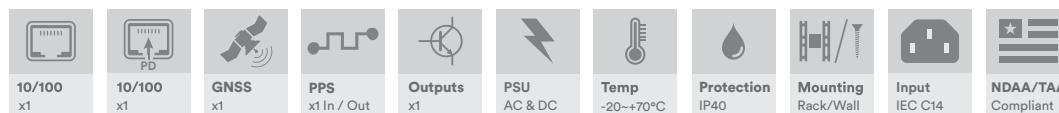# AMG816 SERIES INDUSTRIAL GNSS NTP TIME SERVER WITH OPTIONAL POE PD

Industrial Ethernet Solutions

AMG's NTP time servers provide highly accurate Stratum 1 time information to devices within a network that support the NTP/SNTP protocol. Featuring dual redundant AC and DC inputs and an optional PoE PD input ensure maximum device reliability and uptime.

10/100 x1	10/100 PD x1	GNSS x1	PPS x1 In / Out	Outputs x1	PSU AC & DC	Temp -20~+70°C	Protection IP40	Mounting Rack/Wall	Input IEC C14	NDAA/TAA Compliant

[AMG816-1F-RP-AD-PD]

/ OVERVIEW

AMG816 series Stratum 1 network time servers are designed for 19inch rack or desktop mounting using the included rack mounting kit (or wall mount using the optional wall mounting kit) and are ideally suited for providing a highly accurate and easy to configure time source for networks without the need for any online access or subscription services.

The integrated GNSS receiver supports multiple user configurable satellite constellation sources including: GPS, Galileo, GLONASS and BeiDou with 33 tracking channels and 99 acquisition channels.

The AMG816 generates a reference PPS output which can provide time information to other AMG NTP or 3rd party devices. If the GNSS signal is lost to the AMG816 the integrated PPS input can accept a reference from another AMG NTP or 3rd party device server and/or use other NTP servers over the network as backup sources providing Stratum 2+ NTP during the outage.

Available with dual or triple power inputs along with an integrated real time clock with super-capacitor and battery backup ensures maximum available uptime.

GNSS antenna is required and are sold separately.

/ FEATURES

— 19inch 1U rack, desktop or shelf mount with the included rack mounting kit or wall mount using the optional wall mounting brackets

— -20°C to +70°C temperature maintains performance in challenging environmental conditions

— Dual redundant power supply inputs as standard - 1x AC Mains + 1x Low Voltage DC with secure locking power connectors

— GNSS receiver supports 4 satellite constellations including GPS, Galileo, GLONASS & BeiDou

— PPS Input & Output support 3rd party devices with NTP time data for backup purposes

— Integrated real time clock with super-capacitor and battery backup ensure maximum system uptime

— Supports optional IEEE 802.3af PoE PD power input

— Designed in the USA & UK. Manufactured in the USA

— AMG Lifetime Support Warranty

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Specifications.

Standards.

IEEE802.3i	10Base-T
IEEE802.3u	100Base-TX
IEEE802.3af	15W PoE PD
IEEE802.3x	Flow Control
IEEE 802.3AB	LLDP
RFC4250 - 4254	SSH
RFC5246	TLS1.2 / HTTPS
RFC854	Telnet
RFC5905/2030	NTP v4 / SNTP v4
RFC2131	DHCP

Hardware Features.

CPU	Dual Cortex-A7 @ 1.2Ghz
RAM	128MB
Flash	512MB
User Storage	MicroSD
GNSS	Quectel L76-L
GNSS Accuracy	100ns Typical
GNSS Backup	6-12 Hours (Super-Capacitor)
NTP Accuracy	±1ms (Network Dependent)
NTP Clients:	
With Tracking	100,000 Unique IPs
Without Tracking	1,000,000 Unique IPs
NTP Requests	>10,000 Requets per Second
RTC	XO (~ ±1.7 to ±3.5s/day Accuracy Without GNSS)
RTC Backup	≥5 Years (CR1220 Lithium Battery)

Management.

DHCP	Client (IPv4 & IPv6)
Management Access	Telnet
	SSH v2.0
	CLI
	Web GUI (Read Only)
SNMP	v1/v2c (Read Only With Limited MIB Support)
Software Update	Auto or Manual
	Online or Offline
Configuration	IPv4 & IPv6
LLDP	Advertisement
	Neighbour Display
Prometheus	Compatible Metrics Endpoint
Graphs	GNSS (7 Days)
	NTP (7 Days)
	System Status (7 Days)

Interface.

