

## IWL3000 series - Industrial WLAN Data Sheet



Capability Characteristics	
<b>Highspeed 11n 900 MBit/s</b>	802.11n with Real 3x3 MiMO to enable data rate up to 450Mbps for each WLAN device Supporting: short guard interval, 40MHz bandwidth and reduced interframe spacing
<b>Multi SSID</b>	Up to 8 SSIDs per interface, separable with different VLAN tagging per SSID
<b>Security</b>	Highest security according to 802.11i AES coding as well as support of 802.1x radius authentication also in client mode
<b>Dual Band: 2.4 GHz &amp; 5 GHz</b>	13 channels* on 2.4 GHz to 802.11b/g and up to 19 channels* on the 5 GHz band (802.11a) considering 802.11h standard
<b>Dual WLAN</b>	Version available with two WLAN adapters Both dual-band 2.4GHz and 5GHz
<b>Fully Transparent Bridge - WDS</b>	Support the direct connection of two ethernet segments according to the principle of an ethernet bridge. Client mode is ready to attach whole network segments to any 802.11 network with different Roaming Modes.
<b>Packet Filter</b>	Enables the use of pre-defined rulesets for standard communication requirements and an easy controlled production of new filter sets
<b>Network Traffic Prioritization and Shaping</b>	Supports the prioritization on WLAN level with the help of 802.11e/EDCA. If required, the QoS criteria themselves can be configured.
<b>Configuration</b>	Configuration via webinterface (HTTP, HTTPS) and SNMP. Interface for central configuration with IDA light management software.
<b>Worldwide Radio Authorizations</b>	FCC (USA, Canada) and ETSI (Europe) variants are available
<b>High Stability</b>	No matter if 60 clients enter all at once or radar is detected at 5 GHz. The units are stability-optimized and characterized by high availability.
<b>Roaming Modes</b>	Different roaming modes: Standard Roaming, Seamless Roaming Unused channels may also be excluded from the scanlist
<b>SNMP</b>	SNMP basis support enables the integration in existing network monitoring tools.
<b>SCM Card</b>	Saves the complete configuration on SCM memory card and enables easy replacement of the unit.

\*) depending on regulatory domain

Basic Parameter	Software Specification
IPv4	<ul style="list-style-type: none"> <li>• One IP address for management in transparent bridge mode</li> <li>• NAT (Masquerading/PNAT) for outgoing traffic</li> <li>• 10 portforwardings configurable with active NAT, as a 1:1 NAT or to single TCP/UDP ports</li> <li>• All interfaces as DHCP client are configurable</li> <li>• Default gateway manually configurable</li> <li>• dynamic DNS with DHCP client according to RFC 2136</li> </ul>
IP Routing	
DHCP Server	DHCP server on WLAN and/or LAN interface, DNS and gateway are taken over dynamically if an interface is configured as DHCP client
DHCP Relay	Enables the transmission of all DHCP queries to a central DHCP server.
X.509 Certificate Management	<ul style="list-style-type: none"> <li>• Separate certificate management for verification of the validity of all existing certificates</li> <li>• Upload function for Client, CA and CRL certificates</li> <li>• Preinstalled set at demo-certificates for quick function tests</li> <li>• SCEP for automated certificate enrollment</li> </ul>

