



D. Marchiori

# MPS38B

## Compact Automatic Air Data Test Set

- Full automatic control for Altitude & Airspeed
- Fully RVSM compliant with 12 months recalibration period
- Integral pressure and vacuum pumps with 1000 hour life
  - Universal ac powered for national and aircraft supplies
  - User programmable safety limits and test programs
  - Lightweight rugged case, carry to the cockpit



# MPS38B Precision Compact Digital Air Data Test Set

## SUPPLYING AIR DATA TEST SETS TO THE WORLD

DMA traces its origins back to 1938, mainly as a test equipment manufacturer to support European aviation requirements. Today DMA supply precision Air Data Test Sets and other aviation ground support equipment to aircraft manufacturers, repair stations and operators throughout the world.

## FLIGHT LINE TESTER FOR DEMANDING APPLICATIONS

The MPS38B is a budget priced two channel, static and  $Q_c$  / Pitot, digital technology hand portable Air Data Test Set incorporating many standard features normally found on more expensive test instruments. The construction is both rugged and rainproof for demanding flight line use. The unit is housed in an easily hand-carried case.

## EASY INTUITIVE INTERFACE

Using logical key press routines the MPS38B is easy to use by both beginners and experts. Testing and trouble shooting can be performed via the built-in intuitively arranged colour-coded keypad and large 4 x 20 character back-lit display.

All the important air data functions are simultaneously displayed, constant screen or menu changes are not required. Readings of both commanded and measured test values are displayed.



## ACCURACY ACHIEVED BY THE END OF SELF TEST

A precision absolute sensor is utilised for the static, altitude channel, and a precision differential transducer for the  $Q_c$ /Pt, airspeed, channel. Pressure and temperature characterisation is applied to the sensors ensuring very high accuracy is achieved at all operating pressure values, without any significant warm-up time.

## EXTENDED PUMP LIFE

The MPS38B is a rugged flight line instrument designed for low maintenance. The internal pressure and vacuum pumps run only on demand, when the instrument needs them operable, extending the pump life.

## AUTOMATED CALIBRATION

Calibration, performed by software, is fast and simple since no mechanical adjustments are required. Calibration factors are password protected for security. The resultant accuracy of the sensors exceeds the RVSM industry requirements.

## LOW POWER CONSUMPTION FOR HIGH RELIABILITY

Careful consideration during the design ensures low power consumption giving minimal internal temperature rise which consequently results in high reliability: typically 75 VA power consumption from the a.c. line.

## BUILT IN SAFETY LIMITS FOR UUT PROTECTION

The MPS38B is designed for maximum safety during testing. Key DMA design features protect both the test set and the systems under test. Negative  $Q_c$ , a pressure condition of  $P_s$  greater than  $P_t$ , is prevented in both manual and automatic operation. If a.c. power is lost the Unit Under Test (UUT) is safely isolated and can be manually vented preventing instrument and test set damage.

Numerous preset factory or user programmed safe limits are provided to prevent damage to the UUT. These limits can be modified by the user either temporarily or permanently, with password protection if desired.





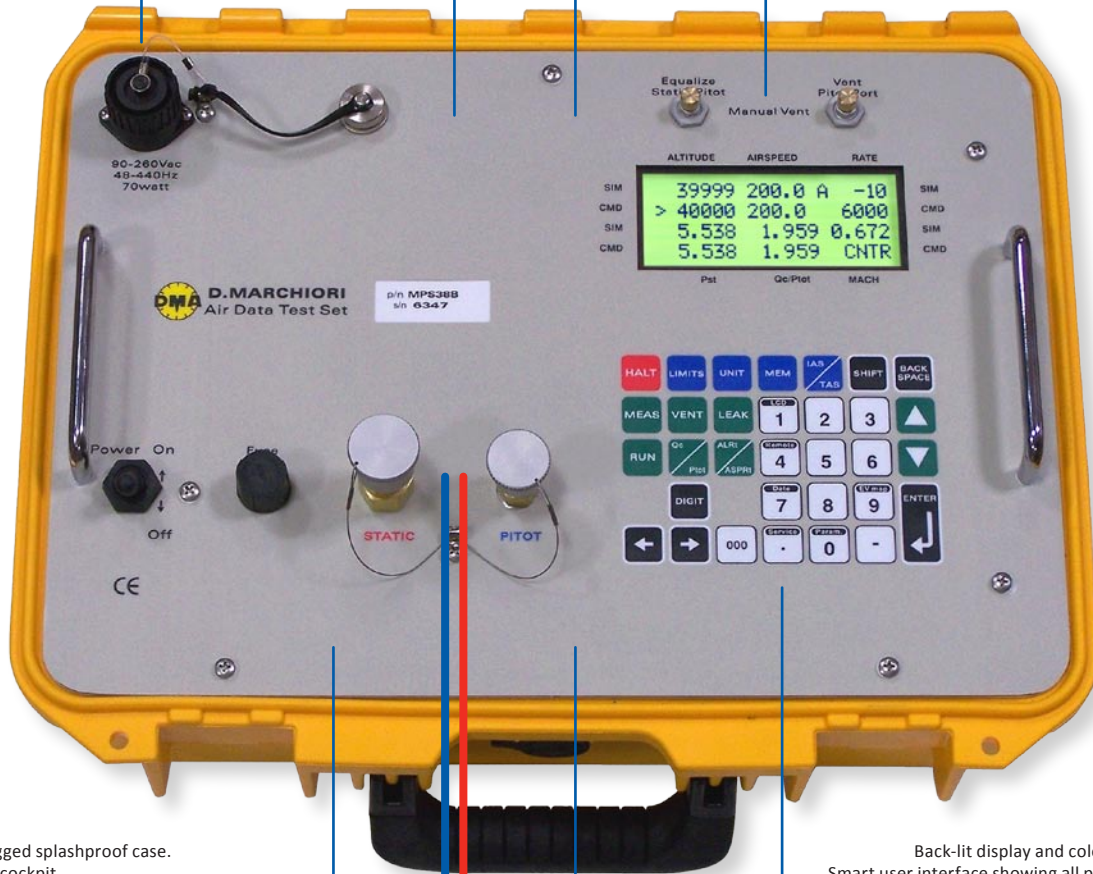
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Internal pumps run only on demand

Fully automatic control. User programmable limits

Universal power input.  
Low power consumption for  
high accuracy and reliability

Manual vents for Static and Pitot



Portable and rugged splashproof case.  
Easily carried to cockpit

Back-lit display and colour coded keypad.  
Smart user interface showing all parameters at once

