DPST-5000M Digital Pitot Static Test Set
"High Accuracy, Exceeds 91.411 FAR Specs, Light Weight with Indestructable Sensor and Display!"
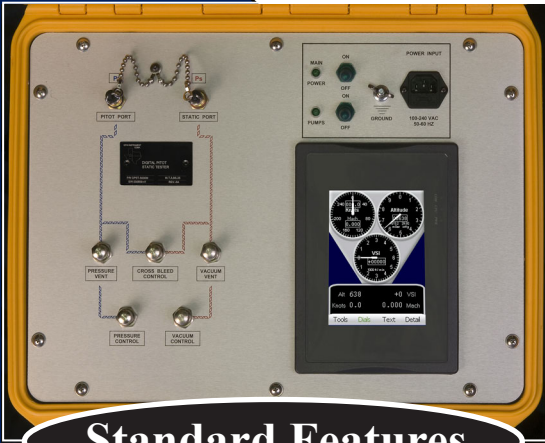
Cage Code # 3PTA2

DFW Instrument Corporation

General Information

The Model DPST-5000 Digital Pitot Static Test Set is a precision test set with dual channel pressure controller, designed to provide regulated total (PT) pressure and static (PS) pressure outputs to simulate Altitude, Airspeed and Vertical Speed Parameters. The test set can also be used in a laboratory environments to calibrate Altimeters and Airspeeds in maintenance shops or in harsh hanger environments. The test set is compact, light weight and has a removable storage lid, which can fit in the overhead compartment on a commercial airliner.

Standard Features

- Certified to perform Pitot Static FAR 91.411 and / or FAR 43 Appendix E certifications on fixed or rotary wing aircrafts.
- Precision microprocessor based with Honeywell sensors, accuracy to 0.02% (± 40 ft. @ 55,000 ft.) of full range.
- Sun-light readable color display showing real instrument EFD presentation.
- The simple pop-up screens display the Altitude, Vertical Speed, Airspeed EPR and other measurements in various units of measure, including Ft, M, Kts, Km/hr, Mach, Ft/min, M/min, EPR (Pt/Ps), inHg, mb and psia. All readings are up-dated every 2 tenths of a second.
- Automatic pitot and static leak rate modes automatically perform calculations & system failures.
- Precision metering valves with protection shut off seats for maximum control rates.
- Ports have self sealing quick connections, which are color coated and keyed to protect the aircraft and test equipment from pressure loss or incorrect system connections.
- Internal pumps produce pressure and vacuum, which fill holding tanks for quick start ups and high performance rates. Exceeds 55,000 ft. of altitude, 15,000 ft./min VSI rate, and 600 knots of airspeed.
- Water resistance and temperature corrected for extreme flightline conditions.
- Smart AC power supply for safe flight line usage input voltages 85 to 264 VAC / 47 to 440 Hz
- Storm Case is rugged and constructed to meet applicable requirements of MIL-STD-810F and FED-STD-101C and is watertight, pad lockable and is made in the USA.
- Test set is equipped with quick connect fittings, 2 hoses (20 ft/ea) and a power cord (6ft).
- Calibration meets or exceeds the published specifications, which are traceable to the National Institute Standards and Technology "N.I.S.T".

Dimensions
20"L x 15"W x 7"H
25 lbs.

Digital Manual Pitot Static Test Set
DPST-5000M Performance Specifications

Absolute Pressure Performance
Static Sensor:

Range:	0.3 to 40 inHg abs.
Accuracy:	+/- 0.020 inHg FS
Repeatability:	+/- 0.150 inHg % span
Drift:	+/- 0.50 % inHg per year FS
Overpressure:	200 % FS without damage

Pitot Sensor:

Range:	0.8 to 80 inHg abs.
Accuracy:	+/- 0.020 inHg
Repeatability:	+/- 0.150 inHg % span
Drift:	+/- 0.50 % inHg per year
Overpressure:	200 % FS without damage

Altitude Performance

Range:	-1500 ft. to 55,000 ft.
Resolution:	1 ft.
Accuracy:	$\pm$5 ft. @ 0 ft.
	$\pm$45 ft. @ 35,000 ft.
	$\pm$125 ft. @ 55,000 ft.

Rate of Climb Performance

Range:	100 ft./min. to 12,000 ft./min.
Resolution:	5 ft./min.
Accuracy:	$\pm$10 % of rate with a min. of 20 ft./min.

