

Solwise Ltd

**300Mbps 5GHz
AP/CPE**



ZYGMA7

Affordable Infrastructure

ZyGMA7 from Solwise

Featura N5, 802.11 a/n 300Mbps High-gain Outdoor Wireless AP/CPE, with 2T2R Built-in 14~16dBi dual-polarity Antenna and Dual External Antenna Connectors, Dual 10/100Mbps RJ45 interfaces, PoE out to secondary device for applications such as IP Surveillance, UK Band B legal.

Product Overview

*Featura, N5, 300Mbps
High-throughput,
Long-distance,
Feature-rich,
Near-industrial grade
Solution, UK legal Band B*

The WiFi technology for outdoor connectivity is very mature and is often now used for last mile internet delivery or for building network connections. Typical applications include deployment of internet services in various environments, like the hospitality sector, campus networking, WISP long-haul communications, etc.

Featura N5 is a Client CPE or AP, using the 5GHz band, to give Wifi communications free from the interference and congestions present in the common 2.4GHz ISM band. The Zygma7 5GHz CPE products are legal for use in the UK on the 5GHz Band B unlicensed band (5470-5720MHz). Key features include DFS, TPC.

The unique high-gain and antenna design with 2T2R 11n gives excellent throughputs over short to medium distances. The Feature N5 is easy-to-install with outstanding performance and a cost-effective design that allows users to have the reliable outdoor equipment at the affordable price. The maximum wireless bandwidth can reach up to 300Mbps (theoretical physical rate - see table below for realistic throughputs) to provide the users good link throughput.

It can also be used as the outdoor CPE for a WISP last mile connection allowing WISPs to deliver internet service to the residential and the business customer where wired broadband internet service can not be delivered.

The Featura N5 also supports the WDS features and an external antenna connection to make the bridging easier. An AP+Repeater mode is also implemented to facilitate a larger scale of WISP deployment.

Key Features

- High-gain solution provides long range of wireless application
- IEEE 802.11an compliant with 300Mbps high-speed data rate
- Operation modes: AP, Client, WDS, AP+WDS
- 16dBi dual-polarity 2T2R built-in Antenna
- Software-selectable Dual External Antenna
- Watchdog mechanism for reboot detection
- Weather proof case against ruggedized environment
- -20°C ~ 70°C Operational Temperature
- Passive Power Over Ethernet
- Dual 10/100Mbps RJ45 interfaces
- PoE out to secondary device for applications such as IP Surveillance
- DHCP Server/Client support
- Wireless users access control
- Wireless Security: Open System(default), Shared Key(64/128/152-bits WEP), 802.1X only, WPA, WPA2, WPA-PSK(TKIP), WPA2-PSK(AES)
- Support 802.1d Spanning Tree
- Quick setup utility with Web-based configuration

Z9050-AN

Feature Descriptions

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Application

- The Featura N5 for 5GHz operation is one of a range of 5GHz and 2.4GHz outdoor CPE products from Zygm7:

Fighter N5 - 150Mbps 11n 5GHz

Fighter N2 - 150Mbps 11n 2.4GHz

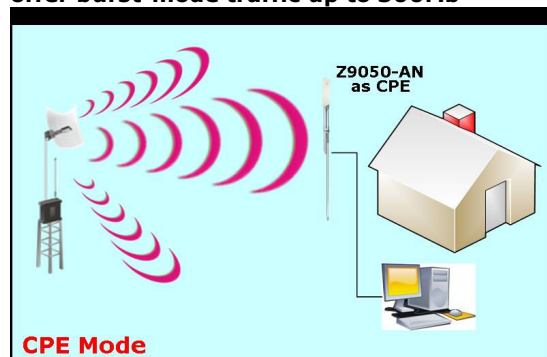
Featura N2 - 150Mbps 11n 2.4GHz with N connector

All of the products can be set-and-run in CPE mode, AP mode, WDS/Bridge mode, and AP+Repeater mode. Customers can select the products according to his specific requirements and needs.

