Network Port Extension Options

for Allegro Network Multimeters

Datasheet

The Allegro Network Multimeters Series 1xxx and higher can support customer-chosen capture ports. This makes each Allegro Network Multimeter customizable to fit the network's exact needs. Allegro Packets offers a wide range of extension slot options and SFP modules. The following table provides a quick reference of the available extension slots and any limitations that may exist.

The following pages have information on the extension modules offered by Allegro Packets, and which SFP modules can be used with the extensions. Referencing these together can help configure which extensions to add to your Allegro Network Multimeter. For specific questions, please contact Allegro Sales.

	1000 3000	x210 Series	x310 Series		x410 Series		x510 Series
			Base	HC	Base	HC	
Built-in Capture Ports	• 3 x 10/100/1000 Base-T • 2 x 1/10GBase-T • 2 x SFP+[1]	• 4 x SFP+ • 4 x USB3	• 2 x SFP+[1] • 2 x USB3				• No default • 4 x USB3
	• 1 x WiFi 6e USB adapter						
Regular Extension Slots	1	2	2	3	6	8	4
OCP Extension Slots[2]	-	-	1	-	1	-	-
Limitations	Can have either one port-extension card OR one HDD/SSD extension, not both.	none			Reference x410 series datasheet		Max. 2 quad-port cards, Max. 3 high-speed extension cards[3]

1000/1200/3000/3200

x310 Series

x410 Series

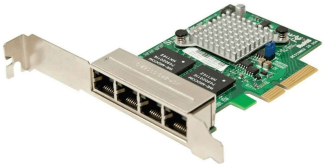
x510 Series

[1] SFP / SFP+ ports require Intel branded SFP modules.

[2] OCP NIC 3.0 is a new standard from the Open Compute Project, an initiative of hyperscale data center operators, that offers a customer serviceable extension slot.

[3] High-speed extension cards are quad port 25G or 100G and above

Extension Cards | 1G

Order ID	Ports	Speed(s)	Max Frame Size[4]	Supported Allegro Modules	Image for Reference
1000Base-T 4-port extension card This card supports 10M / 100M with half and full duplex and 1G with full duplex					
A-P-4x1GBaseT	4 x RJ45	10M 100M 1G	9230	direct connect	
1000Base-T 4-port bypass card This card supports a hardware copper bypass in addition to 10M / 100M / 1G support. The bypass is activated in case of power loss of the machine. It will be also activated when the packet forwarding is disabled (firmware update) or if the forwarding application is not working properly (crash, endless loop, etc.) ✓ Please note that packet forwarding is a software feature, therefore it is not suitable for real-time industrial protocols. ✓ Allegro Packets recommends using only short copper cables and actively testing the failover with a power off to ensure that the physical connection is working with the enabled bypass.					
A-P-4x1GBYP	4 x RJ45	10M 100M 1G	9230	direct connect	
1000Base-T POE+ 4-port extension card This card is compliant with IEEE 802.3at to deliver 25.5 W to each port. The total power limitation is 50W for all ports together. Allegro Packets recommends using this card when testing POE+ devices with direct connection to the extension card.					
A-P-4x1GPOE	4 x RJ45	10M 100M 1G	9230	direct connect	

[4] The max frame size is the maximum packet length that can be captured by this extension card. Please note that MTU is slightly smaller as it accounts for only L3 packet length.

Extension Cards | 10G

Order ID	Ports	Speed(s)	Max Frame Size[4]	Supported Allegro Modules	Image for Reference
SFP+ 2-port extension card					
A-P-2xSFP+	2 x SFP+	1G 10G	9716	A-SFP+-SR A-SFP+-LR A-SFP+-T[5] A-SFP-T[5]	
SFP+ 4-port extension card					
A-P-4xSFP+	4 x SFP+	1G 10G	9716	A-SFP+-SR A-SFP+-LR A-SFP+-T[5] A-SFP-T[5]	
OCP SFP+ 4-port extension card This card is supported in the x310 and x410 in the OCPv3 slot. It does not fit in a regular extension slot.					
A-OCP-4xSFP+	4 x SFP+	1G 10G	9716	A-SFP+-SR A-SFP+-LR A-SFP+-T[5] A-SFP-T[5]	
10GBase-T 2-port extension card This card supports 1G / 2.5G / 5G / 10G Copper. It is recommended for all testing scenarios with 2.5 and 5G connectivity.					
A-P-2x10GBaseT	2 x RJ45	1G 2.5G 5G 10G	15374	direct connect	

[5] A-SFP+-T supports 1 G and 10G speeds, while A-SFP-T only supports 1G speeds.