Airspeed Performance

Range:	10 to 600 Knots
Resolution:	0.5 Knots
Accuracy:	$\pm$2 Knots@ 20 knots
	$\pm$1 Knots @ 100 knots
	$\pm$1.5 Knots @ 600 knots

Mach Performance

Range:	0.0 Mach to 2.79 Mach
Resolution:	0.001 Mach
Accuracy:	0.020 Mach + 0.1 Mach
	for Ps = 29.921 inHg.

EPR Performance

Range:	0.1 to 3.0 (Ps @ 30inHg)
Resolution:	0.001
Accuracy:	0.15 %FS PSI

Pressure Medium
Dry Air

Pressure Connections
Quick Disconnects (2 ea.)
Safety Seal on Female Quick Connect

Display Update Rate
Once Every 2 Tenths per Second

Outputs
USB Port / Data Output / RS-485 (Additional Fees)

Sensors
Honeywell Certified Sensors (NIST Traceable)

Power Requirement

Input Range:	85 - 264 VAC
Frequency Range:	47 Thru 440 Hz

Environmental Specs

Temp. Operating:	-40° C to +85° C
Temp. Storage:	-25° C to +60° C
Humidity:	0% to 95% RH

Warranty & Calibration

Warranty:	2 years (*parts & labor*)
Calibration:	Up to 1 year (*yearly calibration suggested*)

RVSM Certification
Calibration / Trace to NIST
Exceed FAA Accuracy FAR 91.411 Specifications

Physical Dimensions
20" L x 15" W x 7"H Mil-STD810F

Weight   Case
25 Lbs.   Storm Case

ORDERING INFORMATION
Mfg. Part Number: DPST-5000M

Accessories Include: Protection Quick Release Fittings,
Hoses, Shipping Container and Operation Manual.

DPST-7200A Automated Pitot Static Test Set
"High Accuracy Standards for FAR 91.411 Certification"

DFW Instrument Corporation

Cage Code # 3PTA2

General Information

The Model DPST-7200A Pitot Static Test Set is a precision flight line fully <u>Automatic</u> dual channel pressure controller, designed to provide regulated total (PT) pressure and static (PS) pressure outputs to simulate altitudes and airspeed parameters. A handheld remote terminal provides the operator full control of test set functions while observing aircraft instruments such as Altimeters, Airspeeds / Mach Indicators and Rate of Climb Indicators.

Standard Features

- Certified to perform Standard FAR 91.411 Part 43 App E.
- Precision microprocessor based with Honeywell sensors, accuracy to +/- 0.020% of full range.
- Calibration meets or exceeds the published specifications, which are traceable to the N.I.S.T.
- The handheld remote terminal is sun-light readable color TFT display showing real instrument displays.
- Profiles feature allows standard setpoints of an altimeter or airspeed check to be downloaded from a computer. Up to 50+ profiles can be stored in the unit.
- Automatic pitot and static leak rate functions automatically calculate leak rate values.
- "Go To Ground" feature automatically and safely depressurizes Pitot & Static pressure to ambient.
- Smart AC power supply for safe flight line usage input voltages range 85 to 265 VAC / 47 to 420 Hz.

Dimensions
28"L x 14"W x 9"H
35 lbs.

- Test set is equipped with quick connect fittings, 2 hoses (20 ft/ea) and a terminal cable (20 ft).
- Case meets required measurements to fit into overhead compartment in commercial airlines.
- Terminal specifications include user-friendly keypad interface; full-function Touch Screen; LED function indicators; Humidity, MIL-STD-810F, Method 507.4; and Water, IP67, sealed against immersion, MIL-STD-810F, Method 512.4, P-1.
- Protection for instruments under test, includes a power failure protection feature, which in the event of an interruption to the electrical supply, locks the pneumatic system and allows safe depressurization to ambient ground conditions automatically without operator assistance.
- Hoses have self-sealing quick connections to protect aircraft from pressure loss.
- Vacuum and Pressure pumps are self contained with auto on/off pressure regulation.
- Internal pressure and vacuum tanks hold pressures for quick start ups and high performance rates.
- Water resistance and temperature corrected sensors for extreme flight line conditions.

