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TDAS WET User's Manual



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DTS Support

TDAS systems are designed to be reliable and simple to operate. Should you need assistance, DTS has support engineers worldwide with extensive product knowledge and crash test experience to help via telephone, e-mail or on-site visits.

The best way to contact a DTS support engineer is to e-mail support@dtsweb.com. Your e-mail is immediately forwarded to all DTS support engineers worldwide and is typically the fastest way to get a response, particularly if you need assistance outside of normal business hours. For assistance by telephone, please go to <http://dtsweb.com/support/techsupport.php> to find the phone number appropriate for your region of the world.

This manual supports the following product:

10300-01010: TDAS PLUS Wireless Ethernet (802.11b/g/n), with 2 antennas

If your TDAS WET uses 3 antennas, please see the User's Manual dated April 2008.

Introducing the TDAS WET

The TDAS WET is a crash-hardened, multifunction networking device that allows you to communicate wirelessly with TDAS equipment mounted on a dynamic testing device or other remote location. Power, communication signals and status information are easily accessible via the connector and LED panels. The TDAS WET will integrate seamlessly into any existing on-site network system using 2.4 GHz, 802.11b, g and/or n communication protocols.

This manual discusses the features available with the TDAS WET. To identify the specific hardware included with your system, please see your packing list.

Overview of TDAS WET Features

- Built and tested for 100 g dynamic testing environments.
- Supports IEEE 802.11b/g/n communication protocols.
- Three external antennas to support high-speed performance and extended coverage.
- Power input is protected against reverse polarity and transient over-voltage conditions.
- Recessed push-button switch prevents inadvertent power down.
- LED status indicators for power, communications and WLAN.
- Integral mounting holes for ease of use.

Connector Panel

The connector panel allows you to connect external power and interconnect communication signals between TDAS equipment. Please see Appendix A for the connector specifics and pin assignments.



TDAS WET Connector Panel

12V POWER Connector

The unit has a dedicated connector for primary input power (12 V nominal at 1 A; 11-15 V range). The TDAS WET does not contain a battery or back-up power source.

A good power source is very important. The TDAS WET should be powered from a fully-charged 12 V battery or high-quality 12 V power source. When assessing power requirements, please consider any voltage drops that may occur due to cables, connectors, power converters, etc.

COM A and COM B Connectors

Ethernet 10/100BaseT communications, event input, start record input, and status output signals are supported via these connectors. These connectors are functionally identical and are compatible with all TDAS COM connectors.

WARNING:

Do not apply external voltages to the communication output and inputs—this could result in damage to the unit.

Push-button Switch (POWER)

To power-up the unit, connect sufficient power to the power input connector and press the push-button switch for 5 seconds. Power-up is immediate after which the unit will log into the network.

To power-down the unit, press and hold the push-button switch for 3 seconds or until the POWER LED goes dark.



LED Indicators

The LED panel provides a quick visual indicator of the unit's power, communication and wireless status.



**TDAS WET
LED Panel**

LED Status	Green	Blinking	Off
WLAN	Connected to WAP	Transmitting data	No connection to WAP
COM A, COM B	Communication link good	Transmitting data	No communication link
POWER	WET on; power good		WET off

WLAN

This LED indicator is green, blinking, or off. A green LED indicates the unit has connected to the wireless access point (WAP). The LED blinks when data is transmitted. If the LED is off, the unit has not connected to the WAP and troubleshooting is required.

COM A and COM B

These LED indicators are green, blinking or off. A green LED indicates a good communication link. The LED blinks when data is transmitted. If the LED is off, no link has been established for that COM port and troubleshooting is required.

POWER

This LED indicator is green or off. A green LED indicates input power is within specifications and the unit has been powered-up. If you have input power connected to the unit and the POWER LED is not on, this can mean:

1. You need to press the push-button switch to power-up the unit,
2. Input power is not within specifications,
3. Input polarity is not correct.

Additional troubleshooting can further isolate the problem.

External Antennas

Two antennas are provided with the TDAS WET. Both antennas are required for 802.11n communications.

Basic Care and Handling

Your TDAS WET unit is designed to operate reliably in dynamic testing environments. Though resistant to many environmental conditions, care should be taken not to subject the unit to harsh chemicals, submerge it in water, or drop it onto any hard surface.

