DATA SHEET

Vibro-Meter®

ANW010 wireless Ethernet module

CE Ex UL LISTED
FOR HAZ.LOC. C1D2

KEY FEATURES AND BENEFITS

- From the Vibro-Meter® product line

- For use with VibroSmart® and VM600 systems

- IEEE 802.11a/b/g/n (Wi-Fi) compliant wireless access point (AP), bridge or client

- Multiple-input multiple-output (MIMO) technology for data rates up to 300 Mbps

- Transmission distance up to 500 m or 1 km (5 GHz band only)

- Integrated antennas and power isolation (500 V insulation protection)

- Ex certified for use in hazardous areas (potentially explosive atmospheres)

- Redundant power supply inputs for improved availability or power over Ethernet (IEEE 802.3af PoE)

- Front panel LEDs provide status and network information

- Fully software configurable for easy setup

KEY FEATURES AND BENEFITS *(continued)*

- Rugged industrial design (IP30)

- Metal enclosure with DIN-rail mounting adaptor

APPLICATIONS

- Enables wireless local area networks (WLANs) in accordance with IEEE 802.11 (Wi-Fi)

- Wireless networks for machinery monitoring systems

- Ideal wireless solution for hard-to-wire applications

DESCRIPTION

The ANW010 wireless Ethernet module is a an industrial wireless access point (AP), bridge or client that enables wireless local area networks of Ethernet (TCP/IP) devices and equipment to be quickly, easily and reliably established.

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DESCRIPTION *(continued)*

Accordingly, the ANW010 module is ideally suited to wireless networks for machinery monitoring systems in hard-to-wire applications and/or difficult to reach areas.

The ANW010 is a versatile module that can be used as a wireless access point (AP), bridge or client. It uses IEEE 802.11n technology such as spatial multiple-input multiple-output (MIMO) multiplexing and dual-bands (2.4 or 5 GHz) to support the growing requirements for faster data speeds and increased transmission distances, and is also backward compatible with legacy IEEE 802.11a/b/g devices. It also supports WPA/WPA2 secure encryption to help ensure that data is fully protected.

The most common ANW010 operating modes for wireless networks are AP client mode (access point) and bridge mode. In AP client mode, a

wireless access point (AP) is required to set up a wireless connection. The AP can be used to create a wireless local area network (WLAN) or to connect an existing WLAN with a wired network. While bridge more offers a simple way to connect two Ethernet (TCP/IP) devices over a wireless point-to-point connection.

The ANW010 is simple to install, configure and integrate into existing communication infrastructures/networks in industrial environments. Redundant power supply inputs are available for improved availability, and power over Ethernet (PoE) can use the network (Ethernet) cable to make deployment easier.

For specific applications, contact your local Meggitt representative.

SPECIFICATIONS

Wireless local area network (WLAN) interface

Standards	: IEEE 802.11a/b/g/n for Wi-Fi. IEEE 802.11i for wireless security.
Modulation	: DSSS. MIMO-OFDM. OFDM.
Operating frequency bands (EU)	: 2.412 to 2.472 GHz (13 channels. 5.180 to 5.240 GHz (4 channels). 5.260 to 5.320 GHz (4 channels) and 5.500 to 5.700 GHz (11 channels) for dynamic frequency selection (DFS).
Wireless data security	: WPA/WPA2-Enterprise. WPA/WPA2-Personal. WEP encryption (64-bit and 128-bit). Note: WPA2 security is strongly recommended for all new Wi-Fi applications as it is significantly more secure than WPA security. WEP security is considered highly insecure and is effectively deprecated – it is included for legacy purposes only.
Transmission rate	: IEEE 802.11b: 1 to 11 Mbps. IEEE 802.11a/g: 6 to 54 Mbps. IEEE 802.11n: 6.5 to 300 Mbps.
Transmitter power for IEEE 802.11a	: 23±1.5 dBm at 6 to 24 Mbps. 21±1.5 dBm at 36 Mbps. 20±1.5 dBm at 48 Mbps. 18±1.5 dBm at 54 Mbps.