WLAN Specification	
<b>IEEE Standards</b>	<ul style="list-style-type: none"> <li>• IEEE 802.11 a/b/g</li> <li>• IEEE 802.11 n</li> <li>• IEEE 802.11 h</li> </ul>
<b>Frequency Range</b>	<ul style="list-style-type: none"> <li>• 2,412 up to 2,483 GHz (IEEE 802.11b/g) in ISM Band; *</li> <li>• 5,15 up to 5,34 GHz and 5,47 up to 5,725 GHz (IEEE 802.11a/h) *</li> </ul>
<b>Radio Channels</b>	<ul style="list-style-type: none"> <li>• 13 at 802.11 b/g; 19 at 802.11a; The radio channel can automatically be selected or permanently set *</li> </ul>
<b>Antennas</b>	<ul style="list-style-type: none"> <li>• 3 external Antennas R(P)-TNC per WLAN device</li> </ul>
<b>Maximum Transmitting Power</b>	<ul style="list-style-type: none"> <li>• IEEE802.11a: 12.77 - 17.77dBm</li> <li>• IEEE802.11b: 21.77dBm</li> <li>• IEEE802.11g: 17.77 – 21.77dBm</li> <li>• IEEE802.11ng HT20: 16.77 – 21.77dBm</li> <li>• IEEE802.11ng HT40: 14.77 – 20.77dBm</li> <li>• IEEE802.11na HT20: 10.77 – 17.77dBm</li> <li>• IEEE802.11na HT40: 8.77 – 16.77dBm</li> </ul> <p>Note: The transmission power depends on the transfer rate</p>
<b>Data Rates</b>	<ul style="list-style-type: none"> <li>• IEEE802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps</li> <li>• IEEE802.11b: 1, 2, 5.5 and 11Mbps</li> <li>• IEEE802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps</li> <li>• IEEE802.11ng HT20 1x1: 65Mbps - 72.2Mbps</li> <li>• IEEE802.11ng HT20 2x2: 130Mbps – 144.4Mbps</li> <li>• IEEE802.11ng HT20 3x3: 195Mbps – 216.6Mbps</li> <li>• IEEE802.11ng HT40 1x1: 135Mbps - 150Mbps</li> <li>• IEEE802.11ng HT40 2x2: 270Mbps – 300Mbps</li> <li>• IEEE802.11ng HT40 3x3: 405Mbps – 450Mbps</li> </ul> <p>Note: The data rates in 802.11n modes depend on the guard interval.</p>
<b>Receiver Sensitivity (3 chains typical sensitivity level with ± 3dB tolerance)</b>	<ul style="list-style-type: none"> <li>• IEEE802.11a: -65 - -82dBm</li> <li>• IEEE802.11b: -76 - -82dBm</li> <li>• IEEE802.11g: -65 - -82dBm</li> <li>• IEEE802.11ng HT20: -64 - -82dBm</li> <li>• IEEE802.11ng HT40: -61 - -79dBm</li> <li>• IEEE802.11na HT20: -64 - -82dBm</li> <li>• IEEE802.11na HT40: -61 - -79dBm</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>• 64-bit, 128-bit and 152-bit WEP encryption</li> <li>• 802.1x authentication</li> <li>• AAES-CCM &amp; TKIP</li> </ul>

\*) depending on regulatory domain

<b>WLAN Basic Parameters</b>	
<b>Operation Mode</b>	Client or access point mode are configurable, as well as monitor mode for packet capturing
<b>Multi SSID SSID Network name</b>	Up to 16 different SSID and virtual access points Up to 32 characters incl. special characters
<b>WLAN Mode</b>	802.11ng, 802.11na, 802.11b/g, 802.11a, or 802.11b
<b>Channel Selection</b>	2.4 GHz: Channel between 1 and 13 set permanently or automatic selection 5 GHz: Channel must be fixed automatically or set permanently, if DFS is deactivated (if allowed) *
<b>Long Range</b>	Setting possibilities of the distance for high distances to automatically adjustment of SIFS and ACK Timeout values
<b>Transmitting Power</b>	Emitting power between 5 dBm and 30 dBm is configurable (Some antennas must be set extra, the permitted maximum value is not exceeded)
<b>DFS Dynamic Frequency Selection</b>	<ul style="list-style-type: none"> <li>• - 802.11h conform</li> <li>• - DFS in Client Mode can be activated for high emitting power of 1W with radio links (Otherwise only 200mW is permitted)</li> <li>• - DFS for indoor applications can be deactivated at reduced transmitting power</li> <li>• - Support of DFS Channel Switch Announcement in Beacon for channel switching without interruption</li> <li>• with radar detection</li> </ul>
<b>TPC Transmission Power Control</b>	<ul style="list-style-type: none"> <li>• - Antenna gain are configurable and thus always at the optimum of the permitted power</li> <li>• - Constraint of power is configurable incl. 802.11h Power Constraint for automatically power reduction of</li> <li>• - Different power and updating profiles for TPC are configurable e.g. max. Power / lower updating</li> <li>• - TPC is also available at 2.4 GHz</li> </ul>