WARNING:

Electronic equipment dropped from desk height onto a solid floor may experience as much as 10,000 g. Under these conditions, damage to the exterior and/or interior of the unit is likely.

When transporting the unit, treat it as you might a laptop computer and you should have no problems. When not in use or if shipping is required, we suggest that you always place the unit in the padded carrying case originally provided with your system.

The TDAS WET is not user-serviceable and should be returned to the factory for service or repair.

Shock Rating

All crashworthy TDAS equipment is rated for 100 g, 12 msec duration, in all axes and can be mounted directly on a vehicle, sled or other dynamic testing device. Mounting methods and mounting bolt selection should be carefully calculated so as to withstand expected shock loading. (Please see Appendix B for the unit's mechanical specifications.)

Mounting Considerations

For the best throughput, the antennas on the TDAS WET should always have direct line-of-sight with the WAP it will communicate with. Mounting methods and mounting bolt selection should be carefully calculated so as to withstand expected shock loading. (See Appendix B for the unit's mechanical specifications.)

Temperature Rating

It is extremely unlikely that excessive heating (temperatures in excess of 50°C) will ever be an issue in real-world testing applications using the TDAS WET. Should you have any questions about its use in your environment, please contact DTS.

Using Your TDAS WET with other TDAS Equipment

Your TDAS WET can be used with TDAS PRO racks, TDAS G5 Vehicle Docking Stations, TDAS PLUS Distributors, TDAS PLUS Mini Distributors and TDAS PLUS Crashworthy Batteries. If you are interconnecting equipment to create higher channel-count systems, please refer to the specific product manual for that information.

TDAS PRO racks and TDAS G5 Vehicle Docking Stations

Communications to and from the TDAS WET to racks or vehicle docking stations require an RDC cable. The TDAS WET can be at either end of the chain or in the middle.

- Using an RDC cable, connect the end marked "MASTER" to either COM port of the rack or vehicle docking station. Connect the end marked "SLAVE" to either COM port on the TDAS WET.
- If the TDAS WET is in the middle of the chain, use a second RDC cable and connect the end marked "MASTER" to the open COM port on the TDAS WET. Connect the end marked "SLAVE" to either COM port on the third device in the chain. (This process is the same for all interconnections between TDAS equipment having two COM ports; all equipment in the middle of the chain have both a "MASTER" and "SLAVE" cable end connected.)

You will need to power the TDAS WET from an external 12 V power source.

TDAS PLUS Distributor

Communications to and from the TDAS WET and a TDAS PLUS Distributor require an RDC cable. Note: Not all TDAS PLUS Distributor configurations include communication features.

- Using an RDC cable, connect the end marked "MASTER" to an AUXILIARY PORT on the TDAS PLUS Distributor. Connect the cable end marked "SLAVE" to either COM port on the TDAS WET.
- If the TDAS WET is in the middle of the chain, use a second RDC cable and connect the end marked "MASTER" to the open COM port on the TDAS WET. Connect the end marked "SLAVE" to either COM port on the third device in the chain. (This process is the same for all interconnections between TDAS

equipment having two COM ports; all equipment in the middle of the chain have both a "MASTER" and "SLAVE" cable end connected.)

With a PPL or PPS cable, you can use the TDAS PLUS Distributor to power the TDAS WET.

- Connect one end to the 12V POWER input on the TDAS WET and connect the other end to any POWER OUT port on the TDAS PLUS Distributor.

TDAS PLUS Mini Distributor

A CPY cable will provide both power and communications to a TDAS WET from a TDAS PLUS Mini Distributor.

- Using a CPY cable, connect the single-connector end into any one of the four TDAS SYSTEM ports on TDAS PLUS Mini Distributor. Connect the 19-pin connector on the other end of the cable to either COM port on the TDAS WET; connect the 4-pin connector to the 12V POWER input on the TDAS WET.

TDAS PLUS Crashworthy Battery

With a PPL or PPS cable, you can use the TDAS PLUS Crashworthy Battery to power the TDAS WET.

- Connect one end to the 12V POWER input on the TDAS WET and connect the other end to any available port on the TDAS PLUS Crashworthy Battery.