Automated Pitot / Static Pitot Static Test Set
DPST-7200A Performance Specifications

Absolute Pressure Performance

Static Sensor:

Range:	0.3 to 40 inHg abs.
Accuracy:	+/- 0.020 inHg FS
Repeatability:	+/- 0.150 inHg % span
Drift:	+/- 0.50 % inHg per year FS
Overpressure:	200 % FS without damage

Pitot Sensor:

Range:	0.8 to 80 inHg abs.
Accuracy:	+/- 0.020 inHg FS
Repeatability:	+/- 0.150 inHg % span
Drift:	+/- 0.50 % inHg per year
Overpressure:	200 % FS without damage

Altitude Performance

Range:	-1500 ft. to 55,000 ft.
Resolution:	1 ft.
Accuracy:	±5 ft. @ 0 ft.
	±45 ft. @ 35,000 ft.
	±125 ft. @ 55,000 ft.

Rate of Climb Performance

Range:	100 ft./min. to 12,000 ft./min.
Resolution:	5 ft./min.
Accuracy:	±10 % of rate with a min. of 20 ft./min.

Airspeed Performance

Range:	10 to 600 Knots
Resolution:	0.5 Knots
Accuracy:	±2 Knots@ 20 knots
	±1 Knots @ 100 knots
	±1.5 Knots @ 600 knots

Mach Performance

Range:	0.0 Mach to 2.79 Mach
Resolution:	0.001 Mach
Accuracy:	0.020 Mach + 0.1 Mach
	for Ps = 29.921 inHg.

EPR Performance

Range:	0.1 to 3.0 (Ps @ 30inHg)
Resolution:	0.001
Accuracy:	0.15 %FS PSI

Pressure Medium
Dry Air

Pressure Connections
Quick Disconnects (2 ea.)
Safety Seal on Female Quick Connect

Display Update Rate
Once Every 2 Tenths per Second

Outputs
WUD'Rqtv'l'Fcvc'Qwr w'l'TU/6: 7'*Cffkkqpcnl'Hggu+

Sensors
Honeywell Certified Sensors (NIST Traceable)

Power Requirement

Input Range:	85 - 264 VAC
Frequency Range:	47 Thru 440 Hz

Environmental Specs

Temp. Operating:	-40° C to +85° C
Temp. Storage:	-25° C to +60° C
Humidity:	0% to 95% RH

Warranty & Calibration

Warranty:	2 years (*parts & labor*)
Calibration:	Up to 1 year (*yearly calibration suggested*)

Certification
Calibration is Traceable to NIST
Exceed FAA Accuracy FAR 91.411 Specifications

Physical Dimensions
22" L x 14" W x 9" H

Weight   Case
35 Lbs.   Storm Case

ORDERING INFORMATION
Mfg. Part Number: DPST-7200A
Lab 19" Rack Moupv⎯DPST-7200A-R

Accessories Include: Protection Quick Release Fittings,
Hoses, Shipping Container and Operation Manual.

DPST-8000M Pitot Static Test Set
"Exceeds RVSM High Accuracy Standards"

Cage Code # 3PTA2

DFW Instrument Corporation

General Information

The Model DPST-8000 Pitot Static Test Set is a precision test set with dual channel pressure controller, designed to provide regulated total (PT) pressure and static (PS) pressure outputs to simulate Altitude, Airspeed and Vertical Speed parameters. The test set can also be used in a laboratory environments to calibrate Altimeters, Airspeeds and ADC's in maintenance shops or in harsh hangar environments. The test set is compact, light weight and has a removable storage lid, which can fit in the overhead compartment on a commercial airliner.

Standard Features

- Certified to perform *Reduced Vertical Separations Minimum* on fixed or rotary wing aircrafts.
- Precision microprocessor based with Honeywell sensors, accuracy to 0.001% of full range.
- Sun-light readable color TFT display showing real instrument EFD presentation.
- The simple pop-up screens display the Altitude, Vertical Speed, Airspeed EPR and other measurements in various units of measure, including Ft, M, Kts, Km/hr, Mach, Ft/min, M/min, EPR (Pt/Ps), inHg, mb and psia. All readings are up-dated every 2 tenths of a second.
- Automatic pitot and static leak rate modes automatically perform calculations & system failures.
- Precision metering valves with protection shut off seats for maximum control rates.
- Ports have self sealing quick connections, which are color coated and keyed to protect the aircraft and test equipment from pressure loss or incorrect system connections.
- Internal pumps produce pressure and vacuum, which fill holding tanks for quick start ups and high performance rates. Exceeds 60,000 ft. of altitude, 15,000 ft./min VSI rate and 650 knots of airspeed.
- Water resistance and temperature corrected for extreme flightline conditions.
- Smart AC power supply for safe flight line usage input voltages 85 to 264 VAC / 47 to 440 Hz
- Storm Case constructed meets all applicable requirements of MIL-STD-810 removable lid, with fixed storage bag and watertight standards to MIL-108.
- Test set is equipped with quick connect fittings and 2 hoses that are each 20 ft in length.
- Calibration meets or exceeds the published specifications, which are traceable to the National Institute Standards and Technology "N.I.S.T.".