SPECIFICATIONS *(continued)*

Transmitter power for IEEE 802.11b	: 26±1.5 dBm at 1 Mbps. 26±1.5 dBm at 2 Mbps. 26±1.5 dBm at 5.5 Mbps. 25±1.5 dBm at 11 Mbps.
Transmitter power for IEEE 802.11g	: 23±1.5 dBm at 6 to 24 Mbps. 21±1.5 dBm at 36 Mbps. 19±1.5 dBm at 48 Mbps. 18±1.5 dBm at 54 Mbps.
Transmitter power for IEEE 802.11n (2.4 GHz)	: 23±1.5 dBm at MCS0/8 20 MHz. 18±1.5 dBm at MCS7/15 20 MHz. 23±1.5 dBm at MCS0/8 40 MHz. 17±1.5 dBm at MCS7/15 40 MHz.
Transmitter power for IEEE 802.11n (5 GHz)	: 23±1.5 dBm at MCS0/8 20 MHz. 18±1.5 dBm at MCS7/15 20 MHz. 23±1.5 dBm at MCS0/8 40 MHz. 17±1.5 dBm at MCS7/15 40 MHz.
Transmitter power (EU)	: 18 dBm at 2.4 GHz. 21 dBm at 5 GHz (U-NII-1). 21 dBm at 5 GHz (U-NII-2). 23 dBm at 5 GHz (U-NII-2e). Note: The maximum transmitter power on the U-NII bands is restricted in the module, due to regional regulations.
Receiver sensitivity for IEEE 802.11a	: −90 dBm at 6 Mbps. −88 dBm at 9 Mbps. −88 dBm at 12 Mbps. −85 dBm at 18 Mbps. −81 dBm at 24 Mbps. −78 dBm at 36 Mbps. −74 dBm at 48 Mbps. −72 dBm at 54 Mbps.
Receiver sensitivity for IEEE 802.11b	: −93 dBm at 1 Mbps. −93 dBm at 2 Mbps. −93 dBm at 5.5 Mbps. −88 dBm at 11 Mbps.
Receiver sensitivity for IEEE 802.11g	: −88 dBm at 6 Mbps. −86 dBm at 9 Mbps. −85 dBm at 12 Mbps. −85 dBm at 18 Mbps. −85 dBm at 24 Mbps. −82 dBm at 36 Mbps. −78 dBm at 48 Mbps. −74 dBm at 54 Mbps.
Receiver sensitivity for IEEE 802.11n (2.4 GHz)	: −70 dBm at MCS7 20 MHz. −69 dBm at MCS15 20 MHz. −67 dBm at MCS7 40 MHz. −67 dBm at MCS15 40 MHz.
Receiver sensitivity for IEEE 802.11n (5 GHz)	: −69 dBm at MCS7 20 MHz. −71 dBm at MCS15 20 MHz. −63 dBm at MCS7 40 MHz. −68 dBm at MCS15 40 MHz.
WLAN operating mode (functionality)	: Access point (AP), Client, Client-Router, Master, Slave or Sniffer

SPECIFICATIONS *(continued)*

Ethernet (LAN) interface

Type	: Gigabit Ethernet with power over Ethernet (PoE)
Network interface	: 10/100/1000 BASE-T(X). Auto-negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection.
Data transfer rate	: Up to 1000 Mbps (1 Gbps)
Connector	: LAN (see **Connectors on page 7**).

Serial (console) interface

Type	: Serial (proprietary)
Network interface	: RS-232
Connector	: RS-232 CONSOLE (see **Connectors on page 7**).

Ethernet software features (protocols)

Network management/protocols	: Proxy ARP, DNS, HTTP, HTTPS, IP, ICMP, SNTP, TCP, UDP, RADIUS, SNMP, DHCP, VLAN and STP/RSTP

Firewall

Filter (IP-based packets)	: MAC address, IP protocol and/or port-based

Environmental

Temperature
• *Operating*	: −40 to 75°C (−40 to 167°F)
• *Storage*	: −40 to 85°C (−40 to 185°F)
Humidity	: 5 to 95% max. non-condensing
Protection rating (according to IEC 60529)	: IP30
Vibration	: IEC 60068-2-6
Shock	: IEC 60068-2-27

Potentially explosive atmospheres

Ex certified for use in hazardous areas

Type of protection Ex nA: non-sparking		
Europe	Type examination certificate	DEMKO 18 ATEX 2045X II 3 G (Zone 2) Ex nA IIC T4 Gc
North America	cULus certificate	UL E344136 Class I, Division 2, Groups A, B, C and D

⚠ **For specific parameters of the mode of protection concerned and special conditions for safe use, refer to the Ex certificates that are available from Meggitt SA.**

⚠ **When using protection mode "Ex nA" (non-sparking), the user must ensure that the signal conditioner is installed in an industrial housing or enclosure that ensures a protection rating of at least IP54 (or equivalent).**

SPECIFICATIONS *(continued)*

Approvals

Conformity	:	CE marking, European Union (EU) declaration of conformity
Electromagnetic compatibility	:	EN 61000-6-2, EN 61000-6-4.
		CISPR 22 (EN 55022).
		IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-6, IEC 61000-4-8.
Electrical safety	:	EN 60950-1
Environmental management	:	RoHS compliant (2011/65/EU)
Hazardous areas	:	Ex approved (see **Potentially explosive atmospheres on page 4**)

Power supply (to ANW010)

Input voltage range	:	12 to 48 V_{DC} from (removable?) screw-terminal connector. 48 V_{DC} from power over Ethernet.
Redundancy	:	Two separate inputs on (removable?) screw-terminal connector for connection to different external power supplies
Current consumption	:	0.6 A at 12 V_{DC}. 0.15 A at 48 V_{DC}.
Power consumption	:	7.2 W max.
Reverse-voltage protection	:	Yes

Digital input signals

Number	:	Two (DI0 and DI1). See **Connectors on page 7**.
Type	:	13 to 30 V_{DC} indicates "logic/state 1". −30 to 3 V_{DC} indicates "logic/state 0".
Voltage	:	2 electrically isolated inputs (DI0+ and DI1+) with a common ground (COM_0, COM_1)
Current	:	8 mA max. Note: The digital input signals can be used to indicate external events such as alarms by configuring the module to use its relay or send a message (email). See also **Relay on page 6**.