To enable communications, you will need to connect the TDAS WET to other TDAS equipment with the appropriate communications support (TDAS PRO rack, TDAS G5 Vehicle Docking Station, etc.).

Wireless Networking Considerations

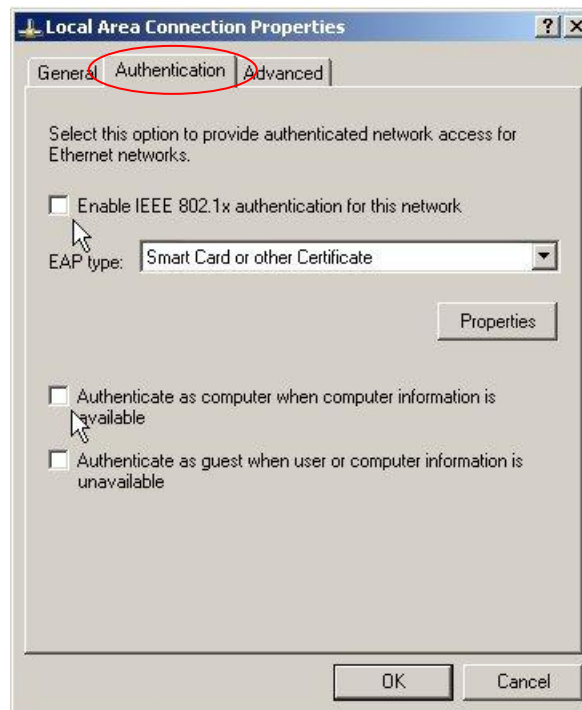
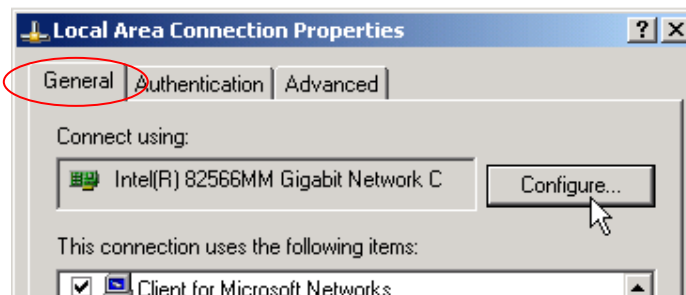
At its most basic, a wireless system will contain an Ethernet bridge (the TDAS WET) and a wireless access point (WAP). Both units need to be programmed properly to communicate with each other and other TDAS equipment. Each wireless networking device must be assigned a unique IP address and network-compatible subnet mask. (Your TDAS WET shipped from the factory with the settings as shown in Appendix C.) Every device in the same wireless network must have the same SSID and use security settings compatible with the access point or peer computer.

If you plan to integrate your TDAS WET into an existing network, please contact your network administrator for assistance.

Minimum Requirements

- 2.4 GHz 802.11b/g/n wireless adapter or Ethernet adapter installed in each PC.
- Internet Explorer 6.0 or higher, Mozilla, Chrome or Safari if you want to change the network parameters of the unit.

When using a laptop, power save settings and authentication should be disabled. The general procedure is outlined below.



Communication Methods

The TDAS WET supports 2.4 GHz, 802.11b/g/n communication protocols. Communication is enabled after the power-up sequence and network login have completed successfully. (Note: DTS wireless devices support channels 1-11 only.)

Two antennas are provided with the TDAS WET. Both antennas are required for 802.11n communications.

Installation Considerations

For the best throughput, the antennas on the TDAS WET should always have direct line-of-sight with the WAP it will communicate with. If this is not possible, the number, thickness and location of walls, ceilings or other objects that the wireless signals must pass through should be minimized. (Each wall or ceiling can reduce the range by as much as 30 m (90 ft).) To maximize range, follow these basic guidelines:

1. Keep the number of walls and ceilings between the TDAS WET and the other network devices to a minimum. Position the devices so that the number of walls or ceilings is minimized and that direct line-of-sight with the WAP is maintained whenever possible.

2. Position devices so that the signal will travel straight through a wall or ceiling instead of at an angle. A wall that is 0.5 m (1.5 ft) thick appears almost 1 m (3 ft) thick when viewed from a 45 degree angle. At a 2 degree angle, it is greater than 14 m (42 ft) thick!

