

iGigaSwitch 1606 HSR HW5 Series

Contact

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LANactive Industry 16 Port Managed Full Gigabit Ethernet Switch

- 16 ports in total, 10x RJ45 and 6x SFP ports
- 2x SFP ports for Zero-Loss Redundancy (HSR/PRP)
- Optionally with integrated I/O module
- IEC 61850 compliancy is tested and certified by KEMA/DNV-GL
- Wide operating temperature range: -40 ... +70/85°C

Description

Aginode managed Industrial Ethernet iGigaSwitch 1606 HSR is part of the LANactive Industry product portfolio and is designed for installing robust and reliable networks in harsh environment. LANactive Industry iGigaSwitch 1606 HSR is designed to provide maximum network availability, security, longest lifetime in harsh environments and making a network maintenance easier.

iGigaSwitch 1606 HSR provides great flexibility in network design - it has 16x Gigabit Ethernet ports (10x RJ45 and 6x SFP). The iGigaSwitch allows to adapt the interfaces to the application by using the corresponding pluggable modules (Fast Ethernet or Gigabit Ethernet SFP).

I/O Interfaces

The optionally I/O interfaces of the iGigaSwitch 1606 allows a fast, simple and low-cost integration of non-IP based devices directly e.g. different sensors, controllers, buttons etc. The iGigaSwitch is offering extensive management functionalities with interactions, sending of messages as well as the activation of alarms.

Zero-Loss Redundancy

High Availability and Seamless Redundancy (HSR) and Parallel Redundancy Protocol are a zero-loss redundancy protocols for ring network topologies. That means the iGigaSwitch sends packets in both directions of the ring that at least one packet will arrive the destination.

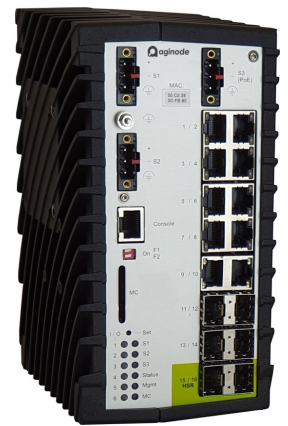
Power over Ethernet (PoE/PoE+)

Up to 8x connected devices can be supplied with Power over Ethernet. In accordance with the latest IEEE 802.3at (PoE+) standard, up to 30W are available for each connected device, with total budget of 240Watts.

IEC 61850

Aginode iGigaSwitch family comply to IEC 61850 requirements (parts 6, 7-1, 7-2, 7-3, 7-4, 8-1, 9-1 and 9-2 Communication networks and systems for power utility automation). This functionality is critical for Smart grid and allows to use standardized equipment to ensure correct and reliable communication of all networked devices of Smart grid infrastructure (including switches, PLCs, different controllers, sensors etc.) with each other and with central SCADA.

The compliance is tested and confirmed by KEMA/DNV-GL.



LANactive

Standards

IEEE 802.3
IEEE 802.3u
IEEE 802.3ab
IEEE 802.3af
IEEE 802.3at
IEEE 802.3z
IEEE 802.3x
IEEE 802.1AB
IEEE 802.1D
IEEE 802.1Q
IEEE 802.1X
IEEE 802.1AX
IEEE 802.3ad
IEEE802.3az

IEC 61850-6, 7-1, 7-2, 7-3, 7-4, 8-1, 9-1, 9-2
IEC 61850-3



Designed for harsh environments



PoE/PoE+



Compact Design



Interoperability



Easy Maintenance



Redundancy



Security and Reliability



High Availability

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Hardware Features

Ordering Information	iGigaSwitch 1606 HSR SFP-6VI HW5	iGiga Switch 1606 HSR SFP-6VI AC HW5
Article Number	88306406	88306476
Interfaces		
User Ports (RJ45)	10x 1000Base-T	
Uplink Ports (SFP)	4x 100/1000Mbps	
HSR/PRP Ports (SFP)	2x 100/1000Mbps	
RJ45 Ports	Auto-Negotiation, MDI/MDI-X Auto-Cross Over and Auto-Polarity	
Digital Diagnostics Monitoring Interface	Yes	
Twisted Pair Cable Diagnostic	Yes	
I/O Interface Connector	Optionally via iOption, see Accessories	
Power over Ethernet (optional)		
Max. Number of PoE+ Ports	8	-
Max. PoE Power Budget	240W	-
PoE Mode	30W per Port, Mode A, Pin 1-2/3-6	-
General		
Dimensions [WxHxD]	95mm x 184mm x 125mm	
IP Protection Class	IP30 (EN 60529)	
Mounting	35mm DIN-Rail Mounting according to EN 60715, (EN 50022) Different mounting positions of DIN-Rail clip - vertical and horizontal switch mounting.	
Material	Anodised/Varnished Aluminium	
Colour	Black	
Ambient Temperature	Operation: -40 ... 85°C, Storage: -40 ... 85°C	Operation: -40 ... 70°C, Storage: -40 ... 85°C
Relative Humidity	20 - 90% (non-condensing)	
Weight	1800g	
MTBF	> 500,000h	
Power Supply		
Input voltage for switch	18 ... 60V DC	90 ... 264V AC / 127 ... 370V DC
Input voltage for PoE+	52 ... 57 V DC (typ. 54V DC)	-
Power consumption (without PoE)	13W (standby) ... 15W (typ.) ... 28W (fully connected)	
Heat output	52 BTU(IT)/h (typ.)	
Connector	2x 3-pin terminal blocks, screw-on type (up to 2.5 mm ²) / (+)(-) (FPE)	1x 3-pin terminal blocks, screw-on type (up to 2.5 mm ²) / (PE) (L/+) (N/-)
Connector PoE	3-pin terminal blocks, screw-on type (up to 2.5 mm ²) / (+)(-) (FPE)	-
CE - Conformity		
Electro Magnetic Capability Directive	2014/30/EU	
Low Voltage Directive	-	2014/35/EU
RoHS 2	2011/65/EU	
Engineering Standards	EN 62368-1, EN 61000-6-2, EN 61000-6-4, EN 61000-3-2, EN 61000-3-3, EN 50581, IEC 61850-3, -6, -7-1, -7-2, -7-3, -7-4, -8-1, -9-1, -9-2	