Outdoor Wireless Selection Guide		
	6~10km	Higher Throughput Longer Distance Selectable External Antenna Bigger Flash/SDRAM Better System Management Features SNMP v3, Watchdog for Heart-beat Check Wide Temperature Range(-20~70°C)
5G Band	0~50°C	Featura N5 Z9050-AN ●300Mbps: Better Throughput by 2T2R Antenna PoE/Out-to-Device Feature
2.4G Band	Fighter N2 Z9024L-BGN ●150Mbps	Featura N2 Z9024-BGN ●150Mbps
	Fighter BG Z9024L-BG ●54Mbps	

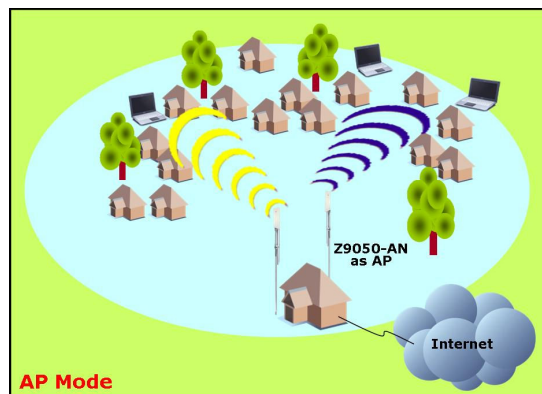
CPE Mode: Good for WISP

- Using teh Featura N5 as CPE at a subscriber's home, the WISP operator can deploy the 802.11a/n 5GHz band last-mile equipments to provide high-bandwidth low-interference service network. This is a high-quality network design to offer burst-mode traffic up to 300Mb



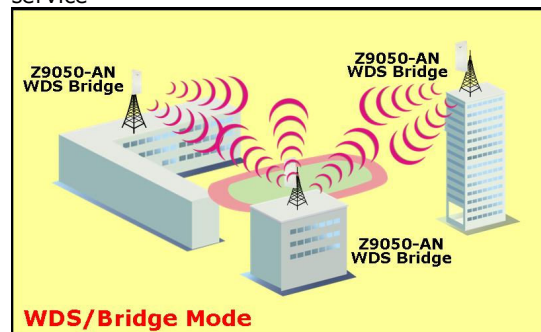
AP Mode: Used in WISP Deployment or Hospitality Environment

- Setting the Featura N5 in AP-mode, it can be used as a wireless AP to connect the clients to the internet. It can be used in Hotel Internet provisioning, WISP Deployment or Community Networking.



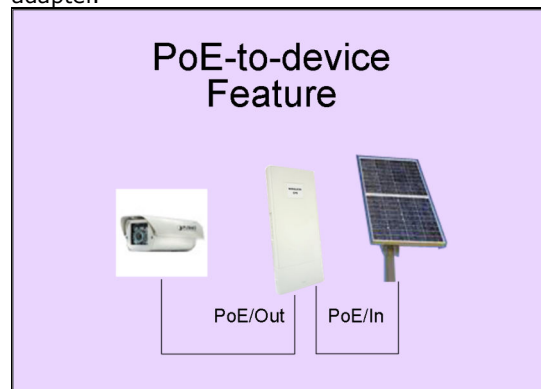
WDS/Bridge Mode: Used in Campus Networking or WISP Deployment

- Operating in WDS/Bridging mode, the Featura can exchange the routing information transparently to the users and the network designers. It not only simplifies the networking design/installation /maintenance, but also enhance the availability of the service



PoE-to-device Feature

- With PoE/In & PoE/Out circuit design, Featura N5 can supplot PoE power to a secondary device(for example, an IP CAM - please ensure that the PoE delivery system has enough power to cope) e.g. you may wish to use a single power source such as a solar-cell or a power adapter.



Related Products

PartNo	Stock Code	Model Name	WiFi Standard & Antenna	Operating Temperature	External Antenna	IP Protection
Z9024L-BGN-v2	ZY-FIGHTERN2	Fighter N2	802.11 b/g/n, 1T1R	-30°C ~ 55°C	Yes	IP65
Z9024-BGN	ZY-FEATURAN2	Featura N2	802.11 b/g/n, 1T1R	-20°C ~ 70°C	Yes	IP55
Z9050L-AN	ZY-FIGHTERN5	Fighter N5	802.11 a/n, 1T1R	-30°C ~ 60°C	Yes	IP65
Z9050-AN	ZY-FEATURAN5	Featura N5	802.11 a/n, 2T2R	-20°C ~ 70°C	Yes	IP55