Dimensions
20"L x 16"W x 8"H
25 lbs.

Digital Manual RVSM Pitot Static Test Set
DPST-8000M Performance Specifications

Absolute Pressure Performance

Static Pressure:

Range:	0.3 to 40 inHg abs.
Accuracy:	+/- 0.001 inHg FS
Repeatability:	+/- 0.0008 inHg
Drift:	+/- 0.004 inHg per year FS
Overpressure:	300 % FS without damage

Pitot Pressure:

Range:	0.8 to 80 inHg abs.
Accuracy:	+/- 0.001 inHg FS
Repeatability:	+/- 0.002 +/- 100 ppm/year
Drift:	+/- 0.01 inHg per year max.
Overpressure:	300 % FS without damage

Altitude Performance

Range:	-2000 ft. to 55,000 ft.
Resolution:	1 ft.
Accuracy:	±2 ft. @ 0 ft.
	±5 ft. @ 35,000 ft.
	±12 ft. @ 55,000 ft.

Rate of Climb Performance

Range:	100 ft./min. to 20,000 ft./min.
Resolution:	1 ft./min.
Accuracy:	±1 % of rate with a min. of 10 ft./min.

Airspeed Performance

Range:	10 to 600 Knots
Resolution:	0.5 Knots
Accuracy:	±0.5 Knots@ 20 knots
	±0.05 Knots @ 600 knots

Mach Performance

Range:	0.0 Mach to 5.0 Mach
Resolution:	0.001 Mach
Accuracy:	0.01 Mach above 0.1 Mach
	for Ps = 29.921 InHg.

EPR Performance

Range:	0.1 to 3.0 (Ps @ 30inHg)
Resolution:	0.001
Accuracy:	0.05 %FS PSI

Pressure Medium
Dry Air

Pressure Connections
Quick Disconnects (2 ea.)
Safety Seal on Female Quick Connect

Display Update Rate
Once Every 2 Tenths per Second

Outputs
USB Port / Data Output / RS-485 (Additional Fees)

Sensors
Honeywell Certified Sensors (NIST Traceable)

Power Requirement

Input Range:	85 - 264 VAC
Frequency Range:	47 Thru 440 Hz

Environmental Specs

Temp. Operating:	0° C to +50° C
Temp. Storage:	-25° C to +60° C
Humidity:	0% to 95% RH20

Warranty & Calibration

Warranty:	2 years (*parts & labor*)
Calibration:	Up to 1 year (*yearly calibration suggested*)

RVSM Certification
Calibration / Trace to NIST
Exceed RVSM Accuracy Compliance Specs

Physical Dimensions
20" L x 15" W x 7"H Mil-STD810F

Weight   Case
23 Lbs.   Storm Case

ORDERING INFORMATION
Mfg. Part Number: DPST-8000M

Accessories Include: Protection Quick Release Fittings, Hoses, Shipping Container and Operation Manual.

DPST-9200A Automated Pitot Static Test Set
"Exceeds RVSM High Accuracy Standards"

FAA Certified Repair Station # DZMR112L
Cage Code # 3PTA2

General Information

The Model DPST-9200A Pitot Static Test Set is a precision flight line fully <u>Automatic</u> dual channel pressure controller, designed to provide regulated total (PT) pressure and static (PS) pressure outputs to simulate altitudes and airspeed parameters. This test set can also be used in a laboratory environment to calibrate instrumentation and other test equipment. A handheld remote terminal provides the operator full control of test set functions while observing aircraft instruments such as Altimeters, Airspeeds / Mach Indicators and Rate of Climb Indicators.

Standard Features

- Certified to perform *<u>Reduced Vertical Separations Minimum</u>* or Standard FAR 91.411 Part 43 App E.
- Precision microprocessor based with Honeywell sensors, accuracy to 0.001% of full range.
- Calibration meets or exceeds the published specifications, which are traceable to the N.I.S.T.
- The handheld remote terminal is sun-light readable color TFT display showing real instrument dial presentation.
- The profiles feature allows standard setpoints of an altimeter or airspeed check to be downloaded from a computer.
- Up to 50+ profiles can be stored in the system.
- Automatic pitot and static leak rate functions and automatically calculate leak rate values.
- "Go To Ground" feature automatically and safely depressurizes Pitot & Static pressure systems to ambient conditions.
- Smart AC power supply for safe flight line usage input voltages range 85 to 265 VAC / 47 to 420 Hz.

