POWER PRO
User's Manual

August 2022

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Introduction

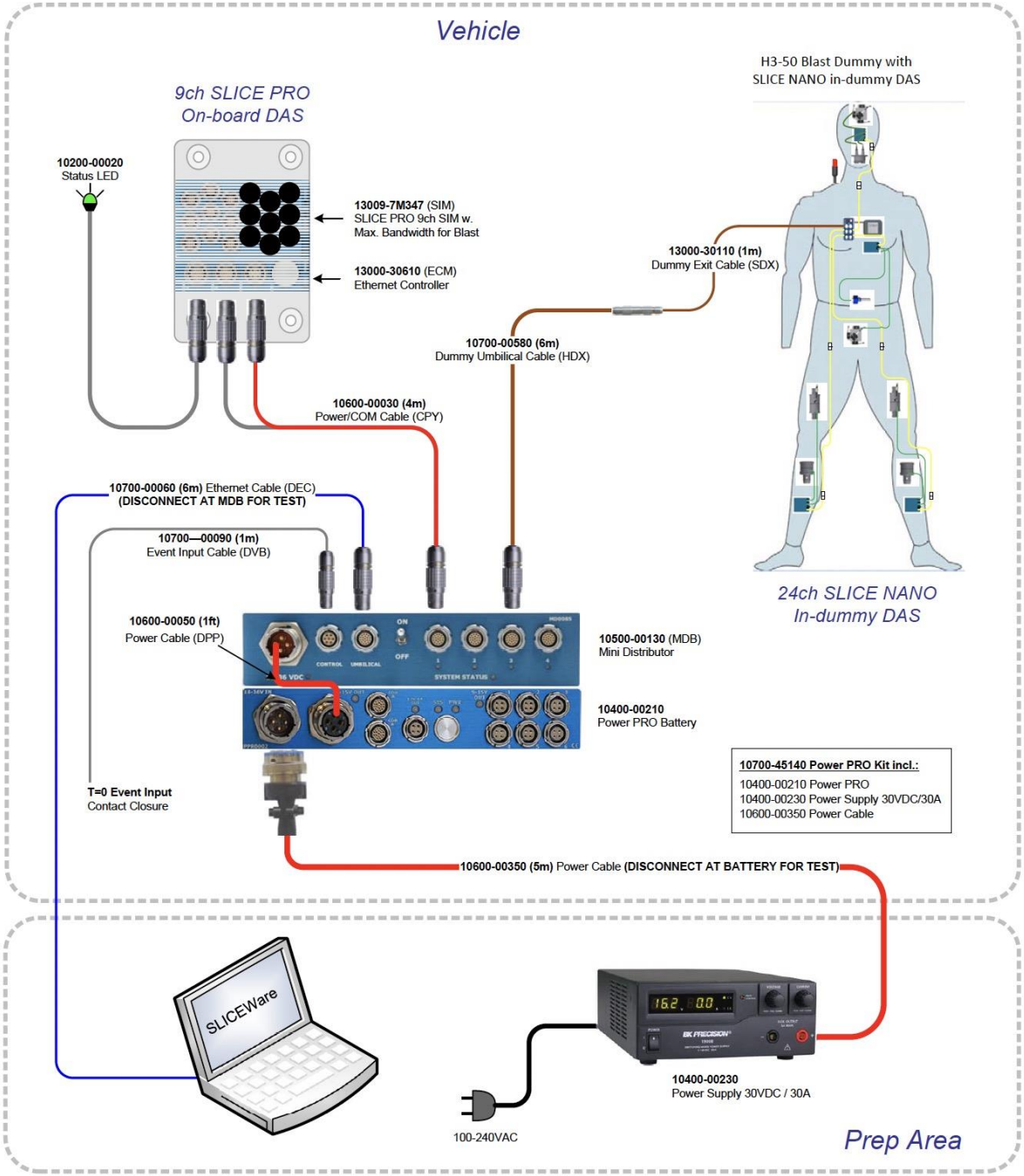
Supplying primary or back-up power, the POWER PRO seamlessly integrates with all TDAS PRO, TDAS G5 and SLICE data acquisition products. The crashworthy POWER PRO features standard connectors and 18–36 V input power.

The POWER PRO provides direct and integrated back-up power to support DTS systems for up to 1 hour or more, depending on the load. When used with a 10–36 VDC TDAS PLUS Mini Distributor, the power, communication, and control signals are distributed to SLICE & TDAS systems, including DTS in-dummy DAS. The POWER PRO includes comprehensive protection for overcurrent, undervoltage, overvoltage, and excess temperature conditions.

This manual supports POWER PRO part number 10400-00210.

Features

- One Amphenol input
  - 18–36 VDC with overvoltage, undervoltage, overcurrent, and reverse polarity protection
- One Amphenol output
  - Regulated 15 VDC, 14 A max with input power
  - 9–12.6 VDC max, 16 A when powered by internal battery
  - Maximum delivered 16 A current from the internal battery is distributed between the Amphenol output, six LEMO outputs, and one LEMO output Wireless Ethernet Terminal (WET)
  - Can be configured to be on or off when external power is removed (default is on)
- Six LEMO outputs
  - Regulated 15 VDC, 14 A max total with input power
  - 9–12.6 VDC, 16 A max total when powered by internal battery
  - Maximum delivered 16 A current from the internal battery is distributed between the Amphenol output, six LEMO outputs, and one LEMO output (WET)
  - Not powered by battery by default, but can be configured to be on when external power is removed
- One LEMO output
  - Regulated, 12 VDC, 1 A max for use with accessories such as a TDAS PLUS Wireless Ethernet Terminal (WET)
  - Maximum delivered 16 A current from the internal battery is distributed between the Amphenol output, six LEMO outputs, and one LEMO output (WET)
- Two standard DTS COM ports
- Multicolor LEDs display the state of each output and system status
- Configuration and status can be monitored via software or internal web page
- All critical settings are retained if the unit loses power
- Firmware is upgradable by the end user using a SLICE utility



The diagram illustrates how the POWER PRO can be used in an application with the following:

- Up to 24-channel SLICE NANO in-dummy DAS
- Up to 9-channel SLICE PRO on-board DAS
- TDAS PLUS Mini Distributor

Front Control Panel

All connectors and LED indicators are accessible from the front panel.

DTS Support

The POWER PRO is designed to be reliable and simple to operate. If you need assistance, DTS has support engineers worldwide with extensive product knowledge and test experience ready to help:

- Registered users can access the DTS Help Center web portal: support.dtsweb.com

Registration also gives you access to additional self-help resources and non-public support information. To register, go to support.dtsweb.com/registration.

Safety

The POWER PRO contains a Lithium-ion battery pack that is very stable. Under normal operating conditions contact with the battery will never occur. However, as with any equipment or electronics, use common-sense and observe safety precautions if exposed to a potentially harmful situation. (The Safety Data Sheet can be found at the end of this manual.)

Specifications

Mechanical / Environmental

Dimensions:	40 x 143 x 235 mm (1.6 x 5.6 x 9.25 in) D x H x W
Mass:	2.05 kg (4.52 lb)
Enclosure:	Aluminum
Mounting Bolts:	M8 x 1.25 in
Shock Rating:	100 g peak, 12 msec half sine
Temperature:	0–50°C (32–122°F)

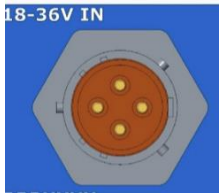
Battery

Type:	Lithium-ion
Capacity:	8 Ah
Protection:	Undervoltage/overvoltage/overcurrent

C = 9 Ah (maximum) – capacitance of the specified battery.

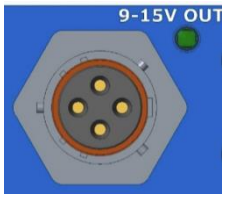
Maximum charging current is 4 A and depends on maximum delivered power from the POWER PRO and temperature inside the unit.