3. A solid metal door, aluminum studs and other building materials may have a negative effect on range. Try to position wireless devices and computers so that the signal passes through drywall or open doorways only.

4. Keep your product at least 1-2 m (3-6 ft) from electrical devices or appliances that generate extreme RF noise (e.g., microwave ovens).

User Maintenance

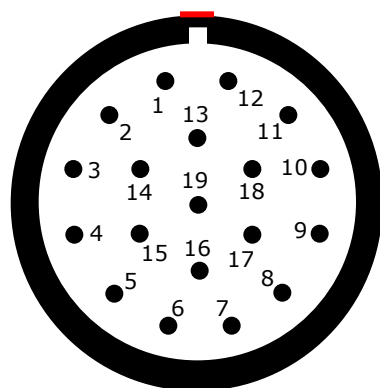
DTS recommends that the TRENDnet (www.trendnet.com) website be checked periodically for any updates to your wireless equipment. Firmware updates may be downloaded from www.trendnet.com/downloads/. Any changes to the factory settings can be made by using a web browser and typing in the IP address of the unit. (The hardware specifics of your equipment as shipped from the factory are identified in Appendix C.)

CAUTION:

Great care should be taken when changing any network parameters. They should not be changed without full knowledge of the impact on the communication environment. If you have any questions, please contact your network administrator for assistance. If your in-house network support person is not available, we encourage you to contact DTS.

Appendix A: Connector Information

19-pin COM A and COM B connectors (ECG.2B.319.CLL)

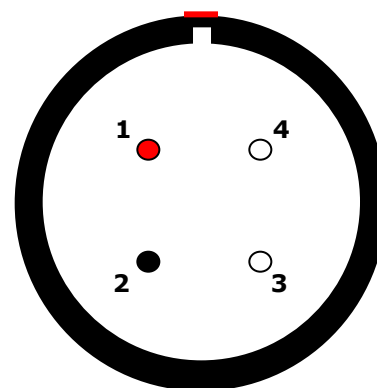


(panel view)

Suggested cable connector P/N:
FGG.2B.319.CLAD72

Pin	Function
1	No connection
2	No connection
3	Shield
4	Start recording input, optically coupled (apply 5 V with respect to pin 16)
5	Soft common
6	Status output, 5 V via 110 ohm (referenced to soft common)
7	+Rack status daisy-chain input
8	Ethernet Tx2-
9	Ethernet Tx2+
10	No connection
11	Ethernet Rx3-
12	Ethernet Rx3+
13	Ethernet Tx3-
14	Ethernet Tx3+
15	+Event, rack-to-rack
16	-Rack status daisy-chain input
17	Ethernet Rx2-
18	Ethernet Rx2+
19	-Event, rack-to-rack

4-pin 12V POWER connector (ECG.2B.304.CLL)



(panel view)