*Case meets required measurements to fit into overhead compartment in commercial airlines.
Weight 35 lbs.

- Test set is equipped with quick connect fittings, 2 hoses (20 ft/ea) and a terminal cable (20 ft).
  Additional cable lengths are avaliable upon request.
- Terminal specifications include user-friendly keypad interface; full-function Touch Screen; LED function indicators; Humidity, MIL-STD-810F, Method 507.4; and Water, IP67, sealed against immersion, MIL-STD-810F, Method 512.4, P-1.
- Protection for instruments under test, includes a power failure protection feature, which in the event of an interruption to the electrical supply, locks the pneumatic system and allows safe depressurization to ambient ground conditions automatically without operator assistance.
- Hoses have self-sealing quick connections to protect aircraft from pressure loss.
- Vacuum and Pressure pumps are self contained with auto on/off pressure regulation.
- Internal tanks hold pressures for quick start ups and high VSI performance rates.
- Water resistance and temperature corrected sensors for extreme flight line conditions.
- Exterior case dimensions 28"L x 14"W x 9"H / Weight 35lbs.

Automated RVSM Pitot Static Test Set
DPST-9200A Performance Specifications

Absolute Pressure Performance
Static Pressure:
Range:	0.3 to 40 inHg abs.
Accuracy:	+/- 0.001 % FS
Repeatability:	+/- 0.0008 % FS
Drift:	+/- 0.004 % FS per year max.
Overpressure:	300 % FS without damage

Pitot Pressure:
Range:	0.8 to 80 inHg abs.
Accuracy:	+/- 0.001 % FS
Repeatability:	+/- 0.002 +/- 100 ppm/year
Drift:	+/- 0.01 % FS per year max.
Overpressure:	300 % FS without damage

Altitude Performance
Range:	-1,500 ft. to 55,000 ft.
Resolution:	1 ft.
Accuracy:	±2 ft. @ 0 ft., ±5 ft. @ 35,000 ft., and ±12 ft. @ 55,000 ft.

Rate of Climb Performance
Range:	100 ft./min. to 12,000 ft./min.
Resolution:	1 ft./min.
Accuracy:	±1 % of rate with a min. of 10 ft./min.
Static Range:	250 cubic inches max
Pitot Range:	100 cubic inches max

Airspeed Performance
Range:	0 to 650 Knots
Resolution:	0.1 Knots
Accuracy:	±0.5 Knots @ 20 knots
	±0.05 Knots @ 600 knots

Mach Performance
Range:	0.0 Mach to 2.791 Mach
Resolution:	0.001 Mach
Accuracy:	0.01 Mach above 0.1 Mach for Ps = 29.921 InHg.

EPR Performance
Range:	0.1 to 3.0 (Ps @ 30inHg)
Resolution:	0.001
Accuracy:	0.05 % FS PSI

Pressure Medium
Dry Air

Pressure Connections
Quick Disconnects (2 ea.)
Safety Seal on Female Quick Connect

Display Update Rate
Once Every 2 Tenths per Second

Outputs
Data Output / RS-485 / RS-485 (Option #1)

Sensors
Honeywell Certified Sensors (NIST Traceable) with built-in temperature compensation

Power Requirement
Input Range:	85 - 265 VAC
Frequency Range:	47 Thru 420 Hz

Environmental Specs
Temp. Operating:	-40° C to +85° C
Temp. Storage:	-25° C to +60° C
Humidity:	0% to 95% RH

Warranty & Calibration
Warranty:	2 years (*parts & labor*)
Calibration:	Up to 1 year (*yearly calibration suggested*)

RVSM Certification
Calibration / Trace to NIST
Exceed RVSM Accuracy Compliance Specs

Physical Dimensions
22" L x 14" W x 9"H

Weight   Case
35 Lbs.   Storm Case/ Yellow
MIL-STD-810F • FED-STD-101C • ATA 300

Accessories Include:
Protection Quick Release Fittings, Hose Kit and Operation Manual.