Input



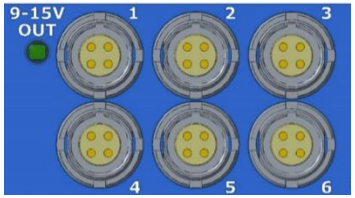
Connector:	4-pin Amphenol MS3474L14-4P
Voltage:	18–36 VDC
Total power:	450 W
Protection:	Overvoltage, undervoltage, overcurrent, and reverse polarity protection

Primary Output



Connector:	4-pin Amphenol MS3474L14-4S
Voltage with external power:	15 VDC regulated
Voltage from battery:	10.8 VDC nominal; 9–12.6 VDC
Maximum current:	14 A with total overcurrent protection including 6 x LEMO connectors and 12 V–1 A (WET) connector 16 A with total overcurrent protection including 6 x LEMO connectors and 12 V–1 A (WET) connector
Maximum with external power:	210 W
Maximum with battery power:	150 W

Secondary Outputs



Connector:	Six, 4-pin LEMO ECG.2B.304.CLL
Voltage with external power:	15 VDC regulated
Voltage from battery:	Optional - 10.8 VDC nominal; 9–12.6 VDC
Max. current from external power:	14 A combined with total overcurrent protection including Primary Output and 12 V–1 A (WET) connector
Max. current from battery:	16 A combined six outputs, regulated output (WET), and Amphenol
Maximum power:	210 W total

Regulated Output

Connector:	4-pin LEMO ECG.2B.304.CLL
Voltage:	12 VDC regulated
Maximum current:	1 A
Maximum power:	12 W

Using the POWER PRO

Power (ON/OFF) Switch

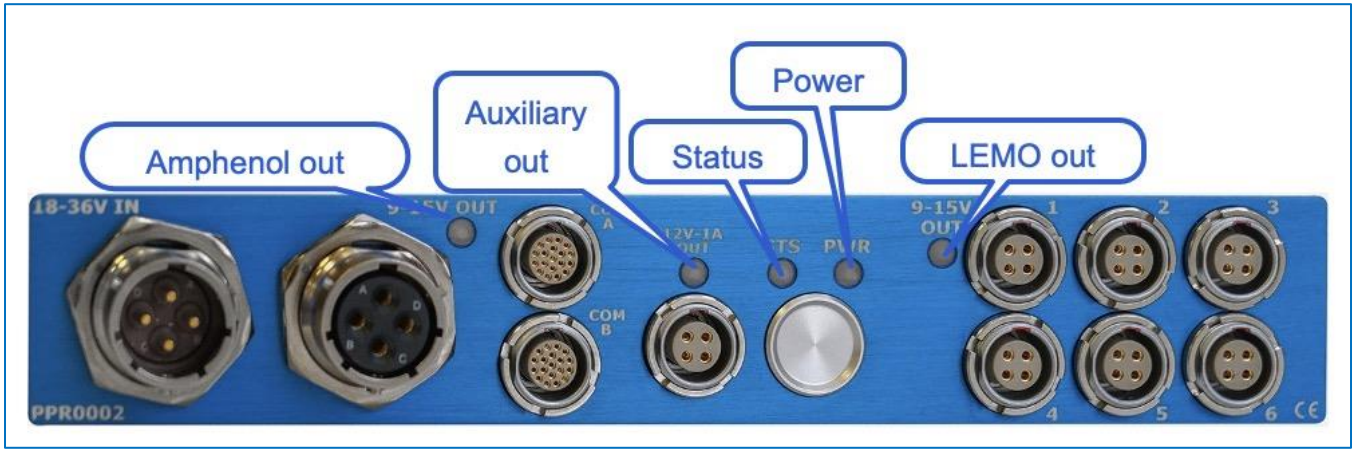
The POWER PRO uses a low-profile piezo switch for on/off control. Switch feedback is tied to the PWR LED. When the switch is pressed the PWR LED will turn white. Use the table below to perform functions controlled by the on/off switch.

POWER PRO OFF	Show charge level	Brief press, <1 s.	Capacity displayed. See Power (PWR) Indicator
POWER PRO OFF	Turn ON	Press and hold for 1 s.	PWR LED will turn white when pressed, release when it turns blue.
POWER PRO OFF	Enter storage mode	Press and hold for 6 s.	Hold switch until all indicator LEDs flash white. Apply external power to exit storage mode when using only the internal battery.
POWER PRO ON	Turn OFF	Press and hold for 2 s.	PWR LED will turn white when pressed, release when it turns blue.

When you initiate Storage mode, the LEDs blink 3 times and then the battery disconnects. Apply external power to cancel Storage mode.

LED Indicators

Five LEDs provide status information, including three output indicators, a status indicator, and a power indicator.



Output Indicators

There are status indicators for each of the output port types:

- Amphenol (9–15 V OUT) Indicator
- Auxiliary (12 V–1 A OUT) Indicator
- LEMO (9–15 V OUT) Indicator (displays voltage condition output for all 6 LEMO outputs in parallel)

Each output port status indicator provides information for the port only.

Warning	
	Do not perform any critical tests when the battery status LED indicator is red (battery low).

Note	
	A solid red Status LED indicates a POWER PRO fault signal.

Amphenol Output LED Indicator

●	OFF	Output is OFF. The POWER PRO is OFF, no input voltage applied.
●	Green	Output is ON (Regulated 15 VDC). The POWER PRO is OFF, 18–36 VDC input is applied.
●	Blue	Output is ON (Regulated 15 VDC). The POWER PRO is ON, 18–36 VDC input is applied.
●	Yellow	Output is ON (9–12.6 VDC). The POWER PRO is ON, running on battery.
●	Red	Output is OFF, a power fault has been detected. • Overcurrent, with or without input power. • Low Battery <5% capacity, when running on battery.

LEMO Output LED Indicator (Default Configuration)

●	OFF	Output is OFF. The POWER PRO is ON or OFF, no input voltage applied.
●	Green	Output is ON (Regulated 15 VDC). The POWER PRO is OFF, 18–36 VDC input is applied.
●	Blue	Output is ON (Regulated 15 VDC). The POWER PRO is ON, 18–36 VDC input is applied.
●	Red	Output is OFF, a power fault has been detected. • Overcurrent, with or without input power. • Low Battery <5% capacity, when running on battery.

LEMO Output LED Indicator (Alternate Configuration, LEMO On While Running on Battery)

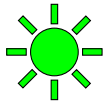
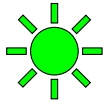
	OFF	Output is OFF. The POWER PRO is OFF, no input voltage applied
	Green	Output is ON (Regulated 15 VDC). The POWER PRO is OFF, 18–36 VDC input is applied.
	Blue	Output is ON (Regulated 15 VDC). The POWER PRO is ON, 18–36 VDC input is applied.
	Yellow	Output is ON (9–12.6 VDC). The POWER PRO is ON, running on battery
	Red	Output is OFF, a power fault has been detected. • Overcurrent, with or without input power. • Low Battery <5% capacity, when running on battery.

12 V–1 A LEMO Output LED Indicator

	OFF	Output is OFF. The POWER PRO is OFF, no input voltage applied
	Green	Output is ON (Regulated 12 VDC). The POWER PRO is OFF, 18–36 VDC input is applied.
	Blue	Output is ON (Regulated 12 VDC). The POWER PRO is ON, 18–36 VDC input is applied.
	Yellow	Output is ON (Regulated 12 VDC). The POWER PRO is ON, running on battery
	Red	Output is OFF, a power fault has been detected. • Overcurrent, with or without input power. • Low Battery <5% capacity, when running on battery.

Status (STS) Indicator

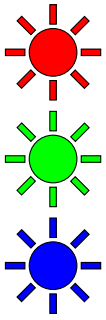
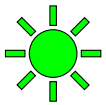
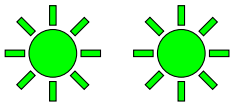
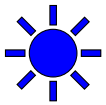
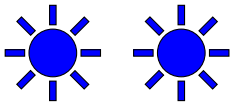
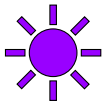
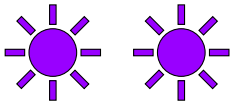
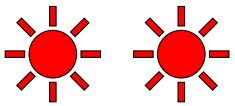
- The indicator blinks rapidly (green) when the POWER PRO is connected to a DTS software application (DataPRO).
- The indicator is on (solid green) when a high status input is received on either COM port.
- The indicator is on (solid red) when an incoming status high is received AND the POWER PRO reports a fault.
- The indicator is OFF when no incoming status is present and the POWER PRO is not connected to a DTS software application (DataPRO).

