

## DVW-W02W2-E2

### Industrial IEEE 802.11 a/b/g/n Wireless AP/WDS/Client/Gateway



- ▶ Compliant with IEEE 802.11n wireless technology capable of up to 450Mbps data rate
- ▶ Backward compatible with 802.11 a/b/g standards for seamless integration
- ▶ Multiple Wireless Modes: AP, Client CPE, WDS P-T-P, WDS P-T-MP and Repeater
- ▶ 3 x 3 MIMO technology increases data rate
- ▶ Wireless QoS (IEEE 802.11e, WMM) for video packets precedence transmission
- ▶ Enhanced wireless security: 64/128-bit WEP, WPA/WPA2, WPA-PSK/WPA2-PSK (TKIP/AES) and 802.1x Authentication
- ▶ Enhanced LAN security: MAC/IP/TCP/UDP filtering, HTTPS, SSL, 802.1X
- ▶ Supports 2-port RS-232/422/485-to-Ethernet Device Server
- ▶ Up to 16 simultaneous connections allows multiple hosts collection
- ▶ Built-in 2-port MODBUS ASCII/RTU to MODBUS TCP Gateway
- ▶ Up to 32 TCP masters or 32 TCP slaves per port at the same time
- ▶ Built-in 20MB buffer memory avoids data loss once the connection is down
- ▶ STP/RSTP for network redundancy further ensures reliability and avoids network loops
- ▶ Automatic IP assignment by DHCP/BootP server for easy network construction
- ▶ SNTP (simple network time protocol) for network clock synchronization
- ▶ Broadcast/Multicast/Unknown Unicast storm control improves throughput problems
- ▶ MAC addresses locking function per Ethernet port blocks unauthorized access
- ▶ USB console interface for easy connection with laptops
- ▶ Supports MODBUS TCP protocol for facilitating the remote management by SCADA or with other industrial devices
- ▶ CPU utilization displays the amount of work the CPU handles
- ▶ Auto warning by email, DI, relay, Syslog & SNMP trap

**Rugged**  
WIRELESS



## Specifications

### TECHNOLOGY

#### Standard Compliance

- IEEE 802.11 a/b/g/n Wireless LAN
- IEEE 802.11i Wireless Security
- IEEE 802.11e QoS(WMM)
- IEEE 802.3 10Base-T
- IEEE 802.3u 100Base-T(X)
- IEEE 802.3ab 1000Base-T

- IEEE 802.3x Flow Control
- IEEE 802.1D Spanning Tree Protocol
- IEEE 802.1w Rapid Spanning Tree Protocol
- IEEE 802.1Q VLAN Tagging
- IEEE 802.1X Port Authentication

#### Processing Type

- CSMA/CA

### INTERFACE

#### Wireless

- IEEE 802.11 a/b/g/n:
- 3T3R

#### Antennas:

- 3 2dBi omni-directional, RP-SMA (male) connector

# Specifications

## INTERFACE

### Gigabit Ethernet

#### RJ45 Ports:

- 2 10/100/1000Base-T, auto MDI/MDI-X, auto negotiation

### Serial Communication

#### Serial Ports :

- 2 RS-232/422/485, Terminal Block (8 contacts per port), 2KV isolation protection