Controls

RESET button	:	Recessed reset button (top). Press and hold the reset button for <5 seconds to restart (reboot) the module. Press and hold the reset button for >5 seconds, until the STATE LED starts blinking green, then release the reset button to reset the module to its factory assigned defaults.

SPECIFICATIONS *(continued)*

Relay

Contacts	: Two. See **Connectors on page 7**.
Operation	: Used to indicate problems or configured events: • Energised relay (closed contacts) indicates normal operation. • De-energised relay (open contacts) indicates a problem with the module or a configured module event.
Alarm/status events (configurable)	: PWR1 power supply on to off transition. PWR2 power supply on to off transition. PoE power supply on to off transition. DI0 digital input signal on to off transition. DI0 digital input signal off to on transition. DI1 digital input signal on to off transition. DI1 digital input signal off to on transition. LAN link on. LAN link off.
Current carrying capacity	: 1 A and 24 V_{DC}

Status (LED) indicators

PWR1	: Green indicates module power is supplied from power input 1 connection (see Screw-terminal connector in **Connectors on page 7**)
PWR2	: Green indicates module power is supplied from power input 2 connection (see Screw-terminal connector in **Connectors on page 7**)
PoE	: Orange indicates module power is supplied from power over Ethernet (PoE) connection (see Screw-terminal connector in **Connectors on page 7**)
FAULT	: Off indicates normal operation (no problems with the module). Red (steady) indicates module startup or a configured module event/relay. Red (steady or blinking) can indicate problems with the module.
STATE	: Green (steady) indicates module startup is complete and module is operating normally. Red indicates module startup.
SIGNAL	: Green LEDs indicate the Wi-Fi signal level. Note: There are 5 SIGNAL LEDs and more LEDs indicate more Wi-Fi signal strength (client/slave/client-router modes only).
WLAN	: Green (steady) indicates module WLAN is in client/slave/client-router mode and has established a link with an access point (AP). Green (blinking) indicates module WLAN data transmission (client/slave/client-router mode). Orange (steady) indicates module WLAN is in access point (AP)/master mode. Orange (blinking) indicates module WLAN data transmission in access point (AP)/master mode. Off indicates module WLAN link is not established / not in use or not working properly.

SPECIFICATIONS *(continued)*

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LAN	: Green (steady) indicates module LAN has established a link at 1000 Mbps. Green (blinking) indicates module LAN data transmission at 1000 Mbps. Orange (steady) indicates module LAN has established a link at 10/100 Mbps. Green (blinking) indicates module LAN data transmission at 10/100 Mbps. Off indicates module LAN link is not established / not in use or not working properly.

Connectors

Screw-terminal connector (top)	: Removal screw-terminal connector for connection to: V1+ and V1− contacts for PWR1 power supply. V2+ and V2− contacts for PWR2 power supply. Relay contacts to indicate module status. See **Relay on page 6**. DI0+ and COM_0 − contacts for DI0 digital input signal. DI1+ and COM_1 − contacts for DI1 digital input signal. See **Digital input signals on page 5**.
A (top front)	: RP-SMA RF connector for connection to Wi-Fi antenna (500 V insulation)
RS-232 CONSOLE (middle front)	: 8P8C (RJ45) connector for connection to the COM port of a computer via a serial cable for module configuration and management
LAN (middle front)	: 8P8C (RJ45) connector (10/100/1000 Mbps) for connection to a wired LAN or individual Ethernet component/device
B (bottom front)	: RP-SMA RF connector for connection to Wi-Fi antenna (500 V insulation)

Antenna

Number	: Two
Type	: External 2/2 dBi, omnidirectional antenna (with RP-SMA RF connector)

Physical

Housing	: Metal
Mounting	
• *With DIN-rail mounting adaptor*	: Mounts on a TH 35 DIN rail (according to EN 50022 / IEC 60715). For example, TH 35-15 or TH 35-7.5.
• *Without DIN-rail mounting adaptor*	: Wall-mounting kit available
Dimensions (height × width × depth)	: 135 × 53 × 105 mm (5.3 × 2.1 × 4.2")
Weight	: 0.9 kg (2.0 lb) approx.

ORDERING INFORMATION

To order please specify

Type	Designation	Ordering number (PNR)
ANW010	Wireless Ethernet module	957.51.74.0001

Note: The ANW010 wireless Ethernet module is supplied with a DIN-rail mounting kit and two 2.4/5 GHz antennas.

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