

High Performance Pressure Port - DigiPort



PERFORMANCE:

Wind Speed	Max. Wind Effect
5 meters/sec (10 knots)	0.01 hPa
10 meters/sec (20 knots)	0.03 hPa
20 meters/sec (40 knots)	0.12 hPa

FEATURES:

- Moisture trap provided
- Does not require a heater
- Intrinsic protection from rain, dirt
- Outperforms all other pressure ports
- Rugged design, tested up to 120 knots

APPLICATION AREAS:

- Aviation
- Climatology
- GPS Meteorology
- Infrasound Research
- Weather Forecasting
- Wake Vortex Detection
- Altimeter Setting Indicators
- Indoor Environmental Monitoring

The effects of wind apply to all types of barometers. A barometer will not measure a true reading of the atmospheric pressure if it is influenced by gusty winds. The Paroscientific DigiPort is a High Performance Pressure Port that serves as a termination device to reduce the impact of wind-induced errors on barometric pressure measurements.

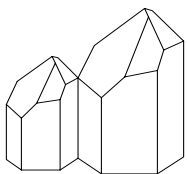
Accurate measurements of barometric pressure require an environmentally rugged pressure port design that minimizes pressure errors under dynamic wind conditions. Dynamic fluctuations of wind-induced pressure are superimposed on the static pressure and with gusty winds may amount to 2-3 hPa. Wind tunnel and field tests of the high-performance pressure port (DigiPort) used on the Paroscientific Meteorological Measurement Systems show superior performance under these conditions over other ports.

The high-performance DigiPort is now optionally available for use with Digiquartz® Barometric Instruments. It provides barometric accuracy of better than ± 0.08 hPa in strong winds, all wind directions, pitch or tilt angles up to 25 degrees, rain, and freezing conditions. It outperforms open ports, single ports, single disks, shrouded pipes, closely spaced dual-disks, multi-hole probes, probes incorporating spheres or cones, and swiveling pitot tubes with static pressure inlets.

Barometric readings with the DigiPort system easily meet the requirements of GPS Meteorology, Weather Stations, Digital Altimeter Setting Indicators, High-Resolution Measurements of Atmospheric Waves, and Aircraft Wake-Turbulence Detection. DigiPort can also be used for indoor environmental monitoring applications where air conditioning may create a pressure differential between the inside and outside of a room.

A Digiquartz® barometric product integrated with a DigiPort yields the most accurate Pressure Measurement System available today. Digiquartz® Barometers include a 5-year limited warranty on the transducer and a 3-year 0.1 hPa/year stability warranty. Each barometer is delivered with a certificate for a free NIST-traceable calibration within two years of shipment.

Paroscientific is certified to the requirements of the ISO9001:2000 Quality System.