2 Channels of independent  
pressure control for Static and Pitot

Accuracy  $\pm 3$  ft at sea level, meets RVSM requirements

A wide range of pitot-static adaptors and  
adaptor kits are available from DMA



# MPS38B Standard Specifications



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	PARAMETER		RANGE		RESOLUTION		ACCURACY	CONTROL STABILITY
			MEASURE	CONTROL	MEASURE	SETPOINT		
STATIC	Altitude (ft)		-2,000→65,000	-2,000→50,000	1	1	± 3 @ SL ± 7 @ 30,000 ± 18 @ 50,000	± 2
	Vertical speed (ft/min)		0→6,000	0→6,000	5 @ < 1,000 25 @ > 1,000	25	± 25 ± 1% of reading	± 100
	Static (inHg abs) (hPa abs)		1.7→32 56→1090	3.4→32 116→1090	0.001 0.01	0.001 0.01	± 0.003 ± 0.1	± 0.002 ± 0.07
PITOT	Airspeed	Standard (kts)	10→700	10→700	1 @ < 50 0.1 @ > 50	1	± 0.5 @ 50 ± 0.1 @ > 500	± 2
		Ultra low speed function <sup>[1]</sup> (kts)	5→200	5→200	0.1 @ > 20		± 0.03 hPa	± 0.03 hPa
	Airspeed slew rate (kts/min)		0→500	0→500	10	10	± 10 ± 1% of reading	± 10%
	Mach No. (mach)		0→4	0→4	0.001	0.001	< ± 0.003	± 0.002
	Pitot (Qc) (inHg diff) (hPa diff)		0→31 0→1040	0→31 0→1040	0.0001 0.01	0.0001 0.01	± 0.005 ± 0.17	± 0.004 ± 0.14

Notes: Control capability on all load volumes (cu. in.): Static: 0 to 2 L (125 cu. in.), Pitot: 0 to 1.3 L (80 cu. in.). Larger volumes acceptable

<sup>1</sup> Standard mode of test set below 200 kts

## STANDARD TEST FUNCTIONS

- Pressure/vacuum generation
- Automatic leak check
- Controlled venting to ambient
- Altitude/airspeed input
- Static/dynamic(Qc)/total pressure input
- Altitude/airspeed rates input
- Mach Number input
- TAS / IAS toggle , TAS temperature correction
- Altitude offset correction
- 30 user test programmed profiles of 26 steps each
- Ultra low speed (5 to 200 kts) for improved accuracy and stability
- Audible indication when approaching set point

## DISPLAY AND KEYPAD

Integral display and keypad in splash proof and shock protected front panel.  
Back lit LCD displays all test parameters.

## DISPLAYED UNITS

Altitude: ft, m  
Airspeed: kts, km/h, mph  
Pressure: InHg, hPa, kPa, Pa, psi, mmHg

## CALIBRATION

One year interval, performed using software.

## PHYSICAL SPECIFICATIONS

Weight: 10 kg. (22 lbs.)  
Dimensions: L 430 x W 360 x H 180 mm  
(L 17 x W 14 x H 7 in.)  
Connections: Quick release Hansen fittings.

## ENVIRONMENTAL

Temperature range  
Operating: -5°C to +50°C  
Storage: -20°C to +70°C  
Splashproof and shockproof.  
CE compliant.

## POWER SUPPLY

Universal power supply: 90-240 VAC; 50-400 Hz.  
75 VA  
EPU8E External battery supply available

## WARRANTY

Unit: 2 Years  
Pumps: 1000 running hours

## OPTIONS

- K. EPU8E External power unit
- Custom Pitot/Static connections available

## ASSOCIATED PRODUCTS

Pitot-static adaptors  
Pressure indicators/transfer standards



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Ongoing development results in specifications being subject to change without notice



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# MPS31C

## Civil Range Air Data Test Set

- Independent control of Altitude & Airspeed
- Fully RVSM compliant with 12 months recalibration period
  - Integral pressure and vacuum pumps with 5000 hour guarantee
  - Universal ac powered and internal 2 hour battery back-up
    - Optional multiple Ps & Pt ports with automatic line switching
    - Rugged flightline unit with wheels and stowable tow handle



# MPS31C Precision Digital Air Data Test Set

## SUPPLYING AIR DATA TEST SETS TO THE WORLD

DMA traces its origins back to 1938, mainly as a test equipment manufacturer to support European aviation requirements. Today DMA supply precision Air Data Test Sets and other aviation ground support equipment to aircraft manufacturers, repair stations and operators throughout the world.

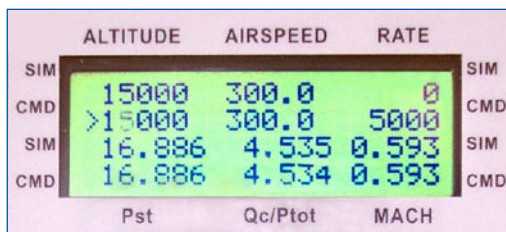
## FLIGHT LINE TESTER FOR DEMANDING APPLICATIONS

The MPS31C is a two channel digital technology portable Air Data Test Set incorporating many standard features normally found on more expensive test instruments. The construction is both rugged and rainproof for demanding flight line use. The unit is housed in a single wheeled case with a stowable handle.

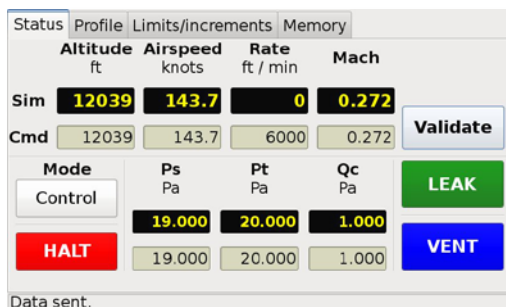


## EASY INTUITIVE INTERFACE

Using logical key press routines the MPS31C is easy to use by both beginners and experts. Testing and trouble shooting can be performed via the built-in intuitively arranged colour-coded keypad and large 4 x 20 character back-lit display. For a remote location such as the flight-deck, three control options are available: the Hand Held Remote Control, the Touch Screen Remote Control or a wireless Bluetooth connected PDA. All the important air data functions are simultaneously displayed on all interfaces, constant screen or menu changes are not required. Readings of both commanded and measured test values are displayed.



Laboratory testing can also be performed by a PC connected via RS232 to the remote hand terminal connector. The comprehensive manuals include all the control instructions. ADWIN software is available as a ready-to-run PC based interface.



