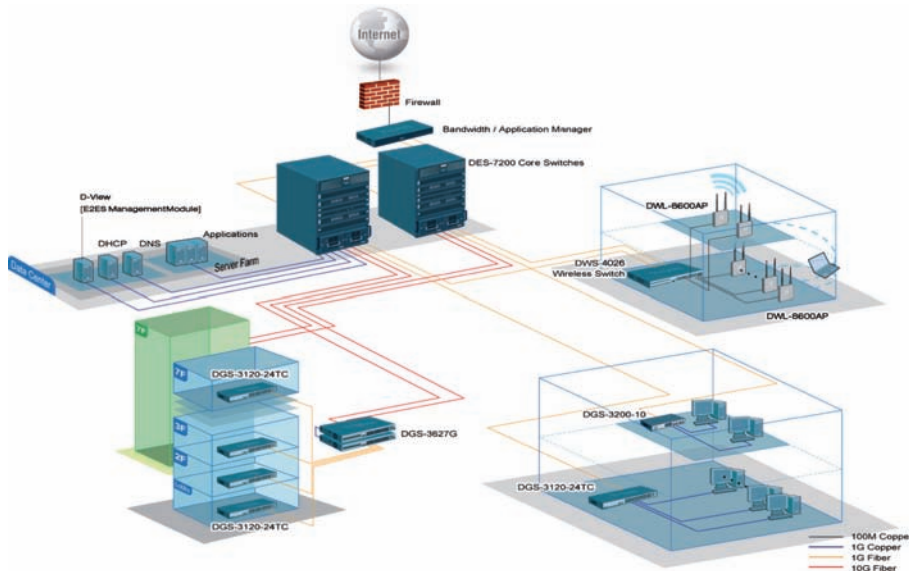


DGS-3120 Series xStack L2 Managed Stackable Gigabit Switches

Deploying the DGS-3120 Series in a small to medium sized network



Deploying the DGS-3120 Series in an enterprise network



DGS-3120 Series

xStack L2 Managed Stackable Gigabit Switches

Technical Specifications

		DGS-3120-24TC	DGS-3120-48TC	DGS-3120-24PC	DGS-3120-48PC	DGS-3120-24SC
General	Interface	20 10/100/1000BASE-T 4 Combo 10/100/1000BASE-T/SFP	44 10/100/1000BASE-T 4 Combo 10/100/1000BASE-T/SFP	20 10/100/1000BASE-T 4 Combo 10/100/1000BASE-T/SFP	44 10/100/1000BASE-T 4 Combo 10/100/1000BASE-T/SFP	16 SFP 8 Combo 10/100/1000Base-T/SFP
	Optional Redundant Power Supply	DPS-200	DPS-500/DPS-500DC	DPS-700	DPS-700	DPS-200
	Console Port	RJ-45				
	Stacking Port ⁵	2				
	SD Card Slot ⁶	1				
Performance	Switching Capacity	88 Gbps	136 Gbps	88 Gbps	136 Gbps	88 Gbps
	64-Byte Packet Forwarding Rate	65.48 Mpps	101.19 Mpps	65.48 Mpps	101.19 Mpps	65.48 Mpps
	Packet Buffer Memory	2 MB				
	Flash Memory	32 MB				
PoE	PoE Standard			802.3af and 802.3at	802.3af and 802.3at	
	PoE Power Budget			370 watts 740 watts (with DPS-700 RPS)	370 watts 740 watts (with DPS-700 RPS)	
MTBF (Hours)		TBD	TBD	TBD	TBD	TBD
Acoustics		Max: 49.8 db; Min: 37.7 db	Max: 44.6 db; Min: 36.4 db	TBD	TBD	TBD
Heat Dissipation		138.105 BTU/h	228.811 BTU/h	1646.007 BTU/h (with 370W PoE load) 3188.691 BTU/h (with 740W PoE load)	1761.265 BTU/h (with 370W PoE load) 3310.428 BTU/h (with 740W PoE load)	116.281 BTU/h
Power Input		100 to 240 VAC, 50 to 60 Hz Internal Universal Power Supply				
Max Power Consumption		40.5 Watts	67.1 Watts	482.7 Watts (with 370W PoE load); 935.1 Watts (with 740W PoE load)	516.5 Watts (with 370W PoE load) 970.8 Watts (with 740W PoE load)	34.1 Watts
Dimensions (W x D x H)		440 x 210 x 44 mm	440 x 310 x 44 mm	440 x 310 x 44 mm	440 x 380 x 44mm	440 x 210 x 44mm
Weight		2559 g	TBD	TBD	TBD	TBD
Ventilation		Smart Fan ⁴ (> 40° C: High Speed; < 35° C: Low Speed)				
Operating Temperature		0 to 50 °C				
Storage Temperature		-40 to 70 °C				
Operating Humidity		10% to 90% RH				
Storage Humidity		5% to 90% RH				
Emission (EMI)		FCC Class A, CE Class A, VCCI Class A, IC, C-Tick				
Safety		CB, cUL, LVD				
Certification		IPv6 Ready Logo Phase 2				

⁴By default, the fan speed is low. When over 40 °C, the fan switches to high speed and remains high until the temperature is down to 35 °C.