LED Indicators	Power
	System
	PPS
	NTP
	RJ45 Link & Activity
RJ45 Ports	1x 10/100TX RJ45
	with Auto MDI/MDI-X and
	2 kV Isolation Protection
GNSS	SMA (Female) with 3.3V$_{DC}$ Output
Serial Console	USB Type C
Mains Power	1x IEC C14 Socket (Locking Bracket)
DC Power	3-way Locking Screw Terminal
PPS & Aux I/O	4-way Screw Terminal
User Storage	MicroSD Card Slot

PPS I/O & Aux.

PPS Input	2.3V to 5.5V Wide-Range
PPS Output	5V @ 8mA
	Rising Edge
	100msec Pulse Width
Aux Output	Digital Output 5V @ 8mA

Power.

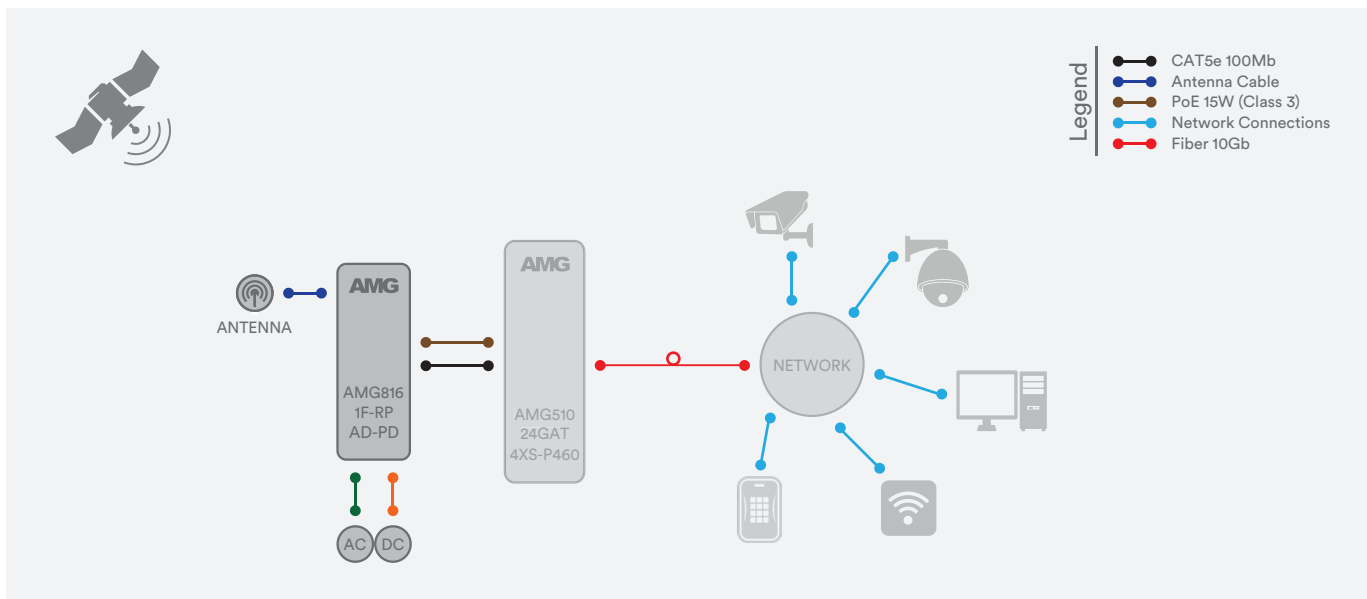|	
Power Inputs	2 or 3 (Model Dependent)
Operating Voltage:	
Mains (All Models)	85-264V$_{AC}$
DC (All Models)	11-27V$_{DC}$
PoE PD Models	IEEE 802.3af Class 3 Device
Power Consumption	1W Typical (5W Max)
Protection	Reverse Polarity (DC Input Only)
	Overload Current

Mechanical.

Housing	Metal
Dimensions:	(W x D x H)
(Excluding 19inch Brackets)	220 × 161 × 43 mm
	8.66 × 6.34 × 1.69 in
IP Rating	IP40
Installation	19inch Rack (1U), Desktop
	Wall Mount (Requires wall mount kit)
	DIN Rail (Requires DIN rail mount kit)
Weight	1.28kg / 2.82lb

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Specifications.

Environmental.

Operating Temp.	-20 to +70°C / -4 to +158°F
Storage Temp.	-40 to +85°C / -40 to +185°F
Humidity	5% to 95% (non-condensing)
MTBF	>250,000 hours
MTBF Standard	Telcordia SR-332 GF 30°C
Heat Dissipation	3.4 BTU/h Typical (17 BTU/h Max)
Cooling	Passive Cooling
Noise Level	0 dBA

Packaging.

Shipping Weight	2.20kg / 4.85lb
Dimensions	(W x D x H)
	550 × 320 × 110 mm
	21.65 × 12.60 × 4.33 in

Regulatory.