## ACCURACY ACHIEVED BY THE END OF SELF TEST

A vibrating element absolute transducer is utilised for the static, altitude channel and a differential transducer for the Qc/Pt, airspeed channel. Pressure and temperature characterisation is applied to the sensors ensuring very high accuracy is achieved at all operating pressure values, without any significant warm-up time.

## EXCLUSIVE 5000 HOUR PUMP LIFE GUARANTEE

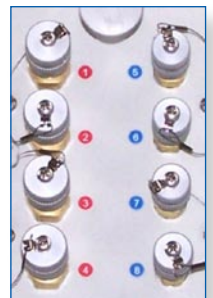
The MPS31C is a rugged flight line instrument designed for low maintenance. The low maintenance internal pressure and vacuum pumps run only on demand, extending the pump life and carrying a 5000 hours industry exclusive guarantee, based on test set running hours.

## AUTOMATED CALIBRATION

Calibration, performed by software, is fast and simple since no mechanical adjustments are required. Calibration factors are password protected for security. The resultant accuracy of the vibrating element sensors exceeds the RVSM industry requirements.

## FLEXIBLE MULTIPLE LINE SWITCHING OPTION

The MPS31C standard 2 connectors for altitude and airspeed can optionally be changed to independently addressable ports configured to control up to 8 lines of isolation: 4 ports for static and 4 ports for pitot.



This multiple line switching permits fast and safe isolation of the lines to isolate leaking channels. Control is possible from any of the local or remote user interfaces. Combinations of line switching are also possible for numerous fault finding routines.

## LOW POWER CONSUMPTION FOR HIGH RELIABILITY

Careful consideration during the design ensures low power consumption giving minimal internal temperature rise which consequently results in high reliability: typically 90 VA power consumption from the a.c. line.

## INTERNAL BATTERY FOR SAFETY AND VERSATILITY

The MPS31C is equipped with internal rechargeable batteries which provide an emergency power supply able to give up to two hours of full operation. This battery power feature also ensures that operation away from available a.c. supplies causes no problems to the operator. For those occasions when the a.c. power fails during a test there is a complete and seamless transfer over to the battery power permitting testing to continue and safe shutdown with total control.

## BUILT IN SAFETY LIMITS FOR UUT PROTECTION

The MPS31C is designed for maximum safety during testing. Key DMA design features protect both the test set and the systems under test. Negative Qc, a pressure condition of Ps greater than Pt, is prevented in both manual and automatic operation. In the unlikely situation where both a.c. and internal battery operation is not possible the Unit Under Test (UUT) is safely isolated and can be manually vented preventing instrument and test set damage.

Numerous preset factory or user programmed safe limits are provided to prevent damage to the UUT. These limits can be modified by the user either temporarily or permanently, with password protection if desired.



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Optional Touch Screen Remote Control. Includes USB port for test program storage on USB memory

Optional Hand Terminal provides intuitive user interface with back-lit display and colour coded keypad



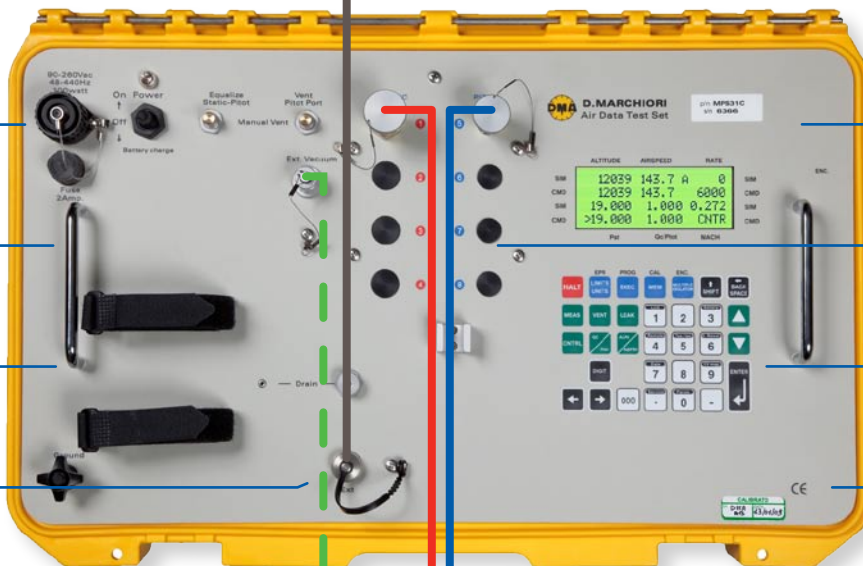
Universal power input with 28 VDC Option

Rugged splash proof case with wheels, stowable handle and removable lid

Low power consumption for high accuracy and reliability

Terminal connector and RS232 port

Vacuum supply for static adaptors



ARINC 429, IEEE 488 and Altitude encoder interfaces available as options

Optional multiple line switching. 2+2, 3+3 or 4+4 static and pitot

Local back-lit display and colour coded keypad for laboratory use

Internal 2 hour battery for safety and versatility

2 Channels of independent pressure control for Static and Pitot

A wide range of pitot-static adaptors and adaptor kits are available from DMA





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# MPS31C Standard Specifications

	PARAMETER		RANGE		RESOLUTION		ACCURACY	CONTROL STABILITY
			MEASURE	CONTROL	MEASURE	SETPOINT		
STATIC	Altitude (ft)		-2,000→65,000	-2,000→65,000	1	1	± 3 @ SL ± 5 @ 30,000 ± 20 @ 60,000	± 2
	Vertical speed	Standard (ft/min)	0→6,000	0→6,000	5 @ < 1,500 [2]	1	± 10 ± 1% of reading	± 10 ± 1% of reading
		High rate [1] (ft/min)	0→20,000	0→20,000				
Static (inHg abs) (hPa abs)		1.7→32 56→1089	1.7→32 56→1089	0.001 0.01	0.001 0.01	± 0.003 ± 0.1	± 0.002 ± 0.07	
PITOT	Airspeed	Standard [3] (kts)	10→700 [3]	10→700 [3]	1 @ < 50 0.1 @ > 50	0.1	± 0.5 @ 50 ± 0.1 @ > 500	± 1 @ < 50 ± 0.2 @ 300 ± 0.1 @ > 500
		Ultra low speed function [4] (kts)	5→200	5→200				
	Airspeed slew rate (kts/min)		0→500	0→500	10	10	± 10 ± 1% of reading	± 5%
	Mach No. (mach)		0→6	0→6	0.001	0.001	< ± 0.002	± 0.002
	Pitot (Qc)	Standard (inHg diff) (hPa diff)	0→30.8 0→1042	0→30.8 0→1042	0.0001 0.01	0.0001 0.01	± 0.003 ± 0.1	± 0.003 ± 0.1
		Option I (inHg diff) (hPa diff)	0→47 0→1592	0→47 0→1592				
Engine Pressure Ratio (EPR)		1→2.5 @ SL	1→2.5 @ SL	0.001	0.001	0.001	± 0.001	