⁵Stacking cables not included. Purchase separately, DEM-CB50 and DEM-CB100.

⁶SD Card not included. Purchase separately.



DGS-3120 Series

xStack L2 Managed Stackable Gigabit Switches

Software Features

Standard Image (SI) Features

Stackability⁷

- Physical Stacking
 - Up to 40G Stacking Bandwidth
 - Up to 6 units per Stack
- Virtual Stacking
 - D-Link Single IP Management (SIM)
 - Up to 32 units per Virtual Stack

L2 Features

- MAC Address Table: 16K
- Flow Control
 - 802.3x Flow Control
 - HOL Blocking Prevention
- Jumbo Frame up to 13K Bytes
- Spanning Tree Protocols
 - 802.1D STP
 - 802.1w RSTP
 - 802.1s MSTP
 - BPDU Filtering
 - Root Restriction
- Loopback Detection
- 802.3ad Link Aggregation
 - Max. 32 groups per device/ 8 Gigabit ports per group
- Port Mirroring
 - One-to-One
 - Many-to-One
 - Flow-based
 - RSPAN Mirroring

L2 Multicasting

- IGMP Snooping
 - IGMP v1/v2/v3 Snooping
 - Supports 1024 IGMP groups
 - Port/Host-based IGMP Snooping Fast Leave

Limited IP Multicast

- Up to 24 IGMP filtering profiles, 32 ranges per profile
- MLD Snooping
 - MLD v1/v2 Snooping
 - Support 1024 MLD Groups
 - Host-based MLD Snooping Fast Leave

VLAN

- VLAN Group
 - Max. 4K VLAN Groups
- GVRP
 - Max. 255 Dynamic VLAN Groups
- 802.1Q Tagged VLAN
- Port-based VLAN
- 802.1v Protocol VLAN
- Voice VLAN
- MAC-based VLAN
- ISM VLANAsymmetric VLAN
- Private VLAN
- VLAN Trunking

QoS (Quality of Service)

- 802.1p
- 8 queues per port
- Queue Handling
 - Strict Priority
 - Weighted Round Robin (WRR)
 - Strict + WRR
- CoS based on
 - Switch Port
 - VLAN ID
 - 802.1p Priority Queues
 - MAC Address
 - IPv4 Address
 - DSCP
 - Protocol Type
 - TCP/UDP Port
 - User-Defined Packet Content
 - IPv6 Address
 - IPv6 Traffic Class
 - IPv6 Flow Label
- Supports following actions for flows Remark
 - 802.1p Priority Tag
 - Remark TOS/DSCP Tag
 - Bandwidth Control
- Bandwidth Control
 - Port-based (Ingress/Egress,Min. Granularity 64 Kbps)
 - Flow-based (Ingress/Egress,Min. Granularity 64 Kbps)

Access Control List (ACL)

- Supports up to 1.5K Ingress access rules
- ACL based on
 - 802.1p Priority
 - VLAN ID
 - MAC Address
 - Ether Type
 - IPv4 Address
 - DSCP
 - Protocol Type
 - TCP/UDP Port Number
 - User-Defined Packet Content
 - IPv6 Address
 - IPv6 Flow Label
 - IPv6 Traffic Class
- Time-based ACL
- CPU Interface Filtering

Security

- SSH v2
- SSL v1/v2/v3
- Port Security
 - Up to 64 MAC addresses per port/VLAN
- Broadcast/Multicast/Unicast Storm Control
- Traffic Segmentation
- D-Link Safeguard Engine™
- NetBIOS/Net
- BEUI Filtering
- DHCP Server Screening
- ARP Spoofing Prevention
- BPDU Attack Protection

AAA

- 802.1X:
 - Port-based Access Control
 - Host-based Access Control
 - Identity-driven Policy (VLAN, ACL or QoS Assignment)
 - Authentication Database Failover
- Web-based Access Control (WAC):
 - Port-based Access Control
 - Host-based Access Control
 - Identity-driven Policy (VLAN, ACL or QoS Assignment)
 - Authentication Database Failover
- MAC-based Access Control (MAC):
 - Port-based Access Control
 - Host-based Access Control
 - Identity-driven Policy (VLAN, ACL or QoS) Assignment
 - Authentication Database Failover
- Japan Web-based Access Control (Host-based JWAC)⁸
- Guest VLAN
- Microsoft® NAP
 - Support 802.1X NAP
 - Support DHCP NAP
- RADIUS Accounting
- RADIUS and TACACS authentication for switch access
- 4 Level User Account