Extension Cards | 25G

Order ID	Ports	Speed(s)	Max Frame Size[4]	Supported Allegro Modules	Image for Reference
SFP28 2-port extension card					
A-P-2xSFP28	2 x SFP28	1G 10G 25G	9716	A-SFP28-SR A-SFP28-LR A-SFP+-T[5] A-SFP-T[5]	
SFP28 4-port extension card This card supports optional HW timestamping with 10 ns relative accuracy[6].					
A-P-4xSFP28	4 x SFP28	1G 10G 25G	9716	A-SFP28-SR A-SFP28-LR A-SFP+-ER A-SFP+-T[5] A-SFP-T[5]	
OCP SFP28 4-port extension card This card supports optional HW timestamping with 10 ns relative accuracy[6]. ✓ This card is supported in the x310 and x410 using the OCPv3 slot. It does not fit in a regular extension slot.					
A-OCP-4xSFP28	4 x SFP28	1G 10G 25G	9716	A-SFP28-SR A-SFP28-LR A-SFP+-ER A-SFP+-T[5] A-SFP-T[5]	

[6] Relative accuracy describes the accuracy between 2 packets on the same port. The absolute accuracy depends on the time synchronization method (NTP, PTP, GPS) and their accuracy.

Extension Cards | 25G

Order ID	Ports	Speed(s)	Max Frame Size[4]	Supported Allegro Modules	Image for Reference
SFP28 4-port extension card with GNSS/GPS based timestamping This card supports GNSS IN, PPS IN and PPS OUT in addition to relative HW time stamp support. When synced with GNSS, an absolute accuracy[6] of at least 100 ns is achieved on this card. ✓ In addition to the network interface ports the card features three RF connectors: o one female SMB antenna connector for attaching an active GNSS/GPS antenna (3.3 V supplied). o two female SMA connectors where SMA A is configured for PPS IN and SMA B is configured for PPS OUT. ✓ This card is a full profile PCI extension card. It fits only in the x210, x310 and x410 Series. This is not available for the 1000/3000 and the x510. ✓ Support for synchronizing multiple cards in the same system by PPS IN/OUT as long as one of them is synchronized by GNSS IN. ✓ PPS synchronization between multiple Allegro Network Multimeters or an external clock will be supported with a future release.					
A-P-4xSFP28GPS	4 x SFP28	1G 10G 25G	9716	A-SFP28-SR A-SFP28-LR A-SFP+-T[5] A-SFP-T[5]	

Extension Cards | 40G and 100G

Order ID	Ports	Speed(s)	Max Frame Size[4]	Supported Allegro Modules	Image for Reference
QSFP 2-port extension card					
A-P-2xQSFP	2 x QSFP	40G	9716	A-QSFP-SR A-QSFP-LR A-QSFP-SR-BD	
QSFP28 2-port extension card This card supports optional HW timestamping with 10 ns relative accuracy[6]. ✓ Please note that the combined capture rate of both ports is limited to 100G. If you plan to capture more traffic, please either use 2x this card or the option A-P-2xQSFP28H.					
A-P-2xQSFP28	2 x QSFP28	100G	9716	A-QSFP28-SR A-QSFP28-LR A-QSFP28-IR	
		1G 10G 25G		A-QSFP28-SFP28 adapter with • A-SFP28-SR • A-SFP28-LR • A-SFP+-ER • A-SFP+-T[5] • A-SFP-T[5]	
QSFP28 2-port high speed extension card This card supports optional HW timestamping with 10 ns relative accuracy[6]. With two separate capture chips on one card, 200G can be captured in total (2 x 100G). ✓ This card is a full profile PCI extension card. It fits only in the x210, x310 and x410 Series. This is not available for the 1000/3000 and the x510.					
A-P-2xQSFP28H	2 x QSFP28	100G	9716	A-QSFP28-SR A-QSFP28-LR A-QSFP28-IR	
		1G 10G 25G		A-QSFP28-SFP28 adapter with • A-SFP28-SR • A-SFP28-LR • A-SFP+-T[5] • A-SFP-T[5]	

Extension Cards | 100G

Order ID	Ports	Speed(s)	Max Frame Size[4]	Supported Allegro Modules	Image for Reference
QSFP28 2-port extension card with GNSS/GPS based timestamping This card supports GNSS IN, PPS IN and PPS OUT in addition to relative HW time stamp support. When synced with GNSS, an absolute accuracy[6] of at least 100 ns is achieved on this card. ✓ In addition to the network interface ports the card features three RF connectors: o one female SMB antenna connector for attaching an active GNSS/GPS antenna (3.3 V supplied). o two female SMA connectors where SMA A is configured for PPS IN and SMA B is configured for PPS OUT. ✓ This card is a full profile PCI extension card. It fits only in the x210, x310 and x410 Series. This is not available for the 1000/3000 and the x510. ✓ Support for synchronizing multiple cards in the same system by PPS IN/OUT as long as one of them is synchronized by GNSS IN. ✓ PPS synchronization between multiple Allegro Network Multimeters or an external clock will be supported with a future release.					
A-P-2xQSFP28GPS	2 x QSFP28	100G	9716	A-QSFP28-SR A-QSFP28-LR A-QSFP28-IR	
		1G 10G 25G		A-QSFP28-SFP28 adapter with • A-SFP28-SR • A-SFP28-LR • A-SFP+-T[5] • A-SFP-T[5]	