Notes: Control capability on all load volumes : Static: 0 to 2 L (125 cu. in.), Pitot: 0 to 1.3 L (80 cu. in.). Larger volumes acceptable

<sup>1</sup> High rate achievable into small system volumes

<sup>2</sup> 10 above 1,500 ft/min, 25 above 3,000 ft/min, 50 above 6,000 ft/min, 100 above 12,000 ft/min

<sup>3</sup> Range increase to 830 kts with Option I

<sup>4</sup> Standard mode of test set below 200 kts

## STANDARD TEST FUNCTIONS

- Pressure/vacuum generation
- Automatic leak check
- Controlled venting to ambient
- Altitude/airspeed input
- Static/dynamic(Qc)/total pressure input
- Altitude/airspeed rates input
- Mach Number input
- EPR generation
- TAS / IAS toggle, TAS temperature correction
- Altitude offset correction
- 30 user test programmed profiles of 26 steps each
- Ultra low speed (5 to 200 kts) for improved accuracy and stability
- Audible indication when approaching set point

## DISPLAYED UNITS

Altitude: ft, m

Airspeed: kts, km/h, mph

Pressure: InHg, hPa, kPa, Pa, psi, mmHg

## DISPLAY AND KEYPAD

Integral display and keypad in splash proof and shock protected front panel.

Back lit LCD displays all test parameters.

## CALIBRATION

One year interval, performed using software.

## PHYSICAL SPECIFICATIONS

Weight: 20 kg. (44 lbs.)

Dimensions: L 558 x W 356 x H 230 mm

(L 22 x W 14 x H 9 in.)

Connections: Quick release Hansen fittings.

## ENVIRONMENTAL

Temperature range

Operating: -5°C to +50°C

Storage: -20°C to +70°C

Splashproof and shockproof.

CE compliant.

## POWER SUPPLY

Universal power supply: 90-240 VAC; 50-400 Hz. 90 VA

2 hours operation internal rechargeable battery

## WARRANTY

Unit: 2 Years

Pumps: 5000 running hours

## OPTIONS

**B.** ARINC429 monitoring interface

**C.** IEEE488 GPIB control (RS232 is standard)

**D.** PDA and software for wireless remote control

**E.** Multiple Pitot and Static Isolators controlled from keypad. 2+2, 3+3 or 4+4

**F.** ADWIN PC Control software

**G.** Hand held remote control unit: 4 x 20 characters LCD with 15m extension cable

**H.** Gray Code Altitude Device Read-out

**I.** Extended range to 830 kts

**L.** Touch Screen Remote Control

– Custom Pitot/Static connections available

## ASSOCIATED PRODUCTS

EPUB8 Power unit for 8 hours battery operation

Pitot-static adaptors

Pressure indicators/transfer standards



SIT N.106

Ongoing development results in specifications being subject to change without notice



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# MPS27C

## Extended Range Air Data Test Set

- Independent control of Altitude & Airspeed
- Fully RVSM compliant with 12 months recalibration period
- Integral pressure and vacuum pumps with 5000 hour guarantee
- Universal ac powered and internal 4 hour battery back-up
- Optional multiple Ps & Pt ports with automatic line switching
- Rugged flightline unit with wheels and stowable tow handle



# MPS27C Precision Digital Air Data Test Set

## SUPPLYING AIR DATA TEST SETS TO THE WORLD

DMA traces its origins back to 1938, mainly as a test equipment manufacturer to support European aviation requirements. Today DMA supply precision Air Data Test Sets and other aviation ground support equipment to aircraft manufacturers, repair stations and operators throughout the world.

## FLIGHT LINE TESTER FOR DEMANDING APPLICATIONS

The MPS27C is a two channel digital technology portable Air Data Test Set incorporating many standard features normally found on more expensive test instruments. The construction is both rugged and rainproof for demanding flight line use. The unit is housed in a single wheeled case with a stowable handle.

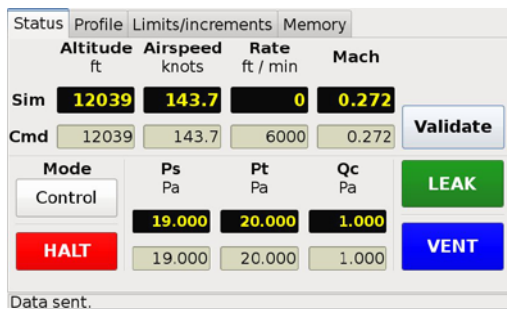


## EASY INTUITIVE INTERFACE

Using logical key press routines the MPS27C is easy to use by both beginners and experts. Testing and trouble shooting can be performed via the built-in intuitively arranged colour-coded keypad and large 4 x 20 character back-lit display. For a remote location such as the flight-deck, three control options are available: the Hand Held Remote Control, the Touch Screen Remote Control or a wireless Bluetooth connected PDA. All the important air data functions are simultaneously displayed on all interfaces, constant screen or menu changes are not required. Readings of both commanded and measured test values are displayed.



Laboratory testing can also be performed by a PC connected via RS232 to the remote hand terminal connector. The comprehensive manuals include all the control instructions. ADWIN software is available as a ready-to-run PC based interface.



## ACCURACY ACHIEVED BY THE END OF SELF TEST

A vibrating element absolute transducer is utilised for the static, altitude channel and a differential transducer for the Qc/Pt, airspeed channel on the standard instrument. A High range version utilises twin vibrating element sensors which also offer improved accuracy. Pressure and temperature characterisation is applied to the sensors ensuring very high accuracy is achieved at all operating pressure values, without any significant warm-up time.

## EXCLUSIVE 5000 HOUR PUMP LIFE GUARANTEE

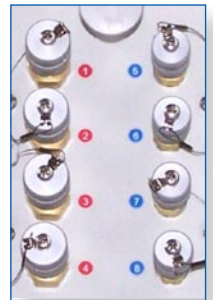
The MPS27C is a rugged flight line instrument designed for low maintenance. The internal pressure and vacuum pumps run only on demand, extending the pump life and carrying a 5000 hours industry exclusive guarantee, based on test set running hours.