D-Link Green Features

- Compliant with RoHS
- Power Saving by Link Status
- Power Saving by Cable Length
- Time-based PoE⁹

Operation, Administration & Management (OAM)

- Cable Diagnostics

Management

- Web-based GUI (Supports IPv4)
- Command Line Interface (CLI)
- Telnet Server(Supports IPv4)
- Telnet Client(Supports IPv4)
- TFTP Client(Supports IPv4)ZModem
- SNMP v1/v2c/v3
- SNMP Traps
- System Log (Supports IPv4 Log Server)
- RMON v1:
 - Supports 1,2,3,9 groups
- RMON v2:
 - Supports Probe
- Config groupLLDP
- BootP/DHCP Client
- DHCP Auto-Configuration
- DHCP RelayDHCP Relay Option 12
- DHCP Relay Option 82
- Flash File System
- Multiple Images
- Multiple ConCPU Monitoring
- Debug Command
- SNMP

⁷ Stacking cables not included. Purchase separately, DEM-CB50 and DEM-CB100.

⁸ Supported from firmware R2.0 SI and above.

⁹ Supported in DGS-3120-24PC and DGS-3120-48PC only.

DGS-3120 Series

xStack L2 Managed Stackable Gigabit Switches

Software Features

- Password Recovery
- Password Encryption
- Trusted Host
- Microsoft NLB (Network Load Balancing) Support

MIB

- RFC 1213 MIB II
- RFC 4188 Bridge MIB
- RFC 1157, 2571-2576 SNMP MIB
- RFC 1907 SNMPv2 MIB
- RFC 1757, 2819 RMON MIB
- RFC 2021 RMONv2 MIB
- RFC 1398, 1643, 1650, 2358, 2665 Ether-like MIB
- RFC 2674 802.1p MIB
- RFC 2233, 2863 IF MIB
- RFC 2618 RADIUS Authentication Client MIB
- RFC 2620 RADIUS Accounting Client MIB
- RFC 2925 PING & TRACEROUTE MIB
- RFC 2674, 4363 802.1p MIB
- RFC 1215 MIB Traps Convention

RFC Standard Compliance

- RFC 768 UDP
- RFC 791 IP
- RFC 792, 2463, 4443 ICMP
- RFC 793 TCPRFC 826 ARP
- RFC 3513, 4291, IPv6 Addressing Architecture
- RFC 2893, 4213 IPv4/IPv6 dual stack function
- RFC 2463, 4443 ICMPv6
- RFC 2462, 4862 IPv6 Stateless Address Auto Configuration
- RFC 2464 IPv6 Ethernet and definition

- RFC 1981 Path MTU Discovery for IPv6
- RFC 2460 IPv6
- RFC 2461, 4861 Neighbor Discovery for IPv6
- RFC 783 TFTP RFC 854 Telnet
- RFC 951, 1542 BootP
- RFC 2068 HTTP
- RFC 1492 TACACS
- RFC 2866 RADIUS Accounting
- RFC 2474, 3260 DiffServ
- RFC 1321, 2284, 2865, 3580, 3748 Extensible Authentication Protocol (EAP)
- RFC 2571, 2572, 2573, 2574, SNMP
- IPv6 Ready Logo Phase 2

Enhanced Image (EI) Features

L2 Features

- Ethernet Ring Protection Switching (ERPS)

VLAN

- Double VLAN (Q-in-Q)
 - Port-based Q-in-Q

L3 Features

- Max. 16 IP Interfaces
- ARP Proxy¹⁰
- IPv6 Neighbour Discovery (ND)

L3 Routing

- Static Route
 - 512 static routing entries for IPv4/IPv6

Access Control List (ACL)

- Supports up to 512 Egress access rules

Security

- IP-MAC-Port Binding

- ARP Packet Inspection
- IP Packet Inspection
- DHCP Snooping
- IPv6 ND Snooping
- Support up to 510 Address Binding Entries per Device

AAA

- Compound Authentication

Operation, Administration & Management (OAM)

- 802.3ah Ethernet Link OAM
- 802.3ah D-Link Extension: D-link Unidirectional Link Detection (DULD)¹⁰
- 802.1ag Connectivity Fault Management (CFM)
- ITU-T Y.1731¹⁰

Management

- SNMP v1/v2c/v3
 - SNMP over IPv6
- sFlow
- ICMPv6
- Web-based GUI (Supports IPv6)
- Telnet Server(Supports IPv6)¹⁰
- Telnet Client(Supports IPv6)¹⁰
- TFTP Client(Supports IPv6)¹⁰

For further information: www.dlink.eu

¹⁰ Supported from firmware R2.0 SI and above.



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