Software Features

Switching Parameters

Switching Type	Store-and-Forward, self-learning
Switching Capacity	50Gbps, non-blocking
Packet Forwarding Rate	2x 1.488Mpps per port
Max. Frame Size	9.600Bytes (Support of Jumbo frames)
Packet Buffer	512 kBytes
Latency (RFC1242)	100Mbps / 64Byte (FIFO/LIFO) 9µs / 9.3µs 100Mbps / 1518Byte (FIFO/LIFO) 125µs / 4µs 1000Mbps / 64Byte (FIFO/LIFO) 2.7µs / 2.2µs 1000Mbps / 1518Byte (FIFO/LIFO) 15µs / 2.5µs
MAC-Address Table	8.192 MAC-Addresses
VLANs	IEEE802.1q with up to 256 Groups
Quality of Service Layer 2	IEEE802.1p Class of Service (4 Queues per Port)
Quality of Service Layer 3	RFC2474/3168 DSCP (4 Queues per Port)
Bandwidth Limitation	Bitrate and Number of Packets
Fabric Attach	Basic Fabric Attach Client Support

Management

	On-Board High-Performance Management
LEDs	Management, Port Status and Activity, Memory Card
Zero-Touch Configuration	Via LANactive Manager Controller
IP-Address	IPv4, IPv6
DHCP-Client	DHCP, DHCPv6
DHCP Relay Agent	Yes
File Transfer	TFTP, SCP
Console Port	V.24 with Aginode Console Cable
Web-Interface	HTTP, HTTPS
Command Line Interface	SSH, Telnet
Port Statistics	Detailed per port
SNMP	SNMPv1, v2c, v3
Further Management Protocols	Syslog, LLDP, LLDP-MED, CDP
Time Synchronisation	SNTP

Redundancy

Redundancy Protocols	STP, RSTP, MSTP, MRP
Zero-Loss Redundancy	HSR, PRP
Link Aggregation	LACP

Security

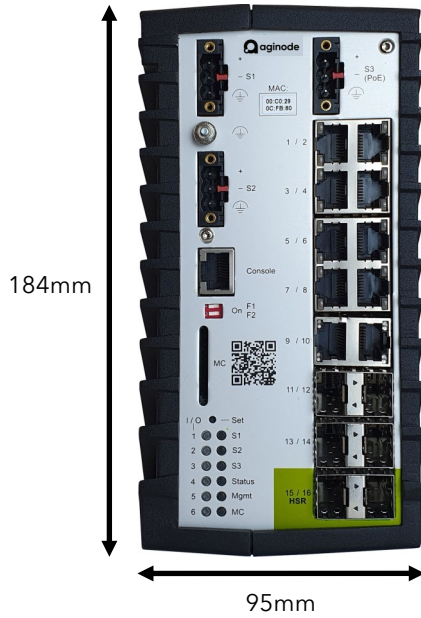
Password Protection	Two Access Levels (R/W or R/O)
Authentication via Radius and TACACS+	CLI and LANactive Manager
Access Control List (ACL)	Layer2 und Layer3
ACL for Management Interface	Up to 16 Access Control Lists
Portsecurity via MAC-Address	Up to 3 predefined MAC-Addresses
Portsecurity via Radius	IEEE802.1x
DHCP Snooping	Yes
Loop and Broadcast Limiter	Yes
Firmware Update	Dual Firmware Image
Configuration-/Reset Button	Yes / Yes (can be configured)
Memory Card	SD-Card, optionally with fixed MAC-Address

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Dimensions



iGigaSwitch 1606 HSR SFP-6VI HW5 88306406



iGigaSwitch 1606 HSR SFP-6VI AC HW5 88306476



Accessories

Ordering Information

88301604 (only available for 88306406)
 88301623

Description

iOption PoE+ 6/8P-30W
 iOption I/O Digital 4xIn 2xOut 230V