## AUTOMATED CALIBRATION

Calibration, performed by software, is fast and simple since no mechanical adjustments are required. Calibration factors are password protected for security. The resultant accuracy of the vibrating element sensors exceeds the RVSM industry requirements.

## FLEXIBLE MULTIPLE LINE SWITCHING OPTION

The MPS27C standard 2 connectors for altitude and airspeed can optionally be changed to independently addressable ports configured to control up to 8 lines of isolation: 4 ports for static and 4 ports for pitot.



This multiple line switching permits fast and safe isolation of the lines to isolate leaking channels. Control is possible from any of the local or remote user interfaces. Combinations of line switching are also possible for numerous fault finding routines.

## LOW POWER CONSUMPTION FOR HIGH RELIABILITY

Careful consideration during the design ensures low power consumption giving minimal internal temperature rise which consequently results in high reliability: typically 90 VA power consumption from the a.c. line.

## INTERNAL BATTERY FOR SAFETY AND VERSATILITY

The MPS27C is equipped with internal rechargeable batteries which provide an emergency power supply able to give up to four hours of full operation. This battery power feature also ensures that operation away from available a.c. supplies causes no problems to the operator. For those occasions when the a.c. power fails during a test there is a complete and seamless transfer over to the battery power permitting testing to continue and safe shutdown with total control.

## BUILT IN SAFETY LIMITS FOR UUT PROTECTION

The MPS27C is designed for maximum safety during testing. Key DMA design features protect both the test set and the systems under test. Negative Qc, a pressure condition of Ps greater than Pt, is prevented in both manual and automatic operation. In the unlikely situation where both a.c. and internal battery operation is not possible the Unit Under Test (UUT) is safely isolated and can be manually vented preventing instrument and test set damage.

Numerous preset factory or user programmed safe limits are provided to prevent damage to the UUT. These limits can be modified by the user either temporarily or permanently, with password protection if desired.



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Optional Touch Screen Remote Control. Includes USB port for test program storage on USB memory

Optional Hand Terminal provides intuitive user interface with back-lit display and colour coded keypad