Typical Distance Throughput

Model Name	Theoretical Max Throughput and Distance at UK legal Band B (30dBm EIRP)*		Theoretical Max Throughput and Distance at UK legal Band C (36dBm EIRP)*	
	MCS7	MCS0	MCS7	MCS0
Fighter N5	150Mbps/1Km	15Mbps/6Km	150Mbps/1Km	15Mbps/9Km
Featura N5	300Mbps/500m (at MSC15/HT40)	15Mbps/3Km (at HT40)	n/a	n/a

*Notes:

Assumes like product at both ends of the link

Distance figures are based upon a System Operating Margin of approximately 10dBm

Actual throughput will depend upon the quality of the WiFi link and restrictions on the LAN connectivity

Distances quoted assume clear line-of-site between the points and correct Fresnel Zone Clearance

Distances are using the CPE built-in antenna

Specifications

Hardware Specifications

Interfaces	2 RJ45 10/100Mbps FastEthernet	WAN Port: Main Ethernet (Passive PoE, 15V~18V)
	1 IEEE 802.11a/n WiFi interface	LAN Port: Secondary Ethernet (PoE out, 12V)
Standard Compliance	IEEE 802.3 and 802.3u 10Base-T and 100Base-TX physical layer specification	
	IEEE 802.11a/n specification compliance	
	Wi-Fi certificate	
CPU	Atheros AR7240 SOC, 400MHz	
RF	Atheros AR9280	
DDR	32Mbyte	
Flash	8Mbyte	
Antenna	Antenna configuration	2 x 2 (2T2R)
	Internal Antenna (default)	14~16dBi dual-polarity
	External Antenna Connector	Reverse SMA Male Connector x 2
	(internal & external antenna selectable by software)	
Reset Button	Reset to factory default	
Power on/off Button	For EuP	
System Update Capability	Support Web-UI upgrade via Ethernet port or wireless network	
	Support TFTP upgrade via Ethernet port	
Power Consumption	Chariot TX	8.5W
	Chariot RX	5W
Power Adapter Requirements	Main device only	15VDD @0.8A (full range switching) - default use
		18VDC @0.9A (full range switching)
	Main device + PoE out to device (12V to Secondary Device)	15VDC @3A (full range switching)
		18VDC @3A (full range switching)
Data Rate	802.11a:	54/48/36/24/18/12/9/6Mbps
	802.11n:	HT20/40 MCS0~15 (6.5Mbps to 300Mbps)
	Maximum at 300Mbps	
Transmission/Emission Type	Direct Sequence Spread Spectrum (DSSS)	

Data modulation type	802.11a: OFDM	
	802.11n: OFDM	
RF frequency range	FCC: 5725~5850 MHz	
	CE: 5470~5725 MHz (DFS band)	
Average Output Power at 25°C, 2T2R	IEEE 802.11a:	6-24Mbps 26dBm
		36Mbps 24dBm
		48Mbps 22dBm
		54Mbps 21dBm
	IEEE 802.11n (HT20)	MCS 0 26dBm
		MCS 15 20dBm
	IEEE 802.11n (HT40)	MCS 0 25dBm
	MCS 15 19dBm	
	Bandedge Exclusive(Controllable for different country regulations)	
Sensitivity (2T2R)	IEEE 802.11a	54Mbps ≤ -76dBm
	802.11n (HT20)	MCS 15 ≤ -70dBm
	802.11n (HT40)	MCS 15 ≤ -66dBm
Characteristics of Integrated Antenna	Antenna Shape	Patch Array
	Antenna Dimensions	L170 x W92 x T0.75 mm
	Antenna Material	FR4
	RF Frequency Band	4.9~5.9 GHz
	Power Handling	2 Watt
	Impedance	50Ω
	Return Loss	Less than -10 dB
	Isolation	Less than -20 dB
	Polarization	Dual Polarization (Vertical and Horizontal)
	Antenna Gain (Exclusive of Cable Loss 0.5 dB)	Vertical Port Peak Gain: 13.9 dBi Horizontal Port Peak Gain: 15 dBi
	Vertical Port HPBW	YZ Plane /H-Plane: 36° XZ Plane /E-Plane: 15°
	Horizontal Port HPBW	YZ Plane /E-Plane: 38° XZ Plane /H-Plane: 17°
	Front to Back Ratio	Vertical Port: 30 dB Horizontal Port: 20 dB
	Operating Temperature	-30°C~ +80°C
LED Indicator	WLAN signal quality for facilitating Antenna Alignment (Single-color LED x 3)	OFF: WLAN Disabled Green LED Blinking: Excellent Quality(Client/AP /Bridge mode) Yellow LED Blinking: Good Quality(Client mode) Red LED Blinking: Poor Quality(Client mode)
	Power (Dual-color LED x 1)	Green on: Power / system on Green off: power / system off Amber Blinking: Device Initialization
	LAN1 (Single-color LED x 1)	OFF: No Ethernet connection detected Green ON: Ethernet connection detected Green Blinking: sending/receiving data
	LAN2 (Dual-color LED x 1)	OFF: No Ethernet connection detected PoE disable mode (default) Green ON: Ethernet connection detected Green Blinking: sending/receiving data PoE enable mode Amber on: Ethernet connection detected