Safety	IEC/EN 62368-1
EMI	EN 55032 Class A
	CISPR 32
	FCC Part 15B Class A
EMS	EN 61000-4-2 (ESD)
	EN 61000-4-3 (RS)
	EN 61000-4-4 (EFT)
	EN 61000-4-5 (Surge)
	EN 61000-4-6 (CS)
	EN 61000-4-8 (PFMF)
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental	Reach
	RoHS
	WEEE
Supply Chain	NDAA & TAA Compliant

Application Diagram.

Legend
- CAT5e 100Mb
- Antenna Cable
- PoE 15W (Class 3)
- Network Connections
- Fiber 10Gb

ANTENNA

AMG816
1F-RP
AD-PD

AMG510
24GAT
4XS-P460

NETWORK

AC DC

Part Numbers.

Industrial 19inch Mount NTP Stratum 1 GNSS Time Servers

AMG816-1F-RP-AD	1 × 10/100BaseT(x) RJ45, 1 x GNSS Input, 1 x PPS Input/Output*
AMG816-1F-RP-AD-PD	1 × 10/100BaseT(x) RJ45 with PoE PD Class 3 Input, 1 x GNSS Input, 1 x PPS Input/Output*

* Requires a suitable GNSS antenna which are sold separately (see recommended antenna part codes below)

Included Accessories.

19inch Mounting Brackets	2x Rack Brackets & Screws For 1U 19inch Mounting AMG816 Series Products
Adhesive Rubber Feet	4x Grey Rubber Adhesive Feet For Desktop Mouting AMG816 Series Products
Cable Ties & Bases	2x Cable Ties, Bases & Screws For Securing Cables To The Included 19inch Rack Mounting Brackets
IEC Plug Locking Bracket	Angled Locking Bracket & Screws To Secure The Included Left Angle IEC Line Cord
Left Angle IEC Cable	Region Specific UK/EU/US Left Angled IEC Line Cord
USB Console Cable	USB Type A to Type C Console Cable (1.5M, 5ft)
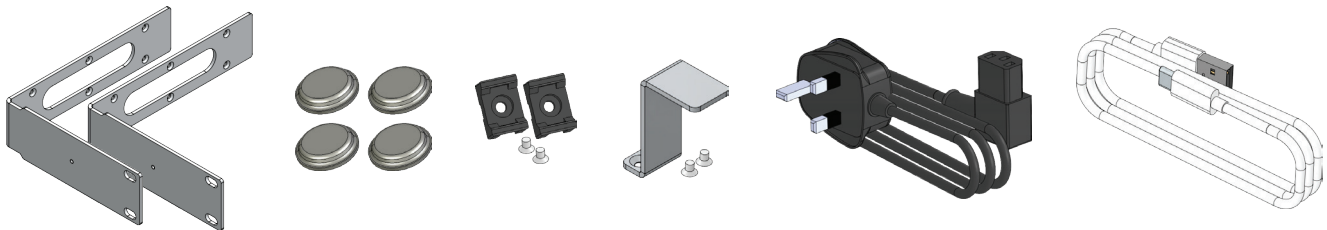
Recommended Antennas.

AMGANT-G1-ODA5-4.5B	360° Omni-Directional Antenna, 1x GNSS 5dBi Gain SMA-Type Male Connector, 4.5M (15ft) RG174 Cable, IP65, Surface Mount, Black^
AMGANT-G1-ODA5-4.5W	360° Omni-Directional Antenna, 1x GNSS 5dBi Gain SMA-Type Male Connector, 4.5M (15ft) RG174 Cable, IP65, Surface Mount, White^
AMGANT-G1-ODA2.5-5B	360° Omni-Directional Antenna, 1x GNSS 2.5dBi Gain SMA-Type Male Connector, 5M (16ft) RG174 Cable, IP65, Surface Mount With Double Sided Adhesive Pad, Black^

^ Antenna extension cables and wall/pole mounting kits are also available. Maximum cable extension length depends on the antenna selected. Contact AMG Technical Services for advice and support.

Recommended PSUs.

AMGPSU-W12-P25	Plug Top Mounting Lite Industrial Grade PSU, 0 to +70°C, 12VDC, 25W, UK/EU/US Plug Heads Included
AMGPSU-I12-P24A	DIN-Rail Mount Industrial Grade PSU, -25 to +70°C, 12VDC, 24W*

* Also available in kit form including mains line cord, DC cable and DIN rail. Order with -K at the end of the part code (AMGPSU-I12-P24A-K).

Optional Accessories.

AMGMNT-DIN-02	44mm Easy Install DIN Rail Clip & Screws For DIN Rail Mounting AMG816 Products
AMGMNT-WALL-01	2x Wall Mouting Brackets & Screws For Wall / Surface Mouting AMG816 Series Products