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TDAS PLUS
Visual Status Indicator
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://www.dtsweb.com/support.html to find the phone number appropriate for your region of the world.

Introducing the TDAS PLUS Visual Status Indicator

The TDAS PLUS Visual Status Indicator (VSI) provides the crash test engineer the ability to visually verify TDAS system status from a distance. In an environment where the test equipment may be a substantial distance away from the control room or in another remote location, confirmation from the system that it is armed and healthy prior to testing can be critical to testing success.

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

Overview of TDAS PLUS Visual Status Indicator Features

- Built and tested for 100+ G dynamic testing environments.
- Highly visible from 360 degrees and 1000 feet.
- Maintenance-free, long-life red and green LED arrays.
- Uses standard DTS LEMO interfaces and control signals.
- Use with any TDAS PRO rack, TDAS G5 Docking Station, TDAS PLUS Mini Distributor or fully-featured TDAS PLUS Distributor.
- Operates on 12 VDC power (nominal), including the power-only TDAS PLUS Distributor and TDAS PLUS Crashworthy Battery.
- Integral mounting flanges.

Connector Panel

The connector panel on the TDAS PLUS VSI allows you to connect external power and control signals.

Basic Care and Handling

The TDAS PLUS Visual Status Indicator is a precision device 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 Gs. 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 PLUS VSI is not user-serviceable and should be returned to the factory for service or repair.

Shock Rating

All crashworthy TDAS PLUS systems are rated for and fully tested to 100+ Gs, 12 msec duration, in all axes and can be mounted directly on a vehicle, sled or other dynamic testing device.

Mounting Considerations

DTS suggests mounting the unit with the LEMO-connector end facing away from impact. The unit should be securely bolted to the vehicle, sled or other dynamic testing device to provide the best shock protection and facilitate proper grounding. 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.)

Thermal Considerations

It is extremely unlikely that excessive heating will ever be an issue in real-world testing applications using the TDAS PLUS VSI. Should you have any questions about its use in your environment, please contact DTS.

Power Management

A good power source is of paramount importance. Each TDAS PLUS Visual Status Indicator should be powered from a fully-charged 12-volt battery or a high-quality power supply with a nominal output voltage of 12 volts (10-16 volt range) and a capacity of at least 1 amp. When assessing power requirements, please consider any voltage drops that may occur due to cables, connectors, power converters, etc.

Current draw for the TDAS PLUS VSI is negligible when connected to TDAS equipment that is not turned on. The maximum current draw increases to less than 1 amp once the TDAS equipment is turned on.

External Power Provisions

The TDAS PLUS VSI does not contain any internal power source but has a dedicated connector for primary input power. (See Appendix A for connector specifics and pin assignments.) The voltage required to power the unit can be supplied in two ways: 1) directly from a 12-volt battery (e.g., TDAS PLUS Crashworthy Battery), or 2) connecting the unit to a TDAS PLUS Distributor. The cable appropriate for your application is typically provided with your unit.

Power-up and Power-down Procedures

Whenever sufficient power is applied to the 12V PWR connector on the TDAS PLUS VSI, the unit will power up. Whenever power is removed from the unit, it will power down. Power up and power down is immediate upon application or removal of the power source. A brief (~1 second) power-down/power-up cycle is sufficient to reinitialize the unit.

Communication Features

The CONTROL connector on the TDAS PLUS Visual Status Indicator allows access to status and event signals to and from other TDAS equipment. (See Appendix A for connector specifics and pin assignments.) It does not support direct PC communications.

Communication Method

The TDAS PLUS VSI "communicates" via its large red and green LED arrays. When powered up, the RED status light will come on when the unit is receiving a control signal from any TDAS equipment that is turned on.

1. For *circular buffer* data collection mode, the RED status light will go dark and the GREEN status light will come on when the system is armed. The system is now waiting for a T=0 event signal. If there is an event signal or a fault, the GREEN status light will go dark and the RED status light will come on.
2. For *recorder* data collection mode, the RED status light will go dark and the GREEN status light will come on when the system is armed and receives a start record signal. The system is now collecting data and waiting for a T=0 event signal. If there is an event signal or a fault, the GREEN status light will go dark and the RED status light will come on.

There is no condition in which both the RED and GREEN status lights will be on simultaneously.