#### Baud Rate:

- 110bps to 921.6kbps

#### Data Bits:

- 7, 8

#### Parity:

- None, Even, Odd, Space, Mark

#### Stop Bits:

- 1, 2

#### Flow Control:

- RTS/CTS (RS-232 only), DTR/DSR, XON/XOFF

#### RS-232:

- Tx+, Rx+, RTS, CTS, DTR, DSR, DCD, GND

#### RS-422:

- Tx+, Tx-, Rx+, Rx-, GND

#### RS-485 (2-wire) :

- D+, D-, GND

#### RS-485 (4-wire) :

- Tx+, Tx-, Rx+, Rx-, GND

### Console Port

- USB B-Type connector

### LEDs

#### Wireless Mode:

- Client, AP/WDS

#### Device:

- Signal Strength, Status, PWR1, PWR2, DI, ALARM

#### RJ45 Ports:

- 10/100/1000M, LINK/ACT

#### Serial Ports:

- COM1 RX, COM1 TX, COM2 RX, COM2 TX

### Digital Inputs (DI)

- 1 set
- 0~+5V is OFF
- +11V~30V is ON
- Max. input current 6mA

### Alarm Contacts (DO)

- 1 relay output
- Carry current 2A@24V<sub>DC</sub>

### Terminal Resistor Switches

- 2 sets, 120KΩ

### Reset Button

- 1 set

## Wireless RF

### RF Modulation

#### 802.11a:

- BPSK, QPSK, 16QAM, 64QAM with OFDM

#### 802.11b:

- DBPSK, DQPSK with DSSS, CCK

#### 802.11g:

- BPSK, QPSK, 16QAM, 64QAM with OFDM

#### 802.11n:

- BPSK, QPSK, 16QAM, 64QAM with MIMO-OFDM

### Frequency Band

#### 2.400GHz ~ 5.850GHz

### Operating Channels

#### US(FCC):

- 2.412GHz ~ 2.462GHz (11 channels)
- 5.180GHz ~ 5.240GHz (4 channels)
- 5.745GHz ~ 5.825GHz (5 channels)

#### EU(ETSI):

- 2.412GHz ~ 2.472GHz (13 channels)
- 5.180GHz ~ 5.240GHz (4 channels)

#### China(SRRC):

- 2.400GHz ~ 2.4835GHz (13 channels)
- 5.725GHz ~ 5.850GHz (5 channels)

#### Taiwan(NCC):

- 2.412GHz ~ 2.462GHz (11 channels)
- 5.280GHz ~ 5.320GHz (3 channels)
- 5.745GHz ~ 5.825GHz (5 channels)

### Data Transmission Rates

#### 802.11n mode:

- up to 450Mbps

#### 802.11a mode:

- 6, 9, 12, 18, 24, 36, 48, 54Mbps

#### 802.11b mode:

- 1, 2, 5.5, 11Mbps

#### 802.11g mode:

- 6, 9, 12, 18, 24, 36, 48, 54Mbps

### RF Output Power (Max., per chain)

#### 802.11a:

- 6Mbps to 24Mbps: 17dBm (±2dBm)
- 36Mbps: 16dBm (±2dBm)
- 48Mbps: 14dBm (±2dBm)
- 54Mbps: 13dBm (±2dBm)

#### 802.11b (per chain):

- 1Mbps to 11Mbps: 19dBm (±2dBm)

#### 802.11g:

- 6Mbps to 36Mbps: 19dBm (±2dBm)
- 48Mbps: 18dBm (±2dBm)
- 54Mbps: 17dBm (±2dBm)

### RF Output Power MIMO

#### (Max., per chain)

#### 802.11n (2.4G HT20):

- MCS0~5, 8~13, 16~19: 18dBm (±2dBm)
- MCS6, 20: 17dBm (±2dBm)
- MCS14, 21, 22: 16dBm (±2dBm)
- MCS7, 15, 23: 15dBm (±2dBm)

#### 802.11n (5G HT40):

- MCS0~5, 8~13, 16~19: 17dBm (±2dBm)
- MCS6, 20, 21: 16dBm (±2dBm)
- MCS14, 22: 16dBm (±2dBm)
- MCS7, 14, 15, 23: 15dBm (±2dBm)

#### 802.11n (5G HT20):

- MCS0~4, 8~12, 16~19: 16dBm (±2dBm)
- MCS5: 15dBm (±2dBm)
- MCS6, 13, 20: 14dBm (±2dBm)
- MCS7, 15, 23: 12dBm (±2dBm)

#### 802.11n (5G HT40):

- MCS0~4, 8~11, 16~19: 16dBm (±2dBm)
- MCS5, 12: 15dBm (±2dBm)
- MCS6, 13, 20: 14dBm (±2dBm)
- MCS7, 15, 22: 12dBm (±2dBm)
- MCS23: 11dBm (±2dBm)

