



# MPS43B

## Ultra Compact Automatic Air Data Test Set

D. Marchiori

- Ps to 55,000 ft, Pt to 550 kts, ROC to 6000 ft/min
- 1 Hour+ Operation from Internal Battery
- Integral Pumps with 1500 Hour Warranty
  - Vacuum Port Holds DMA Adaptors to Fuselage
  - RVSM Compliant, Weighs just 4.5 kg., Bluetooth
  - Powered by AC, 28VDC or Removable Battery



# MPS43B Precision Ultra Compact Digital Air Data Test Set

## SUPPLYING AIR DATA TEST SETS TO THE WORLD

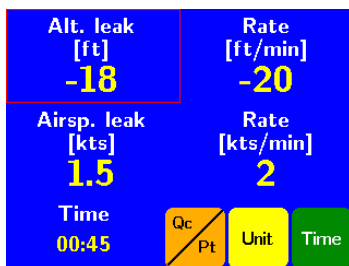
DMA with its origins back to 1938, support the International aviation industry, manufacturing mainly test equipment. DMA supply precision Air Data Test Sets and other aviation ground support equipment to aircraft manufacturers, repair stations and operators throughout the world.

## ULTRA COMPACT FLIGHT LINE TESTER

The MPS43B is a second generation of the unique MPS43 instrument where the first class capabilities of precision and performance are all integrated into a remarkably small enclosure. The improved totally flat panel with an integral power switch gives enhanced environmental protection. It enables users to enjoy the air data testing characteristics, and experience the compact size and portability, not possible by more conventionally designed products. The rugged lightweight enclosure meets the demanding requirements of the aerospace industry and offers unmatched cost and ownership benefits not available from alternatives.

## USER INTERFACE

A conventional keypad and a multi-coloured touchscreen display provide maximum ease of use by both beginners and experts. Regular testing and troubleshooting is simple, with clear unambiguous readout and instruction inputs.



All the important air data functions are displayed simultaneously, constant screen or menu changes are not required. 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 Qc/Pt, airspeed, channel. Pressure and temperature characterisation for the sensors ensures very high accuracy is achieved, without any significant warm-up time.

## EXTENDED PUMP LIFE

The MPS43B is a rugged flight line instrument designed for low maintenance. The internal pressure and vacuum pumps run only when required, extending the pump life.

## ADDITIONAL PS & PT OUTLET PORTS

The single front panel outlet ports for Ps and Pt can be optionally extended by up to 3 Ps and 3 Pt extra connections. Mounted on the case rear side they provide the ability to feed parallel parameter values to multiple additional probes and sensors under test.

## PROGRAM TESTING

Up to 30 independent test profiles can be stored in the MPS43B, each of which consisting of 26 test points. Profile results, containing the readings of up to 3 UUTs can also be stored from each program, up to a maximum of 300 results.



## AUTOMATED CALIBRATION

Calibration, performed by software, is fast and simple since no mechanical adjustments are required. The use of a traceable Pressure Standard is required with the relevant range and accuracy to match the needs of the MPS43B accuracies. Calibration factors are password protected for security. The resultant accuracy of the sensors meets the RVSM industry requirements. The MPS43B internal reservoirs make calibration easy, and help control stability.

## AUXILLIARY VACUUM FOR ADAPTOR HOLD DOWN.

The MPS43B provides a front panel connector that gives a vacuum source for suction device Adaptors that use fuselage vacuum hold down.

## INTERNAL REPLACEABLE BATTERY FOR SAFETY & VERSATILITY

The MPS43B is equipped with an internal rechargeable battery that provides alternative power for more than one hour for those occasions when remote operation away from AC power is required. When AC power fails during testing the battery allows the test to continue and provides safe shut down under total control at the conclusion of the test. The battery is accessible from a rear mounted case aperture for battery replacement or removal. The MPS43B can also operate from AC or DC only, with no battery installed.

## BUILT IN SAFETY LIMITS FOR UUT PROTECTION

The MPS43B 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. If all 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.

## REMOTE CONTROL

The instrument can be remotely controlled by the MPSRC hand held control or it can be wireless controlled by a remote touchscreen terminal, the MPSRW. Additionally the DMA ADWIN software can be used for operation from an external PC. An optional Bluetooth control capability can also be provided for use with Tablets or Laptops.

## EPR & ALTIMETER ENCODER READOUT

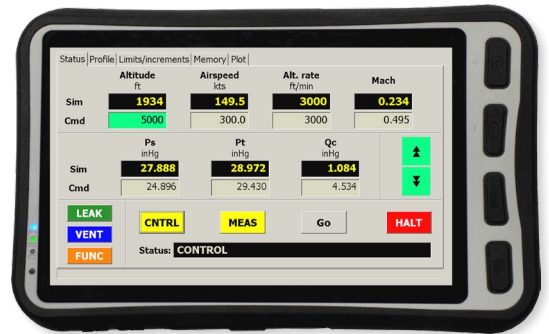
The MPS43B has the capability to work directly in units of EPR for engine sensor testing. The altitude encoder readout option allows the display of altitudes from gray code encoded altitude devices.



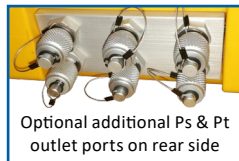
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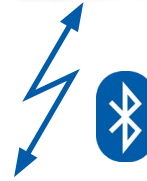
Optional MPSRC Hand held remote control unit: Multi-coloured backlit 3.5" LCD touchscreen and keypad



Optional MPSRW Wireless Touchscreen control connected via Bluetooth



Optional additional Ps & Pt outlet ports on rear side



Store 30 test programs and results

Portable and rugged splashproof case. Easily carried to cockpit.