STS Indicator	STS Input	Battery/Power	STS Out
 Blinking green	INACTIVE	Fault	INACTIVE
 Blinking green	INACTIVE	Good	INACTIVE
 Solid red	ACTIVE	Fault	INACTIVE
 Solid green	ACTIVE	Good	ACTIVE

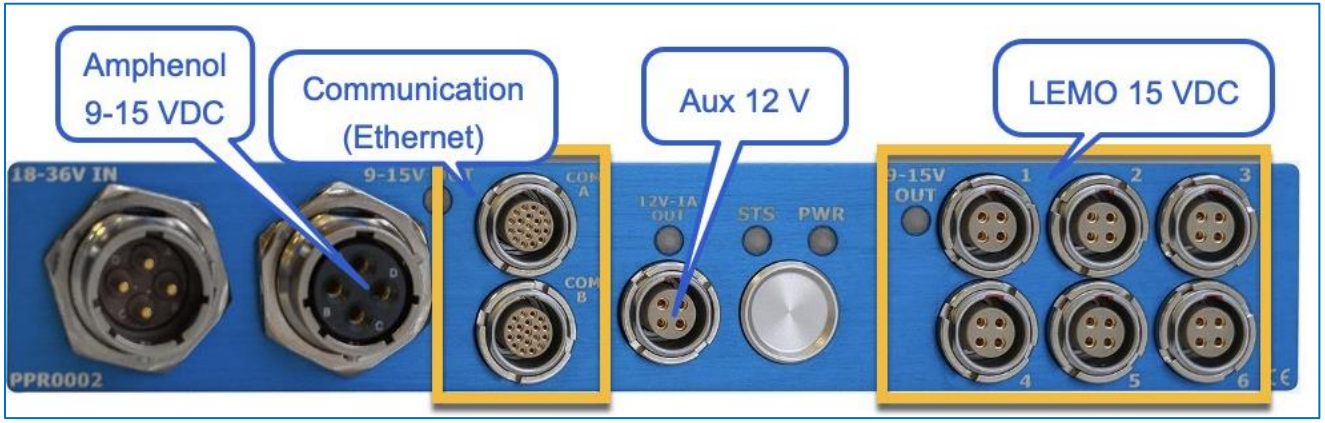
Power (PWR) Indicator

To turn the POWER PRO on or off, press and hold the power button until the indicator changes from white to blue.

- The Power LED flashes rapidly red – green – blue for a few seconds when the POWER PRO is turning ON.
- When the POWER PRO is OFF and input power is not present, briefly press the ON/OFF switch to display the battery capacity.
- When the POWER PRO is OFF and input power is present, the Power LED reports the battery capacity (one blink every 2 seconds).
- When the POWER PRO is ON and input power is present, the Power LED reports the battery capacity (one blink per 0.5 second).

Battery Charge	Initializing	Charging Power Off	Charging Power On	Discharging
>90%	 Blinking red, green, and blue	 Blinking green (2 s)	 Solid green	 Fast blinking green (twice per s)
50%–90%		 Blinking blue (2 s)	 Solid blue	 Fast blinking blue (twice per s)
20%–50%		 Blinking purple (2 s)	 Solid purple	 Fast blinking purple (twice per s)
<20% –or– fault		 Blinking red (2 s)	 Solid red	 Fast blinking red (twice per s)

Connectors – Power Output and Communication



POWER PRO OFF	Amphenol (9–15 V Out)	Auxiliary LEMO (12 V–1 A)	**Power LEMO (9–15 V Out)** Six LEMO connectors in parallel
External Power Applied	15 VDC	12 VDC	15 VDC
External Power Removed	OFF	OFF	OFF

Default Configuration

POWER PRO ON	Amphenol (9–15 V Out)	Auxiliary LEMO (12 V–1 A)	Power LEMO (9–15 V Out)
External Power Applied	15 VDC	12 VDC	15 VDC
External Power Removed	9–12.6 VDC (Battery)	12 VDC	OFF

Alternate Configuration

POWER PRO ON	Amphenol (9–15 V Out)	Auxiliary LEMO (12 V–1 A)	Power LEMO (9–15 V Out)
External Power Applied	15 VDC	12 VDC	15 VDC
External Power Removed	9–12.6 VDC (Battery)	12 VDC	9–12.6 VDC (battery)

Auxiliary Port

The 12 V, 1 A auxiliary connector can be used to power an external device such as a TDAS PLUS Wireless Ethernet device (DTS P/N 10300-01050).

Additional auxiliary signals are available on either of the 19-pin COM connectors. See Pin Assignments and Suggested Connector Sources for more information. These signals are:

- Start record input (optically-coupled 0–5 V signal)
- Status output (0–5 V, 20 mA output max)

Start Record Input

Use the **Start Record** input (used only in Recorder mode) to send a signal to the system to begin recording data *independent* of any event signal. Enter the recording time via the software. Once the system receives the start record signal, data is recorded for the length of time specified. (An event signal can be used separately to facilitate post-processing of the data.) Carefully specify the recording parameters to be sure you capture the desired event within the data window. (See your software manual for additional information.) Please contact DTS for additional information on how this may be useful in your application.

Status Output Signal

The Status Output signal is available for use as an indicator of system status. A typical application would be in an environment where operators may be a substantial distance away from the test equipment, in a control room, or other remote location, and need confirmation from the system that it is armed and healthy prior to testing. The next section describes this function.

Status Output Functional Description

When the system is not armed, the status output is always low (near 0 V), regardless of signals on the event input.

The status output will be high (near 5 V) ONLY when all of the following conditions are met:

- The unit is armed, AND
- The unit is ready to record data (is in Circular Buffer mode, or has received a start signal in Recorder mode), AND
- The unit had not received an event signal, AND
- The unit's power status is within acceptable levels.

In Circular Buffer mode, the status output will go high as the system is armed. It will go low when the unit received an event signal, any A/D circuit stops functioning, or if the system's power is outside of acceptable limits.

In Recorder mode, the status output will remain low until the system is recording data. The status output will go high when the unit receives a start record signal and all other diagnostic checks are within acceptable limits. It will go low when the unit receives an event signal, the end of the recording time window is reached, any A/D circuit stops functioning, or if the system's power is outside of acceptable limits.

Communication Ports

The communication (COM) ports are functionally identical and are compatible with all SLICE PRO and TDAS COM connectors.

The 19-pin COM connectors on the control panel allow access to two separate bidirectional Ethernet channels in the device. These COM connectors are functionally identical so you may use either one to connect the communication and trigger cables provided with your system. See Pin Assignments and Suggested Connector Sources for more information.

The POWER PRO COM A and COM B connectors provide for remote on/off control of the POWER PRO unit. (See Connector Information for connector pin assignments.)

The POWER PRO COM A and COM B ports support the industry-standard Ethernet 10/100BaseT/Tx communication method via an REC cable (P/N 10700-0015x) using either COM port. Communication is enabled after the initialization sequence has completed (1–2 minutes). Refer to the User Manual for your equipment for the network parameters for that equipment.

Warning	
	Do not apply external voltages to the event, communication, status, or control output and inputs – this could result in damage to the unit.

Connectors – Power Input

The POWER PRO should be powered from a high-quality power source with output voltage and current ratings appropriate for the installation.

Maximum Power Consumption:	450 W
Maximum Input Power:	18–36 VDC range at 470 W max
Recommended Input Voltage Range:	24–30 VDC

See also:

- Internal Battery
- Power Output Ports
- Auxiliary Port
- Connectors – Power Input

Input Power Calculations

The POWER PRO contains high-efficiency power conversion circuitry with a flexible input range and well-regulated outputs. With an appropriate external power supply, the system supplies optimal power for TDAS and SLICE systems without having to worry about variable voltage drops through the input power cable.

Choose the power supply and cabling carefully to ensure there is sufficient input voltage at the power input connector under all circumstances. Power cables have resistance that depends upon the conductor diameter and increases with length. For reference, the following table identifies the nominal wire resistance by gauge. (Since current flows through two wires (+ and -), the value in the table should be doubled.)

Gauge	Resistance (per foot)	Resistance (per meter)
12	0.00162 Ω	0.00531 Ω
14	0.00258 Ω	0.00846 Ω
16	0.00408 Ω	0.01338 Ω
18	0.00652 Ω	0.02139 Ω
20	0.01036 Ω	0.03398 Ω

Measure the voltage at the cable end that connects directly to the POWER PRO to verify the unit is receiving sufficient input voltage.

Maximum Output Power

Combined maximum output power available:

Six output LEMO connectors (EEG.2B.304.CLL)	14 A total (15 VDC nominal), 4 A maximum per connector
Amphenol output connector (MS3476L14-4S)	14 A total (15 VDC nominal)
12V OUTPUT power connector (WET) (EEG.2B.304.CLL)	1 A (12 VDC nominal)

Internal Battery

The POWER PRO contains a 9 Ah Lithium-ion battery sufficient to provide primary power for up to 1 hour at maximum discharge (12 A). The POWER PRO charges whenever sufficient external power (18 VDC, 4 A maximum) is connected to the power input connector. The maximum charge time is ~2.5 hours from complete discharge to full capacity. A green, blue, or violet PWR LED indicator means voltage input levels are within specifications. See Power (PWR) Indicator for details.