Suggested cable connector P/N:
FGG.2B.304.CLAD82

Pin	Function
1	+VDC input
2	-VDC input*
3, 4	Chassis

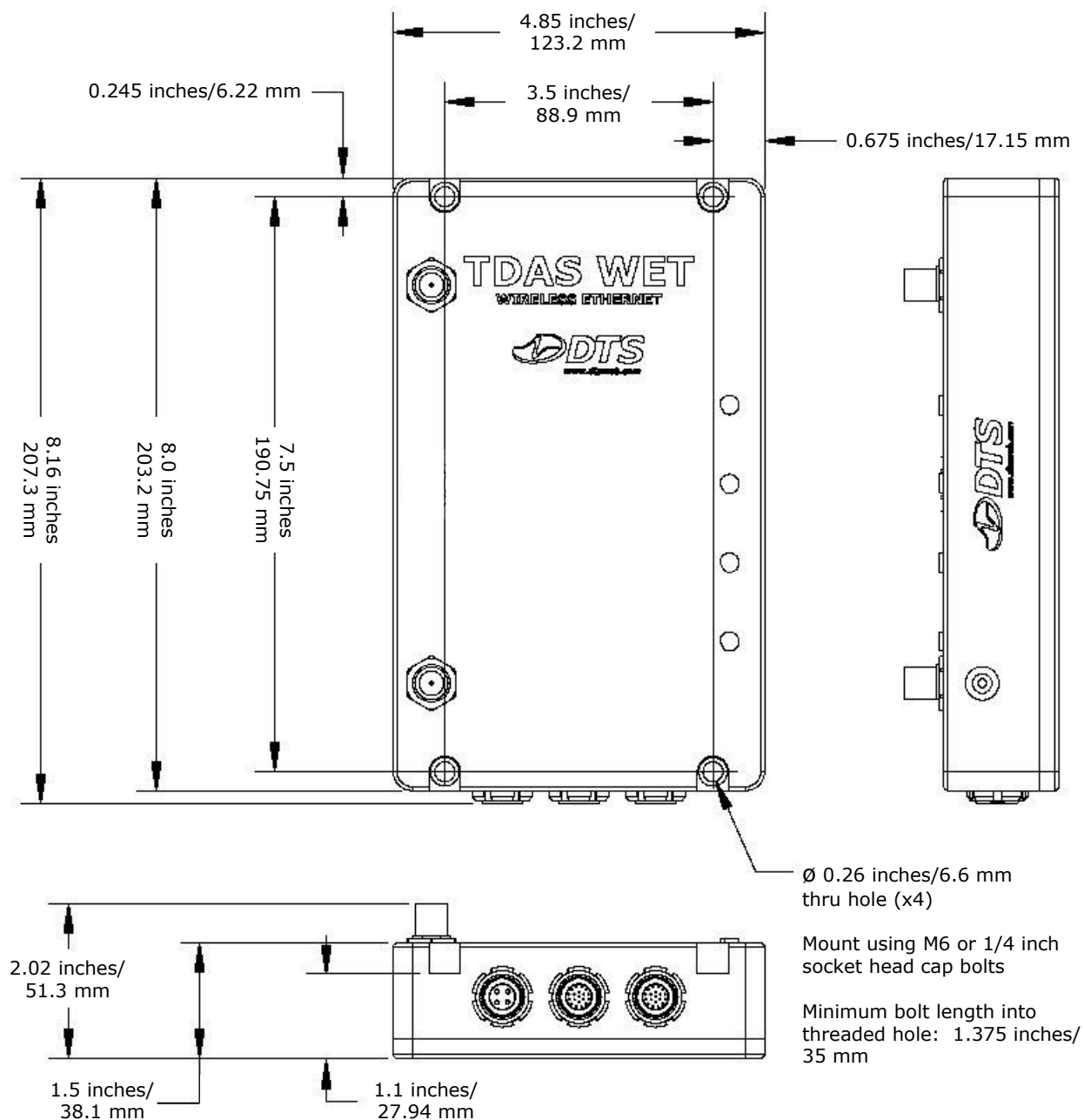
* -VDC input is connected to the enclosure.

Suggested Connector Sources

DTS uses LEMO connectors on the TDAS WET. If you need to purchase connectors, we suggest first going to LEMO directly (www.lemo.com). Their web site and worldwide sales team are very helpful. Should you have difficulty obtaining a specific part number, they can suggest connector variations or alternates and explain options that may be useful for your particular application. Another U.S. source is Alpine Electronics (www.alpine-electronics.com) in San Jose, California. They are a stocking distributor for LEMO and LEMO-compatible connectors.

Appendix B: Mechanical Specifications

Weight: ~1134 grams (without antennas)



Please contact DTS if you need to purchase additional TDAS WET accessories.

10300-01020: Antenna, magnetic; 5 dBi, RP-TNC plug, 6" high, 4 ft cable

10300-01030: Antenna extension cable; RP-TNC, M/F (3 m)

Appendix C: Hardware Configuration Specifications

This is a custom page provided at time of shipment. If you need information on the specifics of your equipment, please e-mail your request to support@dtsweb.com with the serial number(s) of the equipment and parameters you are asking about.

To reset the unit to default parameters:

1. Insert a paper clip into the pin hole on the left side of the unit. Press for 15 seconds and release.
2. Wait an additional 30 seconds for the unit to reboot.
3. Type <http://tew-640mb.trendnet> or <http://192.168.10.110> into your browser (Internet Explorer 6.0 or higher, Mozilla, Chrome or Safari).
4. Log into the unit using the default settings:
IP address: 192.168.10.110
User name: admin
Password: admin