Rugged splash proof case with wheels, stowable handle and removable lid

Universal power input with 28 VDC Option

Low power consumption for high accuracy and reliability

USB port for USB memory

Terminal connector and RS232 port

Vacuum supply for static adaptors

ARINC429, IEEE488 and Altitude encoder interfaces available as options

Internal 4 hour battery for safety and versatility

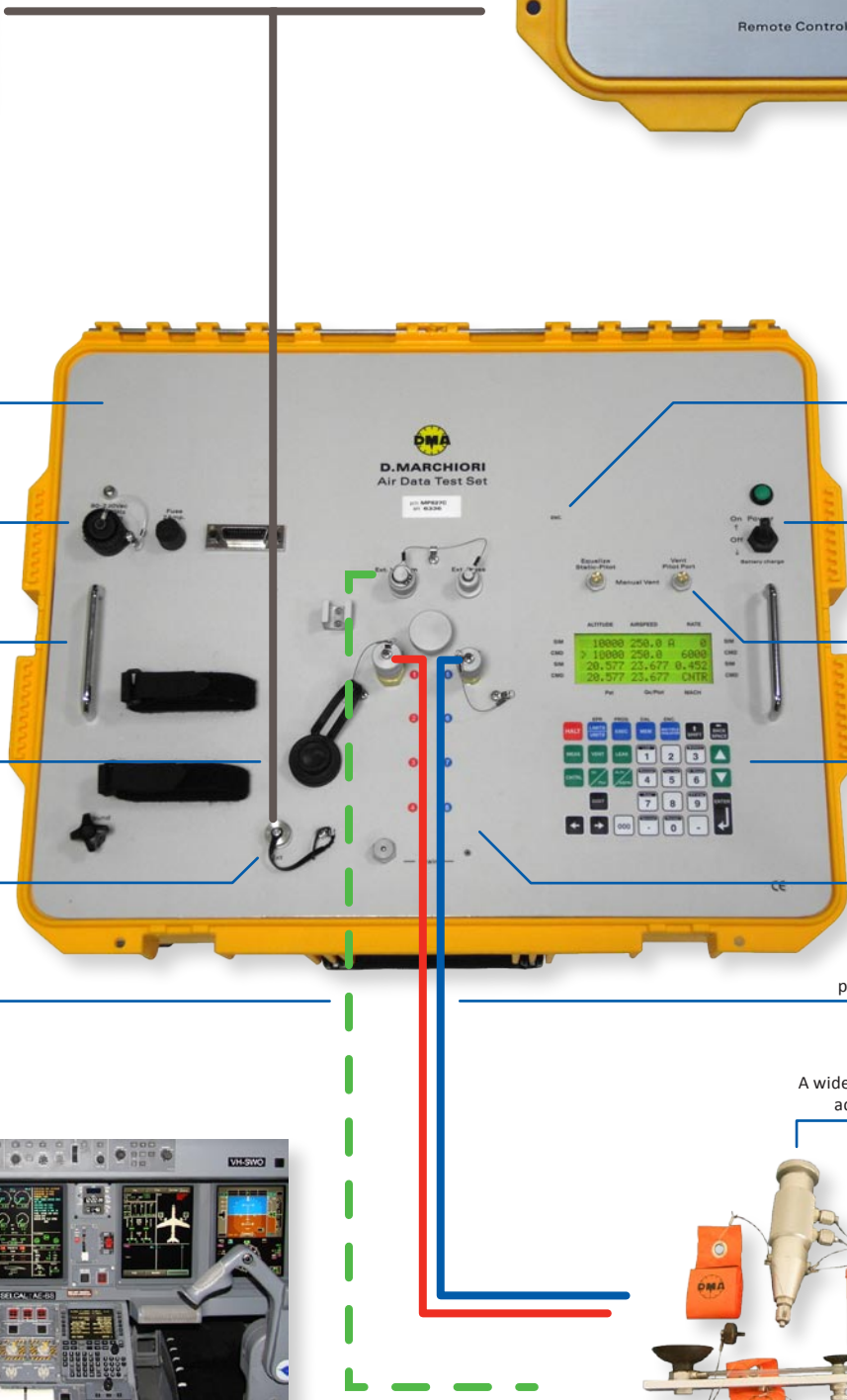
Manual vents for Static and Pitot

Local back-lit display and colour coded keypad for laboratory use

Optional multiple line switching. 2+2, 3+3 or 4+4 static and pitot

2 Channels of independent pressure control for Static and Pitot

A wide range of pitot-static adaptors and adaptor kits are available from DMA



# MPS27C Standard Specifications



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	PARAMETER		RANGE		RESOLUTION		ACCURACY	CONTROL STABILITY
			MEASURE	CONTROL	MEASURE	SETPOINT		
STATIC	Altitude (ft)		-3,000→99,999	-3,000→80,000	1	1	± 3 @ SL <sup>[1]</sup> ± 5 @ 30,000 ± 20 @ 60,000	± 2
	Vertical speed	Standard (ft/min)	0→6,000	0→6,000	5 @ < 1,500 <sup>[3]</sup>	1	± 10 ± 1% of reading	± 10 ± 1% of reading
		High rate <sup>[2]</sup> (ft/min)	0→99,999	0→50,000				
Static (inHg abs) (hPa abs)		0.3→33.3 10→1130	0.8→33.3 27→1130	0.001 0.01	0.001 0.01	± 0.003 ± 0.1	± 0.002 ± 0.07	
PITOT	Airspeed	Standard <sup>[3]</sup> (kts)	5→700 <sup>[4]</sup>	5→700 <sup>[4]</sup>	1 @ < 50 0.1 @ > 50	0.1	± 0.5 @ 50 ± 0.1 @ > 500	± 1
		Ultra low speed function <sup>[5]</sup> (kts)	5→200	5→200	0.1 @ > 20		± 0.03 hPa	± 0.03 hPa
	Airspeed slew rate (kts/min)		0→800	0→800	10	10	± 10 ± 1% of reading	± 5%
	Mach No. (mach)		0→10	0→10	0.001	0.001	< ± 0.002	± 0.002
	Pitot (Qc)	Standard (Qc) (inHg diff) (hPa diff)	0→31 0→1040	0→31 0→1040	0.0001 0.01	0.0001 0.01	± 0.003 ± 0.1	± 0.003 ± 0.1
		Option I (Qc) (inHg diff) (hPa diff)	0→50 0→1690	0→50 0→1690			± 0.005 ± 0.17	± 0.004 ± 0.14
		Option J (Pt) (inHg abs) (hPa abs)	0.8→103 0.8→3500	0.8→103 0.8→3500			± 0.005 ± 0.17	± 0.004 ± 0.14
Engine Pressure Ratio (EPR)		1→2.5 @ SL	1→2.5 @ SL	0.001	0.001	0.001	± 0.001	

Notes: Control capability on all load volumes : Static: 0 to 2 L (125 cu. in.), Pitot: 0 to 1.3 L (80 cu. in.). Larger volumes acceptable

<sup>1</sup> For option J, accuracy improved to ± 2 @ SL, ± 4 @ 30,000, ± 15 @ 60,000

<sup>2</sup> High rate achievable into small system volumes

<sup>3</sup> 10 above 1,500 ft/min, 25 above 3,000 ft/min, 50 above 6,000 ft/min, 100 above 12,000 ft/min

<sup>4</sup> Option I, range is 25 → 850 kts. Option J, range is 5 → 1,000 kts.

<sup>5</sup> Standard mode of test set below 200 kts

## STANDARD TEST FUNCTIONS

- Pressure/vacuum generation
- Automatic leak check
- Controlled venting to ambient
- Altitude/airspeed input
- Static/dynamic(Qc)/total pressure input
- Altitude/airspeed rates input
- Mach Number input
- EPR generation
- TAS / IAS toggle, TAS temperature correction
- Altitude offset correction
- 30 user test programmed profiles of 26 steps each
- Ultra low speed (5 to 200 kts) for improved accuracy and stability
- USB port for USB memory device to store results and download test programs
- Audible indication when approaching set point

## DISPLAYED UNITS

Altitude: ft, m

Airspeed: kts, km/h, mph

Pressure: InHg, hPa, kPa, Pa, psi, mmHg

## DISPLAY AND KEYPAD

Integral display and keypad in splash proof and shock protected front panel.  
Back lit LCD displays all test parameters.

## CALIBRATION

One year interval, performed using software.

## PHYSICAL SPECIFICATIONS

Weight: 30 kg. (66 lbs.)

Dimensions: L 625 x W 500 x H 300 mm  
(L 24.6 x W 19.7 x H 11.7 in.)

Connections: Quick release Hansen fittings.

## ENVIRONMENTAL

Temperature range

Operating: -5°C to +50°C

Storage: -20°C to +70°C

Splashproof and shockproof.

CE compliant.

## POWER SUPPLY

Universal power supply: 90-240 VAC; 50-400 Hz.  
100 VA

4 hours operation internal rechargeable battery

## WARRANTY

Unit: 2 Years

Pumps: 5000 running hours

## OPTIONS

- A.** 28 V d.c. Power supply: (18 to 30 V d.c.)
- B.** ARINC429 monitoring interface
- C.** IEEE488 GPIB control (RS232 is standard)
- D.** PDA and software for wireless remote control
- E.** Multiple Pitot and Static Isolators controlled from keypad. 2+2, 3+3 or 4+4
- F.** ADWIN PC Control software
- G.** Hand held remote control unit: 4 x 20 characters LCD with 15m extension cable
- H.** Gray Code Altitude Device Read-out
- I.** Extended range (850 knots, 2 pumps)
- J.** Extended range (1000 knots, 2 pumps) with absolute resonant transducer for Pitot
- L.** Touch Screen Remote Control
- Custom Pitot/Static connections available

## ASSOCIATED PRODUCTS

Pitot-static adaptors

Pressure indicators/transfer standards



Ongoing development results in specifications being subject to change without notice



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D. Marchiori

# MPS39C

## 3 Channel Air Data Test Set

- 3 independent channels for Altitude, Airspeed & Angle of Attack.
- Fully RVSM compliant with 12 months recalibration period
- Integral pressure and vacuum pumps with 5000 hour guarantee
  - Universal ac powered and internal 4 hour battery back-up
  - Multiple Ps, Pt & AoA ports with automatic line switching option
  - Rugged flightline unit with wheels and stowable tow handle



# MPS39C Precision 3 Channel Digital Air Data Test Set

## SUPPLYING AIR DATA TEST SETS TO THE WORLD

DMA traces its origins back to 1938, mainly as a test equipment manufacturer to support European aviation requirements. Today DMA supply precision Air Data Test Sets and other aviation ground support equipment to aircraft manufacturers, repair stations and operators throughout the world.

## FLIGHT LINE TESTER FOR DEMANDING APPLICATIONS

The MPS39C is a digital technology portable Air Data Test Set incorporating many standard features normally found on more expensive test instruments. The construction is both rugged and rainproof for demanding flight line use. The unit is housed in a single wheeled case with a stowable handle.