Battery Capacity

The actual useful capacity depends upon the current draw of the connected equipment and whether the battery was fully charged before testing. A fault will occur when the available battery capacity drops below 5%.

Caution	
	Do not perform any critical tests when the battery status LED indicator is red (battery low).

Battery Life Cycle

The useful battery life is approximately 300 full discharge/recharge cycles. Partial discharge/recharge cycles do not impact the useful battery life as much as full discharge/recharge cycles. The POWER PRO is not user-serviceable and should be returned to the factory for service or repair.

Charging/Powering TDAS and SLICE Equipment with POWER PRO

The POWER PRO is used to charge/power TDAS and SLICE equipment containing an internal battery. The length of time required to charge all equipment depends primarily on the discharge state of the batteries.

Attached TDAS and SLICE equipment will charge only when both conditions are met:

- There is sufficient input power connected to the POWER PRO
- The POWER PRO is on (output power is active)

If input power is disconnected and the POWER PRO is on, any attached and powered TDAS and SLICE equipment will use their internal battery reserves first until levels are low enough to begin drawing power from the POWER PRO. When the available capacity drops below 5%, a fault will occur.

Warning	
	A solid red STS LED indicates a fault signal from the POWER PRO.

Power Requirements of TDAS and SLICE Equipment

TDAS and SLICE DAS use extensive power management to minimize power consumption. The lowest power demand condition is during charging when power is off. Current demand is at its maximum when the systems are fully armed and powering full sensor loads. Power requirements for TDAS PLUS equipment vary greatly; please review the appropriate user manual for information. TDAS and SLICE User's Manuals are available from the Help menu within your software or downloadable from the Help Center.

Power Consumption (per item)	Power Off (charging battery)	Power On (armed + max load)
TDAS PRO - SIM, TOM, DIM - Rack	 25 mA 600 mA	 1 A 1 A
TDAS G5 VDS	600 mA	2 A
SLICE PRO	500 mA	1 A

For example, the minimum current required to charge a TDAS PRO rack with 4 modules is 700 mA; the maximum current required for the same system when operational is 5 A.

Cable Reference

DTS recommends that you use cables we supply to ensure compatibility and performance. Contact your DTS representative for a list of available cables.

	DTS Cable Part Number	Description
9–15 V OUT Amphenol Output	10600-0005x	Cable, power (DPP)
9–15 OUT LEMO Output	10600-0011x 10600-0012x	Cable, power, long grounded (PPL) Cable, power, short grounded (PPS), as option
12 V, 1 A (WET) LEMO Output		
COM Ports	10200-0002x	Cable, TDAS status, COM port to green LED
	10700-0008x	Cable, SYSTEM port to COM port (DRC)
	10700-0014x	Cable, COM port daisy chain (RDC)
	10700-0015x	Cable, PC comm, Ethernet via COM port (REC)
	10700-0020x	Cable, CONTROL port to COM port (VSI to a COM port) (SIR)
	10700-0025x	Cable, TDAS G5 VDS event (VVB)
	10700-0051x	Cable, TDAS event/start record/status, COM port to pigtail term
	10700-0062x	Cable, COM port event to BNC
	10700-0063x	Cable, COM port to UMBILICAL port

Mounting Considerations

Securely bolt the unit to the test article or dynamic testing device to provide the best shock protection. Mounting methods and hardware selection should be calculated to withstand expected shock loading and allow proper grounding.

Check bolt tightness periodically to ensure the unit is securely fastened to the baseplate and the baseplate is securely fastened to the testing platform. (See Mounting Specifications for the unit's mechanical specifications.)

Thermal Considerations

The POWER PRO incorporates an internal heatsink to transfer heat away from the main PCBA components. An external heatsink provides additional thermal transfer but can be removed for installations in tight environments.

Under normal conditions, the unit may get very warm to the touch (25°C above ambient) when used continuously at the maximum power output level. It is unlikely, however, that it will overheat. Use the provided heatsink or another thermal transfer method to keep the temperature within acceptable limits. For example, consider bolting the unit to a structure of significant thermal mass.

If the unit will be used in an environment with high ambient temperatures, other heat sources, sunlight, or severely restricted airflow, temperatures may exceed 40°C. Use a small fan to increase the airflow and improve heat transfer by a factor of 3 to 5. When in doubt, measure the case temperature of the unit and take whatever steps are necessary to improve heat transfer.

Grounding

In addition to providing reliable power conversion for TDAS and SLICE systems, the POWER PRO also provides a means for grounding the entire data acquisition system and the test vehicle.

The enclosure connects to:

- Pin D of the 18–36 VDC IN connector (Amphenol MS3474L14-4P)
- Pin D of the 9–15 V OUT connector (Amphenol MS3476L14-4S)
- Pins 2, 3, 4 of the 9–15 V OUT x 6 connectors (LEMO EEG.2B.304.CLL)
- Pins 2, 3, 4 of the 12 V -1 A OUT connector (LEMO EEG.2B.304.CLL)

See Pin Assignments and Suggested Connector Sources for more information on all LEMO connectors.

DTS strongly recommends that the test vehicle or sled be connected to earth ground. One easy way to do this is to attach a trailing ground cable to the 18–36 VDC IN connector on the POWER PRO or to the enclosure of the unit.

Additionally, it is very important that the enclosures of all TDAS and SLICE equipment be grounded to each other and the test vehicle, sled carriage, or test fixture. This will minimize any risk of data noise due to high-current transients from

sources such as vehicle battery shorts or air bag squib shorts. Bolting the units to the vehicle or mounting structure will ordinarily provide proper grounding. DTS recommends checking continuity between the enclosures of each unit and the test vehicle or sled to confirm resistance readings of <1 ohm.

If the installation does not permit bolting the POWER PRO and connected TDAS or SLICE systems to a common ground, DTS recommends connecting ground wires between the various enclosures.

Contact DTS if you have any questions regarding proper methods to ground the system.

Setting the IP Address

The POWER PRO units are typically delivered with a default IP address as follows:

IP address	192.168.0.x where: x = 1-9 for S/Ns PPR00001–PPR00009; x = 10-99 for S/Ns PPR00010–PPR00099; x = 100-199 for S/Ns PPR00100–PPR00199; x = 200-299 for S/Ns PPR00200–PPR00299; x = 300-399 for S/Ns PPR00300–PPR00399
Netmask	255.255.252.0

The calibration data for your equipment identifies the IP address as shipped from the factory. If the calibration data is not available, try using the default address described in the table above.

To update the POWER PRO IP address, use System Attribute #075 (StaticIpAddress). To find it use the SLICE2 Firmware Test Utility, connect to POWER PRO, and then select **Attributes -> System**. When the list of attributes displays, select an attribute value to change it.

See TCP Configuration Tab for more information.

If you need information on the specifics of your equipment, please submit a request through the DTS Help Center web portal (support.dtsweb.com) and include the serial number(s) of the equipment and parameters you are asking about.

DataPRO Software Interface

The POWER PRO requires DataPRO software version 3.1.x or later.

Basic status information is available through DataPRO. DataPRO also displays a footer button when any POWER PRO is connected. Use the POWER PRO link to launch the POWER PRO web server interface, where more detailed information and control options are available.

The POWER PRO connects to the DataPRO software suite through the COM A/COM B communication ports.

Web Server Interface

The POWER PRO comes with a built-in webserver interface which is available by connecting through the Ethernet COM A / COM B ports and accessing the POWER PRO's IP address in your web browser. From this interface, you can:

- Monitor system status
- Configure network settings
- Enable/Disable output ports

The following sections describe the POWER PRO web interface.

