Allegro Network Multimeter x410 Series

1410 / 3410 / 5410 / 7410

Datasheet

Analysis and Troubleshooting Tool for Network Administrators

- ✓ High analysis and capture rates (10 / 40 / 100 / 200 Gbit/s)
- ✓ Up to 307 TB SSD with up to 240 Gbit/s recording
- ✓ Analyzes and correlates all metadata from L2 to L7
- ✓ Real-time live data and back-in-time analysis
- ✓ 100 % reliable full capture-to-disk solution
- ✓ Selective and retrospective Pcap extraction
- ✓ Development and support in Germany

Extent of Application: Enterprise Core Networks, Data Centers, ISP Networks

The x410 series, consisting of the Allegro 1410, 3410, 5410 and 7410 models, is optimized for the analysis, monitoring, verification and troubleshooting of network connections spanning from 1 G to 200 G. These systems are designed for very high (real-time) analysis and packet capture data rates, making them ideal for use in large data centers, core networks and robust ISP infrastructures.

Real-time Visibility and Statistics for all Connections

Empowered by Allegro Packets' intuitive web-interface, the x410 series provides granular visibility and selective packet filtering across L2 to L7. Analysis can be performed in real-time and back-in-time for a granular view of the network. The GUI offers several comprehensive overviews as well as detailed statistics on network quality, IPs, MACs, VLANs, Multicast, QoS, TCP, TLS, RTP, Profinet, VoIP, HTTP and many more. With quick and easy set-up, the Allegro Network Multimeter is ready for immediate use to find the root cause of a problem in the network.

Traffic Recorder and Back-in-Time Playback

Featuring back-in-time capability, the Allegro x410 series facilitates precise selection and extraction of recorded data. Such pre-filtered pcap data can be effortlessly extracted with a simple click. Furthermore, selected data can be individually reimported into the network, enabling the recreation and replay of specific events or security incidents, e.g., with IDS / IPS systems.

Expandable Ethernet Ports, In-Memory Database and Ring Buffer

Designed to adapt to your network's unique needs, the x410 series can be customized for additional capture port connections and storage options. Each device comes equipped with 2 x SFP+ ports and the remaining extension slots can be used to increase the number of ports to 30 on the base version and up to 34 on the HC (high-capacity) version. With extension card options ranging from 1 to 200 Gbe Cu / SFP+ / QSFP ports, this Allegro Network Multimeter is ready for any network. For processing historical data using the In-Memory database, the base version starts with 192 GB memory and can be expanded up to 6 TB. Additionally, the ring buffer, crucial for recording network traffic across multiple links, may be dynamically expanded by up to 12 x 3.5" SATA / U.2. NVMe.

Allegro 1410 / 3410 / 5410 / 7410 Series Specifications

Feature	Allegro 1410 / 3410 / 5410 / 7410
Rack units	2
Size (W / H / D) in mm	Base Version: 437 x 89 x 648 HC (High-Capacity) Version: 437 x 88.9 x 803
Weight	20 — 32 kg
Packaging	Server box
Internal database memory	Default Memory Size: 192 GB Base Version: up to 1152 GB HC (High-Capacity) Version: up to 6144 GB
Built-in packet ring buffer storage	configurable with external HDD/SSDs (memory limited only by max. number of HDD/SSDs x largest size available)
HDD / SSD extension slots	12 x 3.5” SATA/U.2 slots
Capture ports	2 x SFP+ [1] 1 x WiFi 6e USB adapter 2 x USB3
Capture port extension options[2]	Base Version: 6 regular extension slots + 1 OCP slot HC (High-Capacity) Version: 8 regular extension slots
Management ports	1 x 1G / 10GBase-T 1 x 1000Base-T IP KVM remote management 1 x WiFi 802.11n via USB adapter Option for 1 x 40 / 100G management via QSFP28

Performance	A1410(-HC)[3]	A3410(-HC)[3]	A5410(-HC)[3]	A7410(-HC)[3]
Max. capture rate (capture only)[4] depending on installed SSD	40 Gbit/s	80 Gbit/s	160 Gbit/s	240 Gbit/s
Average throughput (full decode)[4]	20 Gbit/s	40 Gbit/s	80 Gbit/s	120 Gbit/s
Average packets per second[4] (capture / full decode)	10 / 4 Mpps	15 / 7 Mpps	30 / 15 Mpps	60 / 30 Mpps

[1] SFP / SFP+ ports require Intel branded SFP modules
[2] Reference Port Extensions Datasheet for the latest options and specifications; Page 4 shows configuration options and limitations
[3] Order IDs with “-HC” are for the high-capacity version. The base version omits this, for example A1410.
[4] Real-world datacenter throughput scenario

Max. parallel connections	4 million simultaneously open connections
Jumbo frames	at least 9,000 Bytes[2]
Max. power consumption	Base Version: 1000 W (100 – 127 Vac), 1200 W (200 – 240 Vac) HC Version: 800 W (100 – 127 Vac), 1200 W (200 – 240 Vac)
AC 100-240V (50/60 Hz) support	Yes
Redundant power supply	Yes
Rack kit	Included
Airflow	Front to rear
Operating temperature and humidity	+10 °C to +35 °C (+50 °F to +95 °F) 8% to 90% (non-condensing)
Non-operating temperature and humidity	-40 °C to +60 °C (-40 °F to +140 °F) 5% to 95% (non-condensing)
Warranty Support	1 year included, extendable as option

Memory Expansion Options

If you need to view more historical data, you can upgrade the In-Memory database of the Allegro Network Multimeter. The base version already contains 192 GB of memory. This can be expanded up to 6,144 GB. The HC (High-Capacity) version is required for memory extensions 1,536 GB and higher.