ORDERING INFORMATION/ OPTIONS

Mfg. Part Number:	**DPST-9200A-XXXX**

Option 1: RS-232/485 interface	-RS
Option 2: Rack mount	-R
Option 3: 28VDC power	-DC
Option 4: Encoder / Decoder	-ENC
Option 5: High Altitude (80K ft.)	-HA
Option 6: High Altitude	-HA1K
(99k ft./1050 knots/50k ROC)	

SCZ-106 Sight Compass
"Setting Industry Standards Once Again"

FAA Certified Repair Station # DZMR112L
Cage Code # 3PTA2

General Information

Our SCZ-106 is used to check calibration of an aircraft mounted wet compass. The sight compass tester is a portable, self-contained calibration device containing a master wet compass, which has been calibrated to indicate 180° from North. Since the sight compass is 180° away from North, it permits the operator to stand facing the aircraft, making it considerably easier to transmit signals to and from the cockpit. The SCZ-106 is unique in that we have added a Laser Sighting Target System for ease of precision alignment and accuracy. The compass indicates magnetic direction at all times and is not subject to calibration offsets.

Key Features

Exterior Dimensions
11.8 x 9.8 x 7.7 in
299 x 248 x 195 mm
8 lbs / 3.6 kg

- The Laser Target Sighting System attached to the top of the compass is precisely aligned to insure that the overall accuracy of the dial does not exceed +/- 1°.
- The sight compass comes with a small hand grip, calibration certificate, a brass calibration screw driver and a Storm Case for protection when not in use.
- The compass is mounted on a ABS plastic case that can be attached to either the handle or the camera / tripod assembly. The tripod can be adjusted so that the sight compass is at eye level of the operator. (Tripod P/N SC-MRTR60)
- All external parts of the sight compass, such as the external case, handle, sighting system, tripod and Associated mounting hardware, were designed of materials that will not effect the magnetic
- accuracy of the sight compass.
- The sight compass is painted red for clear identification and must not, under any circumstances, be used as an aircraft compass.
- Recommended 1 year calibration cycle.
- Rugged, durable and lightweight case meets airline carry-on regulations by fitting under seats and in overhead compartments.
- Permanently attached Vortex valve automatically equalizes internal / external air pressure for safe transport. The case is Yellow HPX High Performance Resin.

ZSAY-3 Aircraft Universal Static Adapter
"Setting Industry Standards Once Again"

DFW Instrument Corporation

Cage Code # 3PTA2

General Information

The Model ZSAY-3 is an original design to help speedup and enhance your FAR 91.411 Static Leak checks. This light weight unit is extremely durable and convenient for day to day use in aircraft hangar, ramps and line service environments. The Static Adapter provides a proven simple method to attach any Pitot / Static Test Set to the static system without breaking lines. There is no residue, no marring of the skin associated with other methods of sealing the static port. The adapter has a center cup that covers the static port and 3 articulating legs with suction cups to hold the adaptor in place utilizing the strong vacuum system, which secures it to the fuselage while testing.

Key Features

- Universal Adapter is designed to fit most General Aviation and Military Aircraft Fuselage static ports (Kit P/N ZSAY-3).
- Universal Pitot Tube Adapter Provided in kit (P/N PTA-6).
- Silicone Vacuum Cups automatically attach to Aircraft Fuselage.
- High Output Internal Pump provides continuous Vacuum.
- System comes complete with Quick Release Fittings & Puncture Proof hose.
- Release Button has Protection Guard to prevent accidental removal.
- Internal safety check Valves for Power Failure and System Leaks.
- High impact, water tight Storm Case® has plenty of extra space for storage of additional accessories.
- Easily Interchangeable Static Cup Assemblies with 4 cup sizes for vaious aircraft applications:
  - Center Cup Sizes: Standard ¼" (6.35 mm).
  - Alternate Cup Sizes Available: ½" (12.7 mm), 1" (25.4 mm).*
- Smart AC power supply for safe flight line usage input voltages 85 to 264V AC / 47 to 440 Hz.
- Custom Voltage applications available: 12V DC and 28V DC.*
- System will support Dual Static Port (Additional Adapter P/N ZSAY-3Y).*
- Emergency Battery back-up with Warning Horn is available upon request only.*
  Preferred DFW Instrument Corporation shipping container 26" x 19" x 13" available upon request.*

* Additional Fees will apply

Exterior Dimensions
20 x 16 x 8 in
508 x 406.4 x 203.2 mm
25 lbs / 11.3 kg