Home Tab

The Home tab displays:

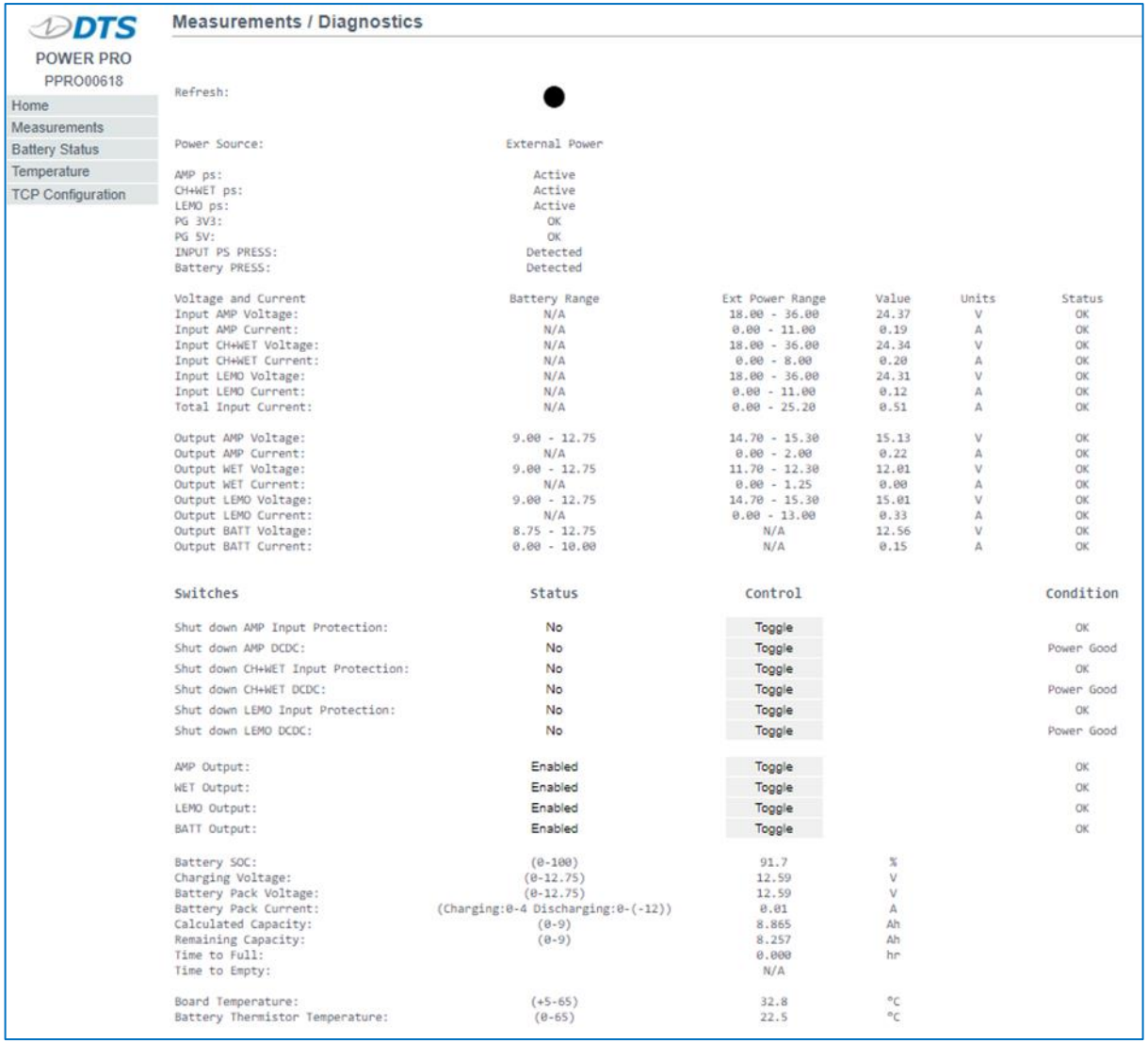
- Serial number
- Connected to host status
- Input voltage
- Board temperature
- Board thermistor temperature
- Firmware version
- Arm mode
- Battery voltage
- Battery FG temperature
- Status of each LED indicator on the control panel
- Hardware type
- Boot count
- Power source
- Battery thermistor temperature

Measurements/Diagnostics Tab

The Measurement / Diagnostics tab provides a Control column with Toggle options.

Use this tab to select and control power output activity, input protection, and DCDC settings for each of the power output connectors (Amphenol, LEMO and 12V OUTPUT/ Charge) through control toggle switches.

Left-click a parameter to change the condition of the selected parameter. The Status column shows the new condition. The curtain Switches parameters are shown in the Switches column. All other conditions are for display only and cannot be changed.



DTS
POWER PRO
PPRO00618

- Home
- Measurements
- Battery Status
- Temperature
- TCP Configuration

Measurements / Diagnostics

Refresh:

Power Source:	External Power
AMP ps:	Active
CH+WET ps:	Active
LEMO ps:	Active
PG 3V3:	OK
PG 5V:	OK
INPUT PS PRESS:	Detected
Battery PRESS:	Detected

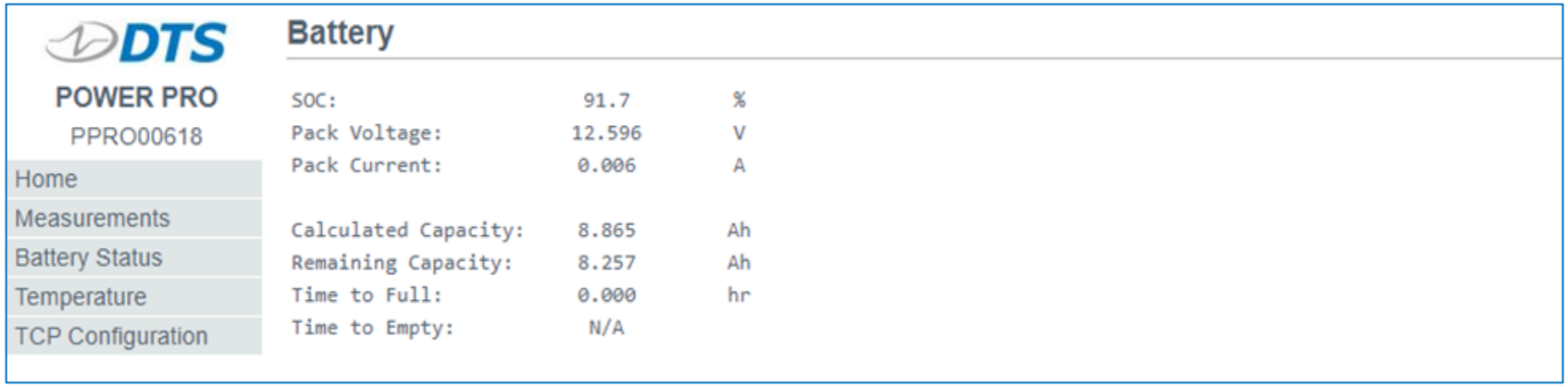
Voltage and Current	Battery Range	Ext Power Range	Value	Units	Status
Input AMP Voltage:	N/A	18.00 - 36.00	24.37	V	OK
Input AMP Current:	N/A	0.00 - 11.00	0.19	A	OK
Input CH+WET Voltage:	N/A	18.00 - 36.00	24.34	V	OK
Input CH+WET Current:	N/A	0.00 - 8.00	0.20	A	OK
Input LEMO Voltage:	N/A	18.00 - 36.00	24.31	V	OK
Input LEMO Current:	N/A	0.00 - 11.00	0.12	A	OK
Total Input Current:	N/A	0.00 - 25.20	0.51	A	OK
Output AMP Voltage:	9.00 - 12.75	14.70 - 15.30	15.13	V	OK
Output AMP Current:	N/A	0.00 - 2.00	0.22	A	OK
Output WET Voltage:	9.00 - 12.75	11.70 - 12.30	12.01	V	OK
Output WET Current:	N/A	0.00 - 1.25	0.00	A	OK
Output LEMO Voltage:	9.00 - 12.75	14.70 - 15.30	15.01	V	OK
Output LEMO Current:	N/A	0.00 - 13.00	0.33	A	OK
Output BATT Voltage:	8.75 - 12.75	N/A	12.56	V	OK
Output BATT Current:	0.00 - 10.00	N/A	0.15	A	OK

Switches	Status	Control	Condition
Shut down AMP Input Protection:	No	Toggle	OK
Shut down AMP DCDC:	No	Toggle	Power Good
Shut down CH+WET Input Protection:	No	Toggle	OK
Shut down CH+WET DCDC:	No	Toggle	Power Good
Shut down LEMO Input Protection:	No	Toggle	OK
Shut down LEMO DCDC:	No	Toggle	Power Good
AMP Output:	Enabled	Toggle	OK
WET Output:	Enabled	Toggle	OK
LEMO Output:	Enabled	Toggle	OK
BATT Output:	Enabled	Toggle	OK