Order ID	Product Description
Ax410-384GB	Memory extension 192 to 384 GB
Ax410-576GB	Memory extension 192 to 576 GB
Ax410-768GB	Memory extension 192 to 768 GB
Ax410-1152GB	Memory extension 192 to 1,152 GB
Ax410-1536GB	Memory extension 192 to 1,536 GB (requires HC version)
Ax410-2304GB	Memory extension 192 to 2,304 GB (requires HC version)
Ax410-3072GB	Memory extension 192 to 3,072 GB (requires HC version)
Ax410-6144GB	Memory extension 192 to 6,144 GB (requires HC version)

Machine Configuration Options

The x410 series can be customized using upgrade options to set how many NVMe slots and extension ports are available. The Base version comes with 1 OCP slot and has 6 regular extension ports. The HC version can have up to 8 regular extension ports. Configuration limitations exist and are outlined below.

Order ID	Product Description
Ax410-SATA-NVME	Adds cabling for addition 4 x NVMe instead of 12 x SATA support, provides 8 x NVMe total
Ax410-4xNVME	Reroutes cabling for addition 4 x NVMe instead of 1 regular extension port, can be booked twice or once in combination with Ax410-SATA-NVME
Ax410-HC-SATA	adds SATA capability to NVMe ports. For Base version, this reduces 1 Highspeed card (4 regular + 1 HS), and for 8EC version, this reduces by 2 regular cards (6 total)

Configuration Limitations

The x410 Allegro Network Multimeters are limited when using high-speed extensions cards which are either 100G and above or 25G quad-port cards. The table below outlines different configuration limitations for the max. number of regular and high-speed extension ports that can be used and how that affects the number of NVMe and SATA slots. Regular extension cards can be used in high-extension port slots.

Base Version Options:

ID	# Regular Ext. Ports	# High-Speed Ext. Ports	# OCP slot	# NVME / SATA	How to Order:
1	none	2	1	12 hybrid NVMe/SATA	Ax410[5] + twice Ax410-4xNVME
2a	4	2	1	4 hybrid NVMe/SATA + 8 SATA only	Ax410[5] (base version)
2b	none	4			
3a	2	2	1	8 hybrid NVMe/SATA + 4 SATA only	Ax410[5] + Ax410-4xNVME
3b	none	3			
4a	4	2	1	8 NVMe only	Ax410[5] + Ax410-SATA-NVME
4b	none	4			
5a	2	2	1	12 NVMe only	Ax410[5] + Ax410-SATA-NVME + Ax410-4xNVME
5b	none	3			

HC Version Options:

ID	# Regular Ext. Ports	# High-Speed Ext. Ports	# NVME / SATA	How to Order:
Base	4	2	12 NVMe only	Ax410-HC[5] (Base Version)
Base + SATA	4	1	12 hybrid NVMe/SATA	Ax410-HC[5] + Ax410-HC-SATA
8EC	8	none	12 NVMe only	Ax410-HC[5] + 8EC config
8EC + SATA	6	none	12 hybrid NVMe/SATA	Ax410-HC[5] + 8EC config + Ax410-HC-SATA

[5] Order ID uses the specific device ID. For example, to order Allegro 1410 with 12 hybrid NVMe/SATA, order A1410 + 2x Ax410-NVME and mention the configuration ID 1 for proper configuration setup.

Options for Internal Storage Expansion

The internal storage acts as a packet ring buffer for the entire link or its selected traffic. This allows the extraction of historical packets. The HDD slots are open, i.e., your own HDDs, even of different capacities, can be installed.

Order ID	Product Description
Ax410-8TBSSD	8 TB SATA SSD, full packet capturing up to 1 Git/s (up to 4 Gbit/s for ~150 seconds), limited warranty 2,800 TBW
Ax410-10TBHDD	10 TB SATA HDD, full packet capturing up to 1.2 Gbit/s
Ax410-16TBHDD	16 TB SATA HDD, full packet capturing up to 1.2 Gbit/s
available on request	1 – 22 TB SATA HDD, on project basis, up to 1.2 Gbit/s
Ax410-18TBDHDD	18 TB SATA HDD, high-speed dual-arm SATA HDD, up to 2 Gbit/s full packet capturing
Ax410-2TBSSD	2 TB U.2 SSD, full packet capturing up to 10 Gbit/s, limited warranty for 3,600 TBW
Ax410-6.4TBSSD	6.4 TB U.2 SSD, full packet capturing up to 40 Gbit/s, limited warranty 35,000 TBW
Ax410-12.8TBSSD	12.8 TB U.2 SSD, full packet capturing up to 40 Gbit/s, limited warranty 70,000 TBW
Ax410-25.6TBSSD	25.6 TB U.2 SSD, full packet capturing up to 40 Gbit/s, limited warranty 140,000 TBW

Warranty Options

All warranty and service extensions include hardware warranty and all software updates. The first year is always included in the purchase price.

Order ID[6]	Product Description
Ax410-IGS2[7]	Discounted extension of initial guarantee and service by 2 years (3 years total from initial purchase)
Ax410-IGS4[7]	Discounted extension of initial guarantee and service by 4 years (5 years total from initial purchase)
Ax410-GS1	Guarantee and service extension for 1 year
Ax410-GS3	Guarantee and service extension for 3 years
Ax410-GS5	Guarantee and service extension for 5 years

[6] Order ID uses the specific device ID. For example, to extend the initial service agreement by 2 years for an Allegro 5410, the order ID would be A5410-IGS2.

[7] Only available within 30 days after initial purchase.

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