\*) depending on regulatory domain

WLAN client ethernet bridge modes - WDS	
<b>Fully Transparent bridge</b>	Full and automatic communication between many ethernet participants behind an ads-tec client and an ads-tec access points. Allows the setup of chained ap/client WDS links for wireless backbones.
<b>Single-Client-Bridge</b>	Compatibility mode for 3rd party access points. Allows the connection of a single ethernet unit which MAC address will be visible as wlan mac on the access point side
<b>Multi-Client-Bridge</b>	Compatibility mode for 3rd party access points. Allows the connection of many TCP/IP ethernet units whose MAC addresses will be masked behind the wlan MAC of the device itself.

WLAN Security Parameters	
<b>Security Modes</b>	WEP64, WEP128, WPA/TKIP, WPA2/CCMP (AES)
<b>WPA Authentication</b>	WPA-PSK (max. 63 signs incl. all specials signs according to 802.11i) WPA-Radius (Enterprise), 802.1x: Access point primary and secondary radius server Client Phase1: EAP/TLS, EAP/PEAP, EAP/TTLS Client Phase2: MD5, MSCHAPv2
<b>Other WPA Parameter</b>	GMK and PMK rekeying interval are configurable, WPA2/RSN pre-authentication
<b>WPS</b>	Available in Q1/2012
<b>Hide SSID</b>	For Access-Points in 2.4 und 5Ghz bands
<b>X.509 Certificate Management</b>	Separate Certificate Management for control of the validity of all available certificates Upload Function for Client-, CA-, and CRL certificates Pre-installed set at demo-certificates for fast function tests
<b>IAPP</b>	The Inter Access Point Protocol guarantees that all access points hold one client once only in the internal association tables. It is guaranteed that ethernet switch MAC address tables are updated automatically and immediately, even if a client sends no data.

WLAN Roaming	
<b>Standard Roaming</b>	Standard background scanning is supported. Thresholds and channel lists can be configured
<b>Seamless Roaming</b>	This roaming mode only works in combination with ads-tec access points. Both interfaces build up data links while always only one interface sends data actively. If necessary, the roles can be exchanged. So interruption-free roaming processes can be realized.

Access-Point compatibility & roaming	Bridgemode (not for router modes)	Roaming modes IWL3210	Roaming modes IWL3220
<b>not ads-tec compatible</b>	MCB / SCB	background scanning	background scanning
<b>ads-tec compatible</b>	FTB	background scanning	background scanning
<b>Wireless Controller without packet inspection (e.g.: Motorola)</b>	MCB / SCB	background scanning	background scanning
<b>Wireless Controller with packet inspection (e.g.: Cisco)</b>	-	background scanning in router mode	background scanning in router mode
<b>ads-tec Access-Point</b>	FTB	background scanning	seamless roaming

Configuration and Monitoring	
<b>Webinterface</b>	<ul style="list-style-type: none"> <li>• Online help tooltips for all important options</li> <li>• German/English language support</li> <li>• Access via HTTP/HTTPS is configurable freely for any interface, access violations may be logged</li> <li>• configurable HTTPS certificate</li> <li>• HTTP access can be deactivated</li> <li>• free definition of unlimited user accounts with detailed access (write) control for any configuration option</li> </ul>
<b>SNMP</b>	<p>Protocols: SNMPv1, SNMPv2, SNMPv3, SNMPv2 read and write community are configurable SNMPv3 read and write username/password and Pre-Shared-Key are configurable Supported SNMP MIBs, MIB-2 Groups:</p> <ul style="list-style-type: none"> <li>• system</li> <li>• interfaces</li> <li>• at</li> <li>• ip</li> <li>• tcp</li> <li>• udp</li> <li>• snmp</li> </ul>
<b>IDA light</b>	<p>Interface for IDA light management software (ads-tec Industrial Device Administration) Auto detection and IP configuration on Layer2 by means of IDA for fast start-up of several units. Parameterization of several global parameter groups.</p>
<b>Eventlog/Syslog</b>	<p>Eventlog can be sent to syslog server Eventlog can be sent to an Email address periodically Eventlog visible via Webinterface</p>
<b>Client Monitoring</b>	<p>Monitoring of TCP/IP terminals by means of ICMP:</p> <ul style="list-style-type: none"> <li>• Limit values for Packetloss and Delay are configurable</li> <li>• In case of violation of the limit values an Eventlog input is generated</li> <li>• An Email can be sent</li> <li>• Interfaces can be started</li> </ul>
<b>Remote Capture</b>	<p>Remote capture interface for usage with Wireshark. Allows packet analysis with Wireshark through „rpcapd“. With this feature you can use every interface on the device as a remote capture interface on an additional diagnostics Windows PC.</p>