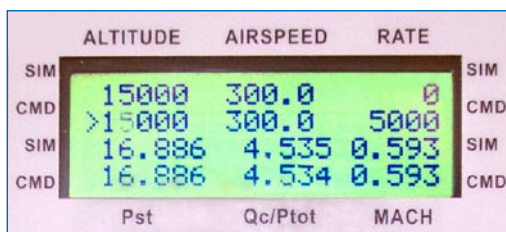
## AUTOMATIC CONTROL OF 3 INDEPENDENT PRESSURES

Three pressures are controllable separately and independently: Static for altitude and Qc/Pt for airspeed together with Angle of Attack (AOA) pressure to test those aircraft equipped with the Smart pitot probe.

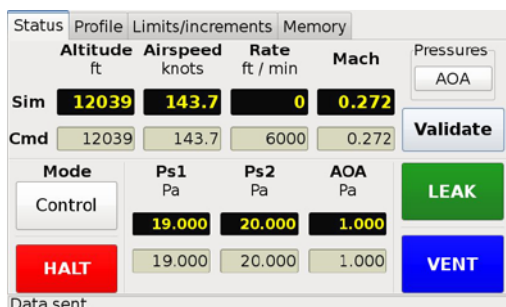
The angle of attack pressure can be displayed either in pressure units with a maximum of 0.0001 inHg resolution or directly in degrees of AOA with 0.1° resolution.

## EASY INTUITIVE INTERFACE

Using logical key press routines the MPS39C is easy to use by both beginners and experts. Testing and trouble shooting can be performed via the built-in intuitively arranged colour-coded keypad and large 4 x 20 character back-lit display. For a remote location such as the flight-deck, three control options are available: the Hand Held Remote Control, the Touch Screen Remote Control or



a wireless Bluetooth connected PDA. All the important air data functions are simultaneously displayed on all interfaces, constant screen or menu changes are not required. Readings of both commanded and measured test values are displayed.



Laboratory testing can also be performed by a PC connected via RS232 to the remote hand terminal connector. The comprehensive manuals include all the control instructions. ADWIN software is available as a ready-to-run PC based interface.

## ACCURACY ACHIEVED BY THE END OF SELF TEST

A vibrating element absolute transducer is utilised for the static, altitude channel and a differential transducer for the Qc/Pt, airspeed channel. Pressure and temperature characterisation is applied to the sensors ensuring very high accuracy is achieved at all operating pressure values, without any significant warm-up time.

## EXCLUSIVE 5000 HOUR PUMP LIFE GUARANTEE

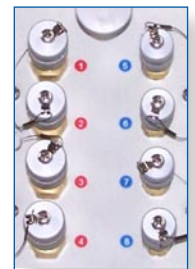
The MPS39C is a rugged flight line instrument designed for low maintenance. The low maintenance internal pressure and vacuum pumps run only on demand, extending the pump life and carrying a 5000 hours industry exclusive guarantee, based on test set running hours.

## AUTOMATED CALIBRATION

Calibration, performed by software, is fast and simple since no mechanical adjustments are required. Calibration factors are password protected for security. The resultant accuracy of the vibrating element sensors exceeds the RVSM industry requirements.

## FLEXIBLE MULTIPLE LINE SWITCHING

The MPS39C standard 3 connectors for altitude, airspeed and AoA can optionally be changed to independently addressable ports configured to control up to 8 lines of isolation: 4 ports for static and 4 ports for pitot, or alternatively, 2 static, 2 AoA and 4 pitot when in AoA mode.



This multiple line switching permits fast and safe isolation of the lines to isolate leaking channels. Control is possible from any of the local or remote user interfaces. Combinations of line switching are also possible for numerous fault finding routines.

## LOW POWER CONSUMPTION FOR HIGH RELIABILITY

Careful consideration during the design ensures low power consumption giving minimal internal temperature rise which consequently results in high reliability: typically 100 VA power consumption from the a.c. line.

## INTERNAL BATTERY FOR SAFETY AND VERSATILITY

The MPS39C is equipped with internal rechargeable batteries which provide an emergency power supply able to give up to four hours of full operation. This battery power feature also ensures that operation away from available a.c. supplies causes no problems to the operator. For those occasions when the a.c. power fails during a test there is a complete and seamless transfer over to the battery power permitting testing to continue and safe shutdown with total control.

## BUILT IN SAFETY LIMITS FOR UUT PROTECTION

The MPS39C is designed for maximum safety during testing. Key DMA design features protect both the test set and the systems under test. Negative Qc, a pressure condition of Ps greater than Pt, is prevented in both manual and automatic operation. In the unlikely situation where both a.c. and internal battery operation is not possible the Unit Under Test (UUT) is safely isolated and can be manually vented preventing instrument and test set damage.

Numerous preset factory or user programmed safe limits are provided to prevent damage to the UUT. These limits can be modified by the user either temporarily or permanently, with password protection if desired.



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Optional Touch Screen Remote Control. Includes USB port for test program storage on USB memory

Hand terminal provides intuitive user interface with back-lit display and colour coded keypad



Altitude	Airspeed	Rate	Mach	Pressures
ft	knots	ft / min		AOA
Sim 12039	143.7	0	0.272	
Cmd 12039	143.7	6000	0.272	
Mode	Ps1 Pa	Ps2 Pa	AOA Pa	LEAK
Control	19.000	20.000	1.000	VENT
	19.000	20.000	1.000	