### Receiver Sensitivity

#### 802.11a:

- 93dBm @ 6Mbps, -85dBm @ 36Mbps
- 81dBm @ 48Mbps, -79dBm @ 54Mbps

#### 802.11b:

- -96dBm @ 1Mbps, -90dBm @ 11Mbps

#### 802.11g:

- -94dBm @ 6Mbps, -86dBm @ 36Mbps
- 82dBm @ 48Mbps, -80dBm @ 54Mbps

### Receiver Sensitivity MIMO

#### 802.11n: (2.4G HT20)

- -93dBm @ MCS0, -81dBm @ MCS5
- 79dBm @ MCS6, -76dBm @ MCS7

#### 802.11n: (2.4G HT40)

- -90dBm @ MCS0, -79dBm @ MCS5
- 75dBm @ MCS6, -74dBm @ MCS7

#### 802.11n: (5G HT20)

- -91dBm @ MCS0, -79dBm @ MCS5
- 77dBm @ MCS6, -74dBm @ MCS7

#### 802.11n: (5G HT40)

- -89dBm @ MCS0, -77dBm @ MCS5
- 73dBm @ MCS6, -72dBm @ MCS7

## MANAGEMENT

### Software

- STP/RSTP, QoS, VLAN, SSH, DNS, HTTP, HTTPS, RADIUS, SNMP v1/v2c/v3, SNMP Traps, TFTP, BootP Server/Client, DHCP Server/Client, Telnet, Syslog, SMTP, SNMP Server/Client, ARP, MODBUS TCP

### Security

- **Security Access:**
  - MAC/IP/TCP/UDP filtering, HTTPS, SSH, 802.1X, SNMP v3
- **Wireless Security:**
  - 802.11i, 64/128-bit WEP, WPA/WPA2, WPA-PSK/WPA2-PSK (TKIP/AES)
  - SSID Broadcast: Enable/Disable

### Virtual COM Drivers

- Windows 2000, Windows XP
- Windows Vista (32/64 bits)
- Windows 7 (32/64 bits)

### Configuration

- Web Browser, Cisco-like Telnet CLI, USB Local Console, SNMP, MODBUS TCP, IEXplorer Utility
- **MIB**
  - MIB II, RS-232 MIB, System Group MIB, SNMP MIB, Interface Group MIB, TCP MIB, UDP MIB, IP MIB, Delta Private MIB

## POWER REQUIREMENTS

### Input Voltage

- 2 sets, 12 to 48 V<sub>DC</sub> redundant terminal block input

### Input Current

- Max. 1.02A

### Overload Current Protection:

- Present, max. input current 3A

### Reverse Polarity Protection

- Present

### Buffer Time

- Min. 12ms at 24V<sub>DC</sub>

## PHYSICAL

### Housing

- IP40 metal case

### Dimensions

- 145.3 mm (H) x 112.5 mm (W) x 108.7 mm (D)

### Weight

- 500g

### Installation

- Industrial DIN-Rail and wall mounting

## ENVIRONMENTAL LIMITS

### Operating Temperature

- -40°C to 75°C (-40°F to 167°F)

### Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

### Ambient Relative Humidity

- 5% to 95% (non-condensing)

## APPROVALS

### Safety

- UL 508, EN 60950-1, IEC 61131-2

### EMI

- FCC 47 CFR Part 15 Subpart B Class A,
- IEC 61000-6-4, EN 55022(CISPR22), EN 301 489-1/17

### EMS

[EN 301 489-1/17, IEC 61000-6-2, EN 55024(CISPR24)]

- IEC 61000-4-2 level 3, IEC 61000-4-3 level 3, IEC 61000-4-4 level 4, IEC 61000-4-5 level 3, IEC 61000-4-6 level 3, IEC 61000-4-8 level 4, IEC 61000-4-29

### RF

- EN 300 328, EN 301 893, NCC, SRRC
- FCC 47 CFR Part 15 Subpart C, E

### Environmental Type Tests

#### Cold Temperature:

- IEC 60068-2-1

#### Dry Heat:

- IEC 60068-2-2

#### Humidity:

- IEC 60068-2-30

#### Shock:

- IEC 60255-21-2

#### Freefall:

- IEC 60068-2-32

#### Vibration:

- IEC 60068-2-6

#### Hi-Pot:

- 1.5KV

## Ordering Information

Product		Port Combination		Interface			RF	Region
Model Name	Operating Temperature	10/100/1000 Base-T	RS-232/422/485	DI	DO (Relay)	Power Input	Band	
DVW-W02W2-E2	-40°C to 75°C	2	2	1	1	2	US	USA, Taiwan
DVW-W02W2-E2-EU	-40°C to 75°C	2	2	1	1	2	EU	European Union
DVW-W02W2-E2-CN	-40°C to 75°C	2	2	1	1	2	CN	China

### Optional Products

DVP/CiQ/PMC Series: 12/24 V<sub>DC</sub> Industrial Power Supply