Please pay close attention to the condition of the status lights during a test. A GREEN status light indicates that the TDAS system is functioning properly and testing can

proceed. If the GREEN status light goes dark unexpectedly and the RED status light comes on, the test should be aborted if this can be done in a safe manner.

WARNING:

If the GREEN status light on the TDAS PLUS Visual Status Indicator goes dark unexpectedly during the performance of a test, the test should be aborted if this can be done in a safe manner.

Using the Event Input

TDAS PLUS Visual Status Indicator contains a direct, pass-through, contact-closure EVENT input to other TDAS equipment. (See Appendix A for connector specifics and pin assignments.) This input provides a way to use a closure switch in harsh or noisy environments, without negatively affecting the data acquisition system. A software trigger can also be used—please see your TDAS Control software manual for information on how to set a software level trigger.

The EVENT input may be used in either of two ways:

- In circular buffer mode, this input actually triggers data collection and is used to mark zero time (T=0),
- In recorder mode, this input is used to mark T=0 only.

WARNING:

Do not apply external voltages to the EVENT input — this could result in damage to the unit. A simple FET switch can be used to convert a voltage input to an appropriate contact closure. Please contact DTS if you need assistance.

Using Your TDAS PLUS Visual Status Indicator with other TDAS Equipment

Your TDAS PLUS Visual Status Indicator can be used with TDAS PRO racks, TDAS G5 Docking Stations, TDAS PLUS Mini Distributors, TDAS PLUS Distributors and the TDAS PLUS Crashworthy Battery. Both power and control signals are supported by the fully-featured TDAS PLUS Distributor. If used with a TDAS PRO rack, TDAS G5 Docking Station or TDAS PLUS Mini Distributor, the TDAS PLUS VSI will require a separate power source (e.g., a power-only TDAS PLUS Distributor or TDAS PLUS Crashworthy Battery).

TDAS PRO Racks and TDAS G5 Docking Stations

Control signals to and from the TDAS PLUS VSI to racks or docking stations require a control cable (SIR-xx-xxxx). This cable is typically provided with your unit.

- Using a control cable, connect the 7-pin LEMO connector to the CONTROL port on the TDAS PLUS Visual Status Indicator. Connect the 19-pin LEMO connector to either COM port on the rack or docking station.

You will need to power the TDAS PLUS VSI from an external 12-volt power source. The cable appropriate for your configuration is typically provided with your unit.

TDAS PLUS Mini Distributor and TDAS PLUS Distributor

Control signals to and from the TDAS PLUS VSI to a TDAS PLUS Mini Distributor or fully-featured TDAS PLUS Distributor require a control cable (SID-xx-xxxx). This cable is typically provided with your unit.

- Using a control cable, connect either end to the CONTROL port on the TDAS PLUS Visual Status Indicator. Connect the other end to the CONTROL port on the TDAS PLUS Mini Distributor or TDAS PLUS Distributor.

With the appropriate cable, you can use the TDAS PLUS Distributor (fully-featured or power-only) to power the TDAS PLUS VSI. Depending on your configuration, this cable may be provided with your unit.

- Using a power cable, connect either end to the 12V PWR input on the TDAS PLUS Visual Status Indicator. Connect the other end to any available 10-16 volt POWER OUT port on the TDAS PLUS Distributor.

If you are using a TDAS PLUS Mini Distributor, you will need to power the TDAS PLUS VSI from an external 12-volt power source. The cable appropriate for your configuration is typically provided with your unit.

TDAS PLUS Crashworthy Battery

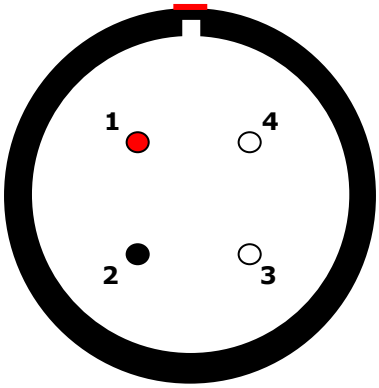
With the appropriate cable, you can use the TDAS PLUS Crashworthy Battery to power the TDAS PLUS VSI. Depending on your configuration, this cable may be provided with your unit.

- Using a power cable, connect either end to the 12V PWR input on the TDAS PLUS Visual Status Indicator. Connect the other end to any available port on the TDAS PLUS Crashworthy Battery.