Remote Control MPSRE CE

Rugged splash proof case with wheels, stowable handle and removable lid

Universal power input with 28 VDC Option

Low power consumption for high accuracy and reliability

Terminal connector and RS232 port

Vacuum supply for static adaptors

ARINC 429, IEEE 488 and Altitude encoder interfaces available as options

Internal 4 hour battery for safety and versatility

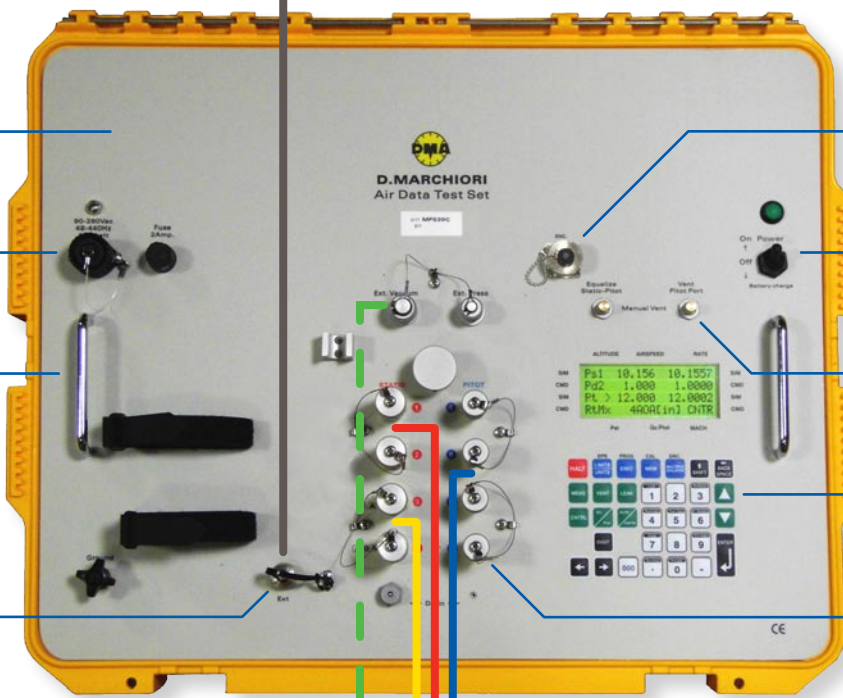
Manual vents for Static and Pitot

Local back-lit display and colour coded keypad for laboratory use

Optional multiple line switching: 4 static, 4 pitot or 2 static, 2 AOA, 2 pitot

3 Independent channels of pressure control Static, Pitot and AOA

A wide range of pitot-static adaptors and adaptor kits are available from DMA





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# MPS39C Standard Specifications

	PARAMETER	RANGE		RESOLUTION		ACCURACY	CONTROL STABILITY	
		MEASURE	CONTROL	MEASURE	SETPOINT			
STATIC	Altitude (ft)	-3,000→80,000	-3,000→60,000	1	1	± 3 @ SL ± 5 @ 30,000 ± 20 @ 60,000	± 2	
	Vertical speed (ft/min)	Standard	0→6,000	0→6,000	5 @ < 1,500 [2]	1	± 10 ± 1% of reading	± 10 ± 1% of reading
		High rate [1]	0→30,000	0→30,000				
	Static (inHg abs) (hPa abs)	0.8→33.3 27→1130	2→33.3 71→1130	0.001 0.01	0.001 0.01	± 0.003 ± 0.1	± 0.002 ± 0.07	
PITOT	Airspeed (kts)	Standard	10→650	10→650	1 @ < 50 0.1 @ > 50	0.1	± 0.5 @ 50 ± 0.1 @ > 500	± 1
		Ultra low speed function [3] (kts)	5→200	5→200	0.1 @ > 20		± 0.03 hPa	± 0.03 hPa
	Airspeed slew rate (kts/min)	0→800	0→800	10	10	± 10 ± 1% of reading	± 5%	
	Mach No. (mach)	0→4	0→4	0.001	0.001	< ± 0.002	± 0.002	
	Pitot (Qc) (inHg diff) (hPa diff)	0→25.6 0→870	0→25.6 0→870	0.0001 0.01	0.0001 0.01	± 0.003 ± 0.1	± 0.003 ± 0.1	
	Engine Pressure Ratio (EPR)	1→2.5 @ SL	1→2.5 @ SL	0.001	0.001	0.001	± 0.001	
AOA	Angle of attack pressure (inHg diff) (hPa diff)	-2.5→2.5 -85→85	-2.5→2.5 -85→85	0.001 0.01	0.001 [4] 0.01	± 0.003 ± 0.1	± 0.003 ± 0.1	

Notes: Control capability on all load volumes: Static: 0 to 2 L (125 cu. in.), Pitot: 0 to 1.3 L (80 cu. in.). Larger volumes acceptable

<sup>1</sup> High rate achievable into small system volumes

<sup>2</sup> 10 above 1,500 ft/min, 25 above 3,000 ft/min, 50 above 6,000 ft/min, 100 above 12,000 ft/min

<sup>3</sup> Standard mode of test set below 200 kts

<sup>4</sup> 0.0001 inHg by user setting - inHg units mode only

## STANDARD TEST FUNCTIONS

- Pressure/vacuum generation
- Automatic leak check
- Controlled venting to ambient
- Altitude/airspeed input
- Static/dynamic(Qc)/total pressure input
- Altitude/airspeed rates input
- Pressure/angle of attack input
- Mach Number input
- EPR generation
- TAS / IAS toggle, TAS temperature correction
- Altitude offset correction
- 30 user test programmed profiles of 26 steps each
- Ultra low speed (5 to 200 kts) for improved accuracy and stability
- Audible indication when approaching set point

## DISPLAY AND KEYPAD

Integral display and keypad in splash proof and shock protected front panel.

Back lit LCD displays all test parameters.

Hand held remote control unit: 4 x 20

characters LCD with 50 ft extension cable.

## DISPLAYED UNITS

Altitude: ft, m

Airspeed: kts, km/h, mph

Pressure: InHg, hPa, kPa, Pa, psi, mmHg

## CALIBRATION

One year interval, performed using software.

## PHYSICAL SPECIFICATIONS

Weight: 30 kg. (66 lbs.)

Dimensions: L 625 x W 500 x H 300 mm  
(L 24.6 x W 19.7 x H 11.7 in.)

Connections: Quick release Hansen fittings.

## ENVIRONMENTAL

Temperature range

Operating: -5°C to +50°C

Storage: -20°C to +70°C

Splashproof and shockproof.

CE compliant.

## POWER SUPPLY

Universal power supply: 90-240 VAC; 50-400 Hz.  
100 VA

4 hours operation internal rechargeable battery

## WARRANTY

Unit: 2 Years

Pumps: 5000 running hours

## OPTIONS

**A.** 28 V d.c. Power supply: (18 to 30 V d.c.)

**B.** ARINC429 monitoring interface

**C.** IEEE488 GPIB control (RS232 is standard)

**D.** PDA and software for wireless remote control

**E.** Multiple Pitot and Static isolators controlled from keypad: 4+2+2 in 3 channel mode, or 4+4 in dual pressure mode

**F.** ADWIN PC Control software

**G.** Hand held remote control unit: 4 x 20 characters LCD with 50 ft extension cable

**H.** Gray Code Altitude Device Read-out

**L.** Touch Screen Remote Control

– Custom Pitot/Static connections available

## ASSOCIATED PRODUCTS

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Pressure indicators/transfer standards



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