Paroscientific, Inc.
Digiquartz® Pressure Instrumentation



Digiquartz® High Performance Pressure Port

PHYSICAL CHARACTERISTICS

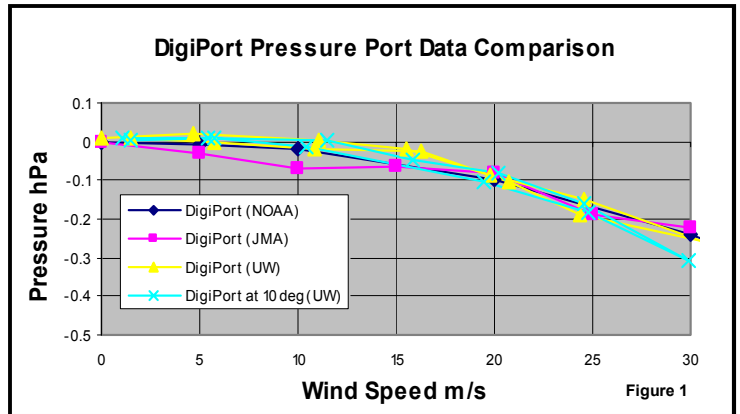
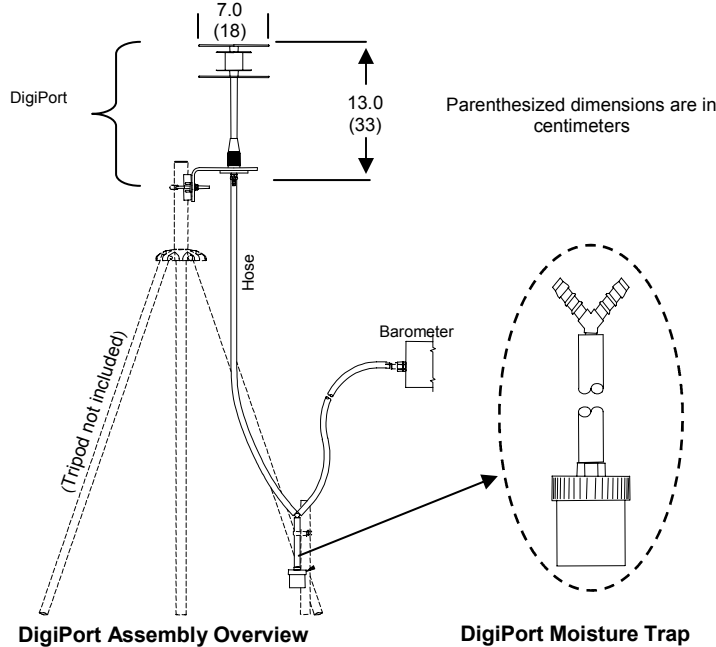
Material Aluminum with polyurethane white surface
 Outer Disk Diameter 7.0 inches (18 cm)
 Outer Disk Spacing 2.8 inches (7 cm)
 Weight 5 lbs (2.3 kg) maximum
 Operating Temperature - 50 °C to +60 °C (-58 °F to +140 °F)
 Humidity 0-100% condensing and non-condensing
 Rain Self-draining holes protected from rain
 Condensation Moisture trap provided (See below)
 Ice and Biological Contamination Multiple redundant holes keep port open
 Wind Pitch or Tilt Angle ±25°

PRESSURE PORT DESIGN CONCEPT

Wind produces a dynamic pressure proportional to the square of wind speed. Even low wind speeds produce considerable dynamic pressure, reaching 0.1 hPa at winds of 4 m/s (8 knots), and rising quadratically to values of 2.5 hPa at a wind speed of 20 m/s (40 knots).

Paroscientific, Inc., performed tests in the Kirsten Wind Tunnel of the Aeronautical Laboratory at the University of Washington (UW), Seattle. Additional wind tunnel data on the DigiPort performance were kindly provided by National Data Buoy Center; wind tunnel tests performed at NOAA, Stennis Space Center, MS and Japan Meteorological Laboratory (JMA).

Figure 1 shows several data sets recorded in wind tunnels of different laboratories showing the dependence of sensor pressure on wind speed.



ORDERING INFORMATION

Part Number	Hose Included	For Use With
1745-000	None	Model 760-16B Model 765-16B
1745-003	3 meters	1/4" Hose to 1/4" Tube Adapter included.
1745-005	5 meters	
1745-010	10 meters	
1745-100	None	Models 1000-16B, 6000-16B, 740-16B, 745-16B
1745-103	3 meters	1/4" Hose to 1/8" A-Lok Adapter included.
1745-105	5 meters	
1745-110	10 meters	

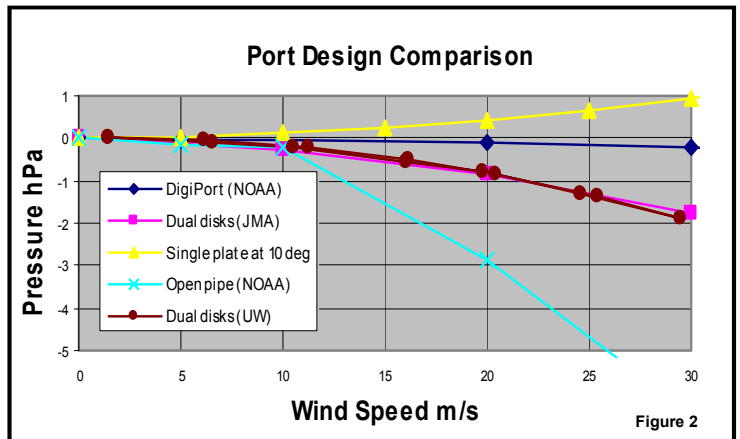


Figure 2 shows superior DigiPort performance as compared to closely spaced dual disks, open pipes, or single plates at small pitch angle.

Paroscientific, Inc.
 4500 148th Ave. N.E.
 Redmond, WA 98052 USA
 Tel: (425) 883-8700
 Fax: (425) 867-5407
<http://www.paroscientific.com>
 E-Mail: support@paroscientific.com