Firmware Specifications

System Setting	Basic Settings	Device Name	default: APXXXXXX
		Country/Domain	default: USA/ETSI
		Time, NTP	
	IP Settings(Bridge)	IP address: Manual or DHCP (In DHCP client mode, if DHCP server is not available, then the default IP address is used)	default: 192.168.1.1
	RADIUS Settings		default: Disabled
	Date Rate Selection	Best,1,2,5,11,6,9,12,18,24,36,48,54 Mbps, MCS0-7	default: Best

Wireless Specifications

Operation Mode	CPE/AP/Bridge/ AP+Repeater	
Security Settings	Open System(default), Shared Key(64/128/152-bits WEP), 802.1X only, WPA, WPA2, WPA-PSK(TKIP), WPA2-PSK(AES)	
Advanced settings	Radio on/off	default: on
	WMM/Regatta Mode: Enable/Disable (WMM and Regatta are two options when enabled)	default: disabled
	Output Power Control	Full,50%,25%,12.5%,Min default: Full

Fragmentation Length	256~2346	default: 2346
Beacon Interval	20~10000ms	default: 100ms
RTS/CTS threshold	0~2346	default: 2346
DTIM Interval	1~255	default: 255
IGMP Snooping		default: Enabled
Link Integration		default: Disabled
RIFS		default: Enabled
Max. Station Number	32	

System Management

Remote Management	Embedded Web Configuration management	default: Enabled
	Telnet support (Password-protected telnet access to internal configuration manager)	default: Enabled
	SNMP Management	default: Enabled
	FTP	
Firmware Upgrade	TFTP/Web for firmware downloading	
Configuration Management	Web backup and restore configuration	
	Reset to factory default	
	Reboot	
Tools	System Logs	
	Site Survey	
Ping Watchdog for heart-beat check	Enable Ping Watchdog	default: Disabled
	IP Address to Ping	default: 0.0.0.0
	Ping Interval	default: 300 Seconds
	Startup Delay	default: 100 Seconds
	Failure Count To Reboot	default: 300

Operating Environment & Physical Specifications

Enclosure	IP55
Mounting	Pole mounting & Wall mounting
Power Adapter Specification	Output: 15VDC @ 0.8A (switching)
Operating Temperature	-20 ~ +70°C
Operating Humidity (non-condensing)	5 to 95% RH
Storage Temperature	-30 ~ +80°C
Storage Humidity (non-condensing)	5 to 95% RH
Green	RoHs Compliant
Warranty	12 Months
Dimension	226mm(L) x 111mm(W) x 48mm(H)
Weight	≤ 600g

Regulation Compliance

FCC	Part15 sub B (Lab tested)
	Part15 sub C (Lab tested)
CE	Radio Requirement: ETSI EN 301 893 V1.5.1 (2008-12)(5470~5725MHz)
	SAR Requirement: ETSI EN 50385:2002(5470~5725MHz)
	EMC Requirement: EN 301 489-1 V1.8.1 (2008-04), EN 301 489-17 V2.1.1 (2009-05)
	European Standard: 2006/95/EC
	IEC 60950-1:2005 (2nd Edition)
	EN 60950-1: 2006+A11:2009

The product specifications are subject to change without prior notice.

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