Vacuum supply for DMA adaptor fuselage hold down

Internal pumps run only when required, extending the pump life

2 Channels of independent pressure control for Static and Pitot. Includes EPR generation

Coloured back-lit touchscreen and colour coded keypad. Smart user interface showing all parameters at once

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

Universal AC or 28VDC power input. Low power consumption for high accuracy and reliability

Embedded push button power switch

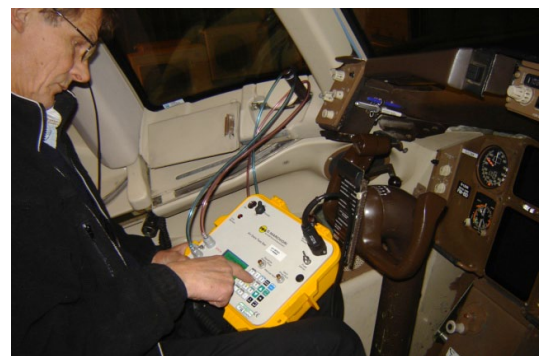
Battery operation for over 1 hour. Battery accessible from rear

Fully automatic control. User programmable limits

Upgraded front panel with all flush controls for improved weatherproofing



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





# MPS43B Standard Specifications

PARAMETER		RANGE		RESOLUTION		ACCURACY <sup>[3]</sup>	
		MEASURE	CONTROL	MEASURE	SETPOINT		
STATIC	Altitude (ft)	-2,000→55,000	-2,000→55,000	1	1	± 3 @ SL ± 7 @ 30,000 ± 18 @ 50,000	
	Vertical speed (ft/min)	0→6,000	0→6,000	5 @ < 3,000 <sup>[1]</sup> 25 @ > 3,000	1	± 1% of setting	
	Static (inHg abs) (hPa abs)	2.7→32 91→1090	2.7→32 91→1090	0.001 0.01	0.001 0.01	± 0.003 ± 0.1	
PITOT	Airspeed	Standard (kts)	10→550	10→550	1 @ < 50 0.1 @ > 50	1	± 0.5 @ 50 ± 0.1 @ > 500
		Ultra low speed function <sup>[2]</sup> (kts)	5→200	5→200	0.1 @ > 20		± 0.03 hPa
	Airspeed slew rate (kts/min)	0→500	0→500	10	10	± 10 ± 1% of setting	
	Mach No. (mach)	0→1.5	0→1.5	0.001	0.001	< ± 0.003	
	Pitot (Qc)	(inHg diff)	0→17	0→17	0.0001	0.0001	± 0.005
		(hPa diff)	0→581	0→581	0.01	0.01	± 0.17
Engine Pressure Ratio (EPR)		1→2.5 @ SL	1→2.5 @ SL	0.001	0.001	± 0.001	

Notes: Control capability on all load volumes (cu. in.): Static: 0 to 1.5 L (92 cu. in.), Pitot: 0 to 1 L (61 cu. in.). Larger volumes acceptable

<sup>1</sup> Selectable to ± 1 ft/min

<sup>2</sup> Activated on request, below 200 kts

<sup>3</sup> Total accuracy includes all metrological uncertainty contributions for the pressure measured. Metrological data has full traceability with International accredited Labs.

## STANDARD TEST FUNCTIONS

- Pressure/vacuum generation
- Auxiliary vacuum for Adaptor hold-down
- 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. Results from 3 UUTs can be stored up to a total of 300 results.
- 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 a totally flat splashproof and shock protected front panel. Multi-coloured backlit LCD touchscreen, 114mm (3.5") diagonal, displays all test parameters.

## DISPLAYED UNITS

Altitude: ft, m, hm  
Airspeed: kts, km/h, mph  
Pressure: inHg, hPa, kPa, Pa, bar, psi, mmHg, inH2O

## CALIBRATION

One year interval, performed using software. Requires traceable Pressure Standard.

## PHYSICAL SPECIFICATIONS

Weight: 4.5 kg. (10 lbs.)  
Dimensions: L 300 x W 250 x H 120 mm  
(L 11.8 x W 9.8 x H 4.7 in.)  
Connections: Static: AN-4 37° flare  
Pitot: AN-3 37° flare  
Optional outlets: As front panel connections  
Auxiliary Vacuum: AN-3 37° flare

Fittings fitted with O-ring for finger-tight sealing. Captive dust caps supplied.

## 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 or 28VDC. 20 VA

Rechargeable internal battery providing over 1 hour operation.  
For even greater battery life operation use EPU6E.

## WARRANTY

Unit: 2 Years  
Pumps: 1500 hours or 2 years, whichever expires first.

## OPTIONS

- A2** No internal battery
- B7** Altitude Encoder – Gray Code Read-out
- B8** Bluetooth interface
- E12** Extra outlet ports on rear (3 Ps + 3 Pt extra)
- F4** ADWIN PC Control software (unlocked)
- J5** Extended Range 650 knots at -320ft
- K1** AN4 (Ps), AN4 (Pt)
- K2** AN6 (Ps), AN4 (Pt)
- K5** Staubli red (Ps), Staubli black (Pt)
- K11** AN6 Auxiliary vacuum
- T0** Power cable 2m Schuko plug
- T1** Power cable 2m American plug
- T2** Power cable 10m Hubbel HBL5266C
- T3** Power cable 2m Australian plug

## INCLUDED ACCESSORIES

ADWIN PC Control software (MPS43B only)  
USB cable  
Power cable chosen from above options  
28 VDC cable  
Hoses and fittings

## ASSOCIATED PRODUCTS

Pitot-static adaptors  
**EPU6E** External battery power unit, providing 6 hours operation.  
**MPSRC** Hand held remote control  
**MPSRW** Wireless remote control  
Pressure indicators/transfer standards

Ongoing development results in specifications being subject to change without notice



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