Prioritization and Trafficshaping	
<b>Operating mode</b>	Traversing network traffic can be differentiated, prioritized and limited according to criteria
<b>Parameter</b>	<p>Maximal 10 classes with priority 0-9 and respective maximal bandwidth Maximal bandwidth of interface Classes can be defined according to following criteria:</p> <ul style="list-style-type: none"> <li>• IP addresses</li> <li>• MAC addresses</li> <li>• Ethernet protocol number</li> <li>• VLAN creteria: ID &amp; QoS Tag</li> <li>• IP ToS Feld</li> <li>• IP Protocol</li> <li>• TCP/UDP Ports</li> </ul>
Miscellaneous	
<b>Date &amp; Time</b>	Three different Remote NTP servers are configurable
<b>Configuration Backup</b>	Setups as file can be stored and read back
<b>SCM Card Slot</b>	Storage of the complete configuration on ads-tec memory cards. Enables the easy swapping of units. The configuration is automatically read.

Hardware Specification	
Ethernet accesses	LAN 1 + 2: RJ45 1000BaseTx FD
Power Supply	1x 24V DC access ( 7V - 36V )
USB	External USB 2.0 plug
Housing	Rugged aluminium die-cast Case for top hat rail mounting VESA75

Accessories	
<b>DVK-ANT-IP20 001-AA</b>	WLAN Antenna kit with 3 antennas external IP20 angeled, 2.4 GHz (3 dBi typical) & 5 GHz (5 dBi typical), R(P)-TNC
<b>DVK-ANT-IP67 001-AA</b>	WLAN Antenna kit with 3 antennas external IP67 fix, 2.4 GHz (4 dBi typical) & 5 GHz (2 dBi typical), R(P)-TNC
<b>DV-ANT0011</b>	WLAN antenna cable R(P)-TNC to N male, 2m
<b>DZ-SONS-09686-0/A</b>	WLAN antenna cable R(P)-TNC to R(P)-TNC panel jack 2m
<b>DZ-PCKO-11039-0</b>	WLAN antenna cable N male to N female, 3m
<b>DVK-ANT-KAPPE 001-AA</b>	WLAN R(P)-TNC IP67 antenna connector covering cap with 50 Ohm resistor
<b>DV-NZT-00001-0 012-AA</b>	Power supply (EU version)
<b>DV-NZT-00001-0 112-AA</b>	Power supply (EU, UK,CH)

General Data	
<b>External sizes</b>	135mm x 159mm x 35mm (W x H x D)
<b>Vibration</b>	DIN EN 60068-2-6
<b>Shock</b>	DIN EN 60068-2-29
<b>Operating Temperature</b>	-20°C ... + 70°C
<b>Storage Temperature</b>	-25°C ... + 85°C
<b>Humidity</b>	5 ... 90% no condensation
<b>Protection Class</b>	IP 20 for switching cabinet mounting

Equipment Variants	LAN	WLAN
<b>IWL3210</b>	2 x RJ45 1000Mbit/s	1 x 11nabg (3x3 MIMO)
<b>IWL3220</b>	2 x RJ45 1000Mbit/s	2 x 11nabg (3x3 MIMO)