To enable control signals, you will need to connect the TDAS PLUS VSI to other TDAS equipment with the appropriate support (TDAS PRO rack, TDAS G5 Docking Station, etc.). The cable appropriate for your configuration is typically provided with your unit.

Appendix A: Connector Information

4-pin 12V PWR connector
(EGG.2B.304.CLL)

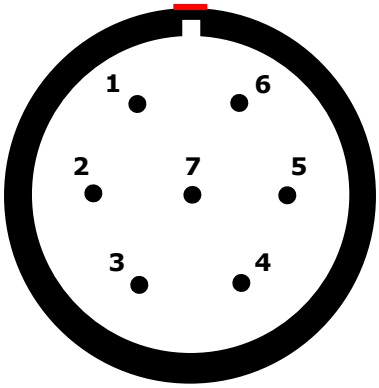


(panel view)

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

Pin	Function
1	+ Power
2	- Power
3, 4	Chassis

7-pin CONTROL connector
(EGG.2B.307.CLL)



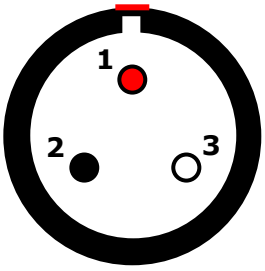
(panel view)

Suggested cable connector P/N:
FGG.2B.307.CLADxx

Pin	Function
1	No connection
2	No connection
3	No connection
4	Common
5	Status
6	*TDAS event bus +
7	*TDAS event bus -

* also used to sense TDAS system activity

3-pin EVENT connector
(EGG.1B.303.CLL)



(panel view)

Suggested cable connector P/N:
FGG.1B.303.CLADxx

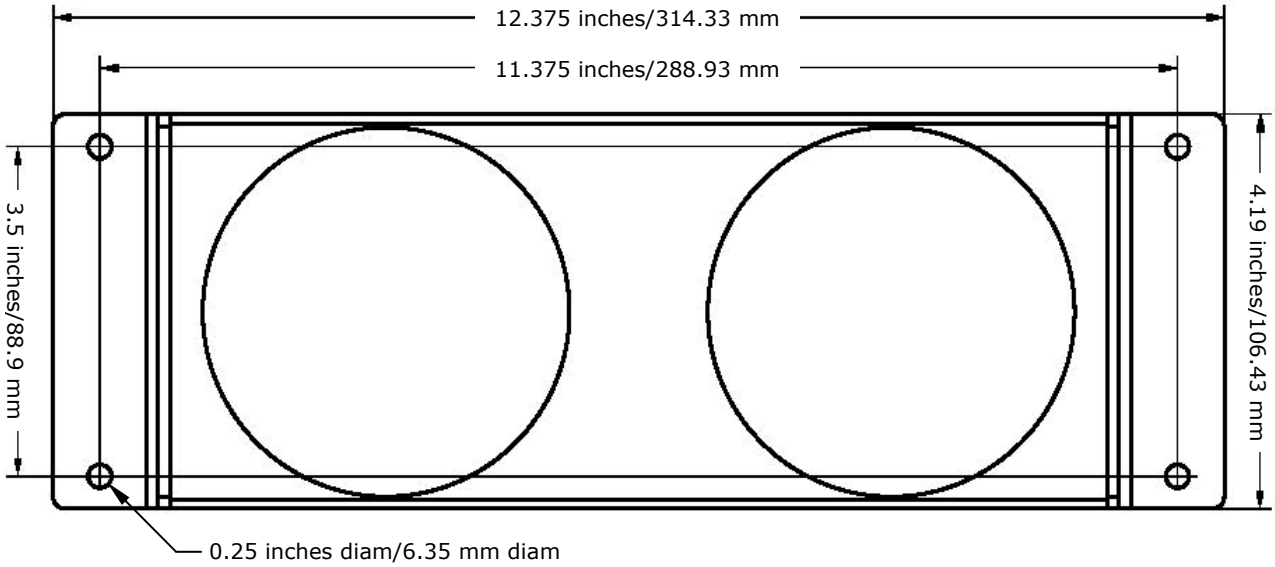
Pin	Function
1	+ Event
2	- Event
3	No connection

Suggested Connector Sources

DTS uses LEMO connectors on the TDAS PLUS Visual Status Indicator. If you need to purchase connectors, we suggest first going to LEMO directly (http://www.lemo.com/index.html). 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: 1248 grams



Height: 6.06 inches/154 mm