Battery SOC:	(0-100)	91.7	%
Charging Voltage:	(0-12.75)	12.59	V
Battery Pack Voltage:	(0-12.75)	12.59	V
Battery Pack Current:	(Charging:0-4 Discharging:0-(-12))	0.01	A
Calculated Capacity:	(0-9)	8.865	Ah
Remaining Capacity:	(0-9)	8.257	Ah
Time to Full:		0.000	hr
Time to Empty:		N/A	
Board Temperature:	(+5-65)	32.8	°C
Battery Thermistor Temperature:	(0-65)	22.5	°C

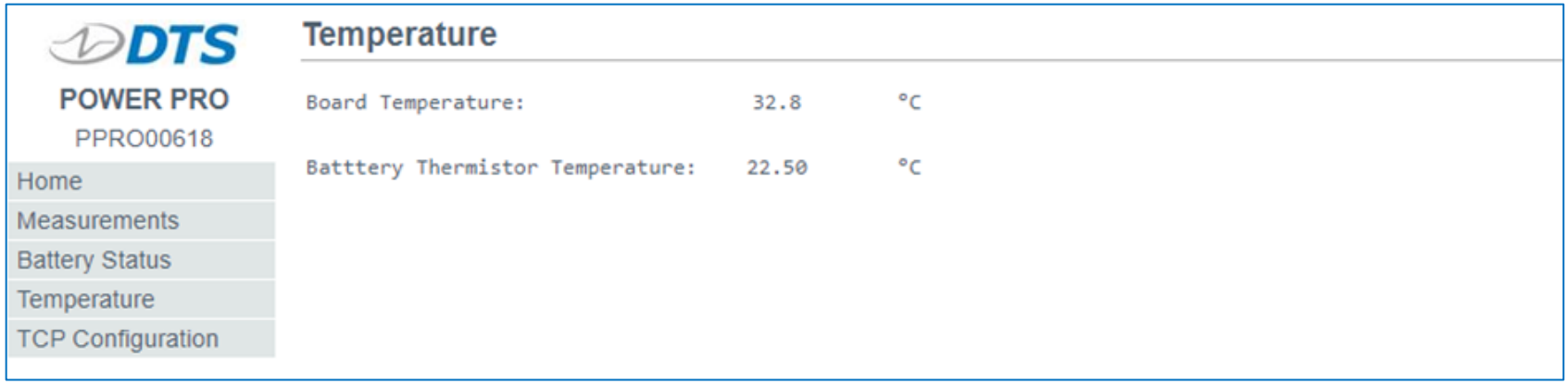
Battery Tab

The battery tab shows the state of change (SOC), battery pack voltage, battery pack current, calculated capacity, remaining capacity, time to full charge, and time to empty charge.



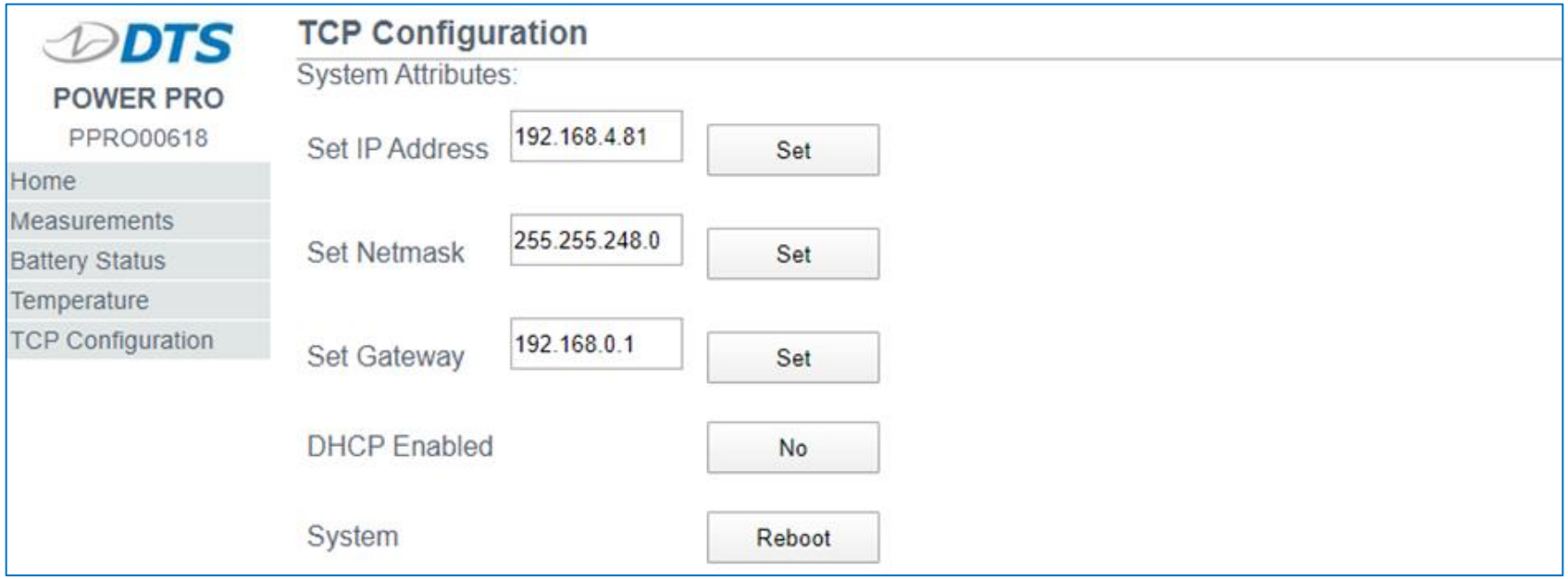
Temperature Tab

The temperature tab shows board and battery thermistor temperature levels.



TCP Configuration Tab

Use the TCP Configuration tab to configure the IP address, netmask, gateway and DHCP Enabled status of the POWER PRO. Use the **Reboot** button to remotely reboot the POWER PRO system.



Care and Handling

The POWER PRO is designed to operate reliably in dynamic testing environments. It is resistant to many environmental conditions; however, you should not subject the unit to harsh chemicals, submerge it in water, or drop it onto any hard surface.

Caution	
	Electronic equipment dropped from desk height onto a solid floor may experience up to 10,000 g. This is likely to cause damage to the exterior and/or interior of the unit.

The Lithium-ion battery pack contained within the enclosure requires no user maintenance, however it should not be allowed to fully discharge at any time. If you plan to store the unit, fully charge the battery, and then place it in a location with ambient temperatures below 30°C, low relative humidity, and free from dust and direct sunlight. While in storage, the battery should be charged at least once every three months. Avoid storing the battery for longer than six months. The battery should be fully recharged before use after any time in storage.

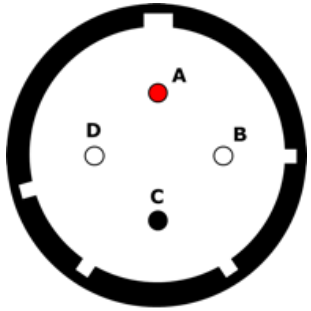
The POWER PRO is non-spillable and safe for transportation by truck, rail, ocean, and air. When transporting the unit, treat it as you might a laptop computer. When not in use or if shipping is required, we suggest that you place the unit in the padded carrying case provided with your system.

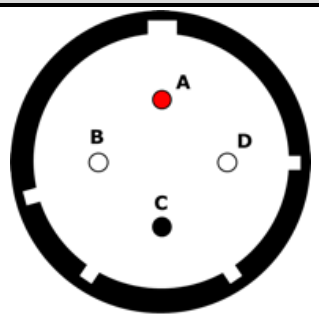
DTS recommends annual servicing to ensure that the unit is performing within factory specifications. The POWER PRO is not user-serviceable and must be returned to the factory for service or repair.

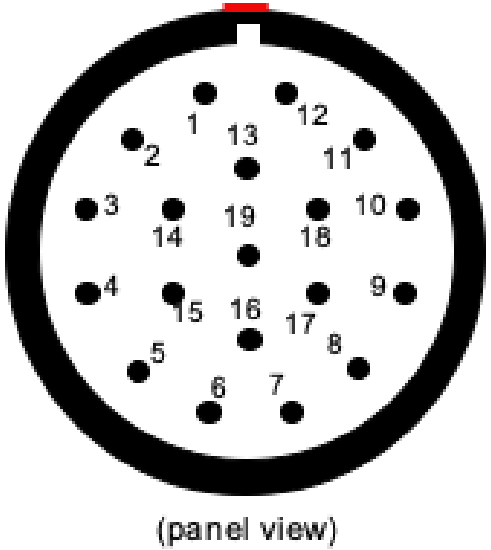
Connector Information

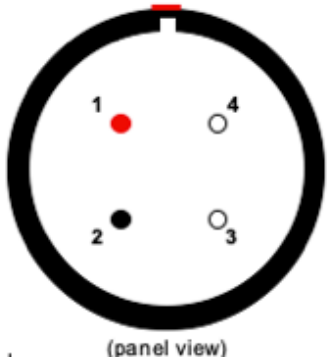
Note: All –VDC power input/outputs are connected to the enclosure.