Extension Cards | 100G

Order ID	Ports	Speed(s)	Max Frame Size[4]	Supported Allegro Modules	Image for Reference
OCP QSFP28 2-port extension card This card supports optional HW timestamping with 10 ns relative accuracy[6]. ✓ Please note that the combined capture rate of both ports is limited to 100G. If you plan to capture more traffic, please use either this card with A-P-2xQSFP28 or 2 x A-P-2xQSFP28 or the option A-P-2xQSFP28H. ✓ This card is supported in the x310 and x410 using the OCPv3 slot. It does not fit in a regular extension slot.					
A-OCP-2xQSFP28	2 x QSFP28	100G	9716	A-QSFP28-SR A-QSFP28-LR A-QSFP28-IR	
		1G 10G 25G		A-QSFP28-SFP28 adapter with • A-SFP28-SR • A-SFP28-LR • A-SFP+-ER • A-SFP+-T[5] • A-SFP-T[5]	

Extension Cards | 400G

Order ID	Ports	Speed(s)	Max Frame Size[4]	Supported Allegro Modules	Image for Reference
OSFP 1-port extension card 400G Ethernet is supported with this extension. This card outputs 4 lanes at 112G with PAM4 modulation. It cannot be connected to any 400G port with 8 x 56 GBit/s output. ✓ Please note that OSFP flat top modules are required, finned modules do not fit.					
A-P-1xOSFP	1 x OSFP	400G	15374	A-OSFP-SR4 A-OSFP-DR4	

Extension Cards | WiFi

Order ID	Ports	Speed(s)	Requirements	Image for Reference
USB WiFi 6e capture adapter One adapter is shipped with every Allegro Network Multimeter to monitor one 2.4, 5 or 6 GHz WiFi channel with up to 80 MHz bandwidth. Multiple adapters can be installed on multiple USB3 ports or with an USB3 Hub.				
A-P-USB-WIFI6E	2 x SMA	n/a	1x USB 3.0 port. Up to 16 adapters can be added using a USB hub.	

Extension Cards | Management

Order ID	Ports	Speed(s)	Max Frame Size[4]	Supported Allegro Modules	Image for Reference
QSFP28 2-port management card This card allows to have a 40G / 100G Management Port. This enables high speed capture extraction. ✓ Please note that these ports cannot be used for packet capture.					
A-P-MGT-QSFP28	2 x QSFP28	100G	9000	A-QSFP28-SR A-QSFP28-LR A-QSFP28-IR	
		40G		A-QSFP-SR A-QSFP-LR A-QSFP-SR-BD	
OCP QSFP28 2-port management card This card allows to have a 40G / 100G Management Port. This enables high speed capture extraction. ✓ Please note that these ports cannot be used for packet capture. ✓ This card is supported in the x310 and x410 using the OCPv3 slot. It does not fit in a regular extension slot.					
A-OCP-MGT-QSFP28	2 x QSFP28	100G	9000	A-QSFP28-SR A-QSFP28-LR A-QSFP28-IR	
		40G		A-QSFP-SR A-QSFP-LR A-QSFP-SR-BD	

SFP Modules

Order ID	Connector	Supported Speed(s)	Max Distance
A-SFP-T	RJ45	1G	100 m with CAT5e cable
A-SFP+-SR	LC	1G, 10G	300 m with OM3 cable
A-SFP+-LR	LC	1G, 10G	10 km with OS2 cable
A-SFP+-ER	LC	10G	40 km with SMF cable
A-SFP+-T	RJ45	10G	30 m with CAT5e cable
A-SFP28-SR	LC	25G	100 m with OM4 cable
A-SFP28-LR	LC	25G	10 km with OS2 cable
A-QSFP-SR	MPO	40G	100 m with OM3 cable
A-QSFP-LR	LC	40G	10 km with OS2 cable
A-QSFP-SR-BD	LC	40G	100 m with OM4 cable
A-QSFP28-SR	MPO	100G	100 m with OM4 cable
A-QSFP28-IR	LC	100G	2 km with OS2 cable
A-QSFP28-LR	LC	100G	10 km with OS2 cable
A-QSFP28-SFP28	Converter module – QSFP28 to SFP28		
A-OSFP-SR4	MPO	400G	30 m with OM3 cable or 50 m with OM4
A-OSFP-DR4	MPO	400G	500 m with MPO SMF cable

Internet allegro-packets.com | **Email** info@allegro-packets.com | **Phone** +49 341 59 16 43 53