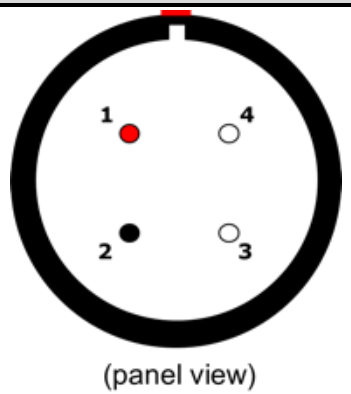
Pin Assignments

18–36 V IN Amphenol Input Connector	Pin	Function
Amphenol MS3474L14-4P  (panel view)	A	+VDC input
	B	No connection
	C	-VDC input (power return)
	D	Enclosure (case ground)
Suggested cable connector P/N: MS3476L14-4S/97-3057-1008-1		

9–15 V OUT Amphenol Output Connector	Pin	Function
Amphenol MS3474L14-4S  (panel view)	A	+VDC output
	B	No connection
	C	-VDC output (power return)
	D	Enclosure (case ground)
Suggested cable connector P/N: MS3476L14-4P/97-3057-1008-1		

COM A and COM B Communication Port Connectors	Pin	Function
Communication (COM) Ports  (panel view)	1	Internal function only
	2	Internal function only
	3	Shield
	4	Start recording input, optically coupled (apply 5 V with respect to pin 16) and maximum input current 20 mA
	5	Common for ON, CC to pin 10
	6	Status output, 5 V through/series 110 ohm (referenced to common – pin 5)
	7	(+) Status input, optically coupled (apply 5 V with respect to pin 16) and maximum input current 20 mA
	8	Ethernet Tx2 (–) (100 Mbs)
	9	Ethernet Tx2 (+) (100 Mbs)
	10	Remote ON, CC with maximum 1 kOhm resistance to pin 5
	11	Ethernet Rx3 (–) (100 Mbs)
	12	Ethernet Rx3 (+) (100 Mbs)
	13	Ethernet Tx3 (–) (100 Mbs)
	14	Ethernet Tx3 (+) (100 Mbs)
	15	+ Event, rack-to-rack; CC with maximum 1k Ohm resistance to pin 19
	16	(–) Common for start record input (pin 4) and status (pin 7) input
	17	Ethernet Rx2 (–) (100 Mbs)
	18	Ethernet Rx2 (+) (100 Mbs)
	19	– Event, rack-to-rack; CC to pin 15
Suggested cable connector P/N: FGG.2B.319.CLADxx (xx represents the diameter in mm of the cable to be used)		

12 V–1 A OUT Auxiliary Connector	Pin	Function
AUX Port 	1	12 V–1 A Output
	2	–VDC Output/Ground
	3, 4	Enclosure (Ground)
Suggested cable connector P/N: FGG.2B.304.CLADxx		

9–15 V OUT LEMO Output Connector	Pin	Function
LEMO Output 	1	+VDC output (see Secondary Outputs)
	2	–VDC output (see Secondary Outputs)
	3, 4	Enclosure
Suggested cable connector P/N: FGG.2B.304.CLADxx		

Suggested Connector Sources

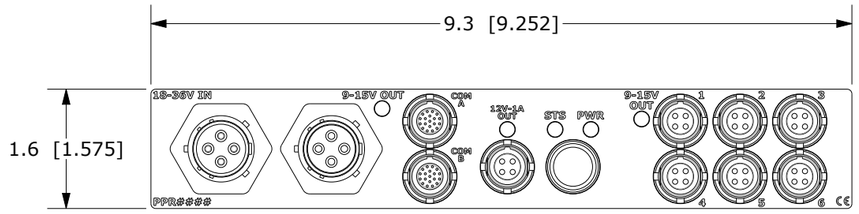
DTS uses LEMO and Amphenol connectors. If you need to purchase LEMO connectors, we suggest first going to LEMO directly (http://www.lemo.com). Their web site and worldwide sales team are very helpful. If you cannot obtain a specific part number, they can suggest connector variations or alternates and explain options that may be useful for your 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.

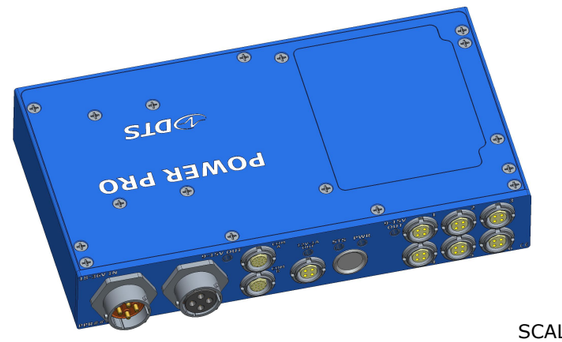
There are many distributors for Amphenol and Amphenol-compatible connectors (Cannon, Array, etc.) including Allied, Arrow, Newark and TTI. Contact information for these distributors can be found at http://www.amphenol-industrial.com/index.php/sales-support/distributors.

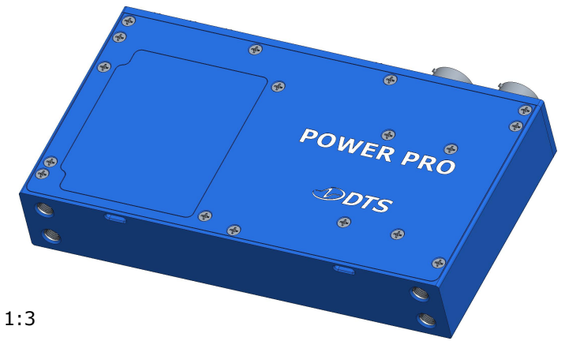
RoHS

Manufacture/fabricate to meet the EU RoHS Directive 2011/65/EU and RoHS Annex II phthalates

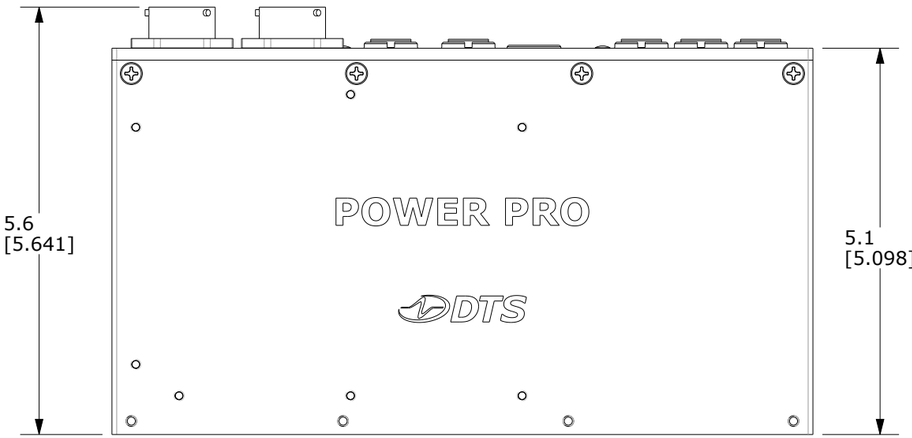
REV	ZONE	DESCRIPTION	DATE	BY
0		ORIGINAL RELEASE	2019-02-25	JC
1		ADDED PG.2 TO SHOW WITH LARGE HEAT SINK	2020-03-25	JC
2		ADDED HIDDEN SCREW LOCATIONS ON PG.2	2020-10-09	JC

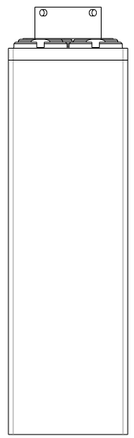


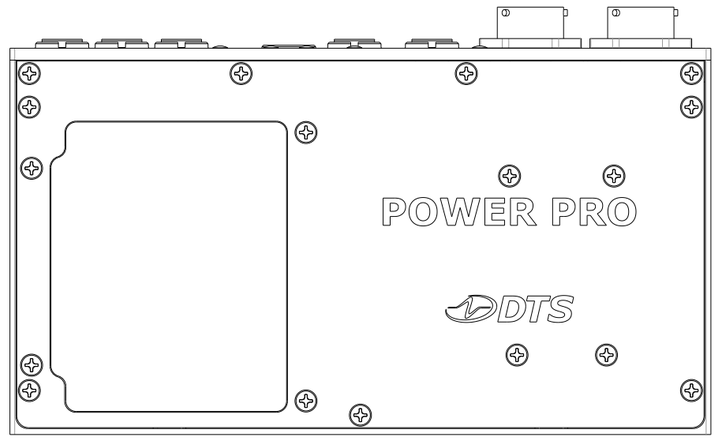


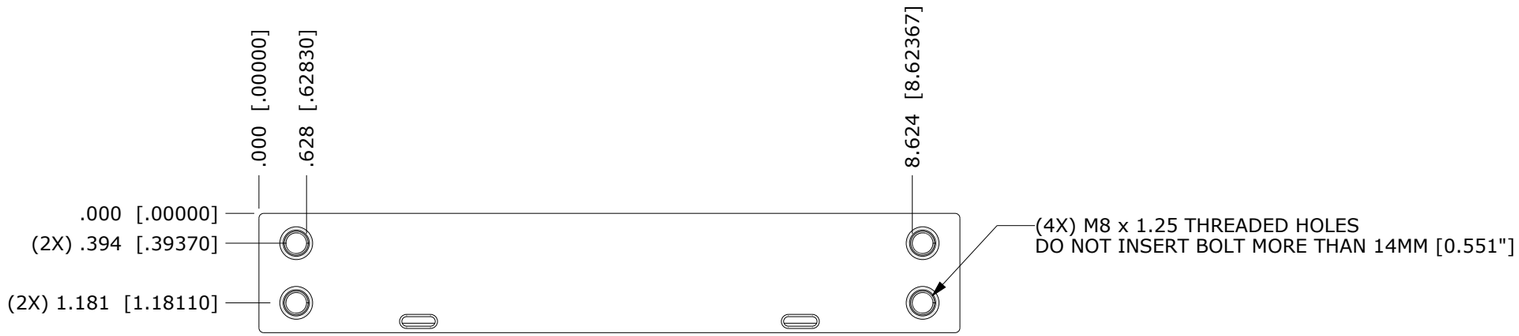


SCALE 1:3









WEIGHT: 2.05 kg (4.52 lb)

DTS
SEAL BEACH, CA 90740
562-493-0158
www.dtsweb.com

MATERIAL:
6061-T6 ALUMINUM ENCLOSURE
W/ BLUE ANODIZE

UNLESS OTHERWISE SPECIFIED:

UNITS = MM [INCH]
DIMENSIONAL TOLERANCES ±.254 [0.010"]
INTERPRET PER ASME Y14.5. DO NOT SCALE.

DESCRIPTION:
POWER PRO,
MOUNTING DRAWING

DTS P/N: 10400-00210

REV: 2

DRAWN: J CASEY

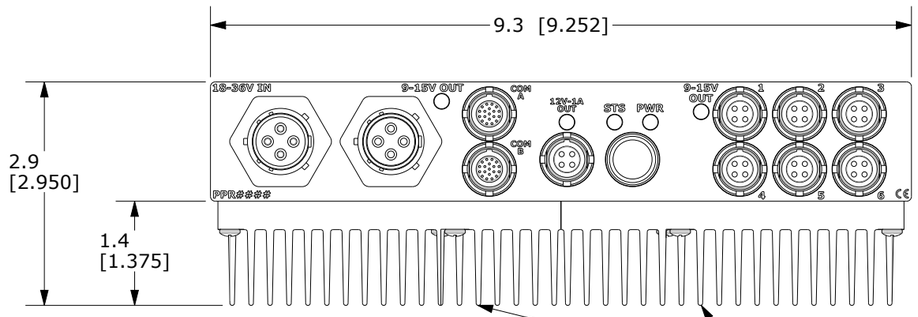
DATE: 2019-02-25

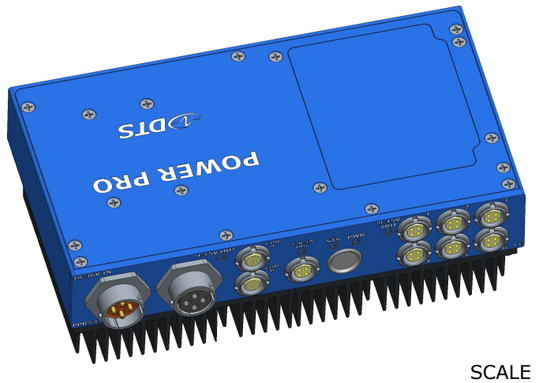
SIZE: B

SCALE: 1:2

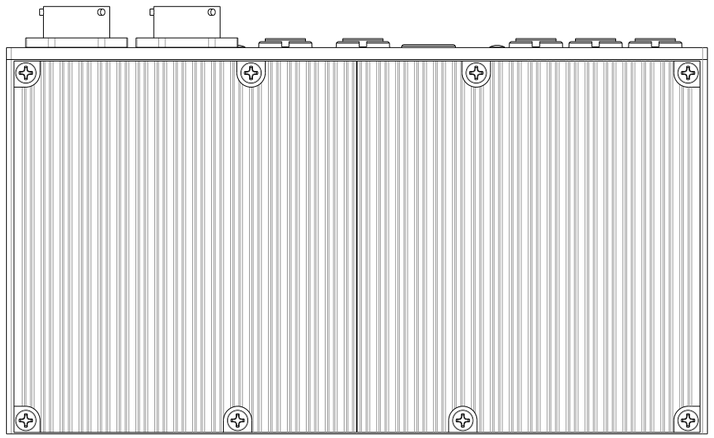
SHEET: 1 OF 2

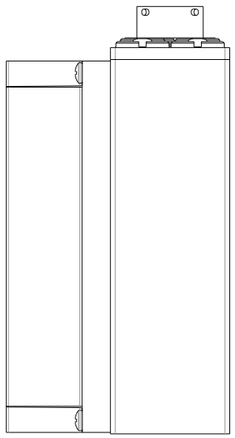
MDL:
DTS_POWER_PRO



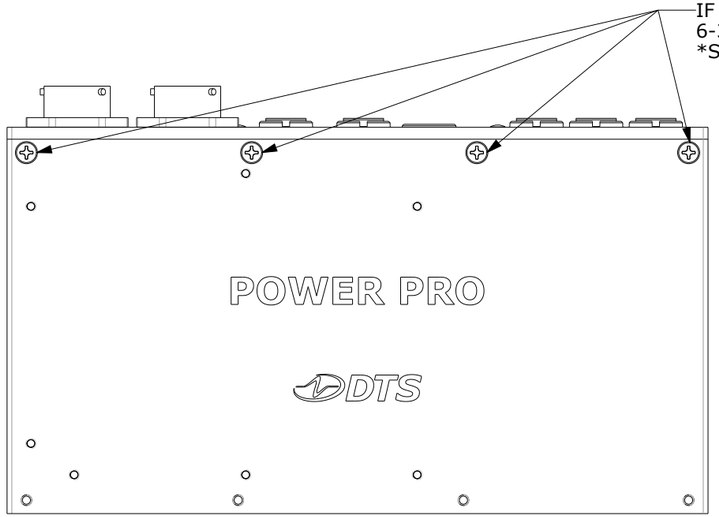


SCALE 1:3





WEIGHT WITH HEAT SINK:
3.5 kg (7.7 lb)



SCALE 1:3

DESCRIPTION: POWER PRO, MOUNTING DRAWING			
DTS P/N: 10400-00210			REV: 2
DRAWN: J CASEY			
DATE: 2019-02-25	SIZE: B	SCALE: 1:2	SHEET: 2 OF 2

Heat Sink

A removable heatsink (PN 89000-24040-R) comes standard with every POWER PRO.

The heatsink includes mounting screws.

Revision History

Rev	Date	By	Description	Approved By
0	8 Aug 2022	P. Vaitaitis	Initial release.	F. Monaco

DTS
1720 Apollo Court
Seal Beach, CA 90740 USA
+1 562 493 0158
www.dtsweb.com

DECLARATION OF CE CONFORMITY

Description	Model
Distribution Unit; Back-up Battery	POWER PRO

The undersigned hereby declares that the products listed above, manufactured by Diversified Technical Systems, Inc., Seal Beach, California, USA, conform to the following directive and standards:

Applicable Council Directive: **89/336/EEC – Electromagnetic Compatibility**

Applicable Harmonized Standards: **EN 55022:1998, EN 55024:1998**

Rollin White
Head of DTS, Senior Director

July 25, 2022
Date