



D. Marchiori

# MPS45HF

## 2 Channel High Flow Air Data Test Set

- Control of altitude and airspeed from local or remote
- RVSM compliant with 18 months recalibration
- Integral pressure and vacuum pumps with 5000 hour warranty
  - Universal AC powered with internal 2 hour battery back-up
  - Optional multiple Ps & Pt ports with automatic line switching
  - Enhanced flow rates suitable for high pneumatic volume aircraft



# MPS45HF 2 Channel High Flow Air Data Test Set

## SUPPLYING AIR DATA TEST SETS TO THE WORLD

From the 1938 origins DMA have supplied test equipment to meet the requirements of the aviation industry. Today the DMA product range covers precision Air Data Test Sets and other aerospace related equipment to users including Manufacturers, Airline and Business Jet operators, General Aviation and Repair Stations throughout the world.

## FLIGHT LINE TESTER FOR DEMANDING APPLICATIONS

The MPS45HF is a twin channel digital technology portable flightline air data test set. Special valves and pumps allow operation with aircraft that have large pneumatic volumes. The construction is both rugged and rainproof and housed in a well proven HDPE case that incorporates both wheels and a retractable tow handle making transportation in the working environment simple. The associated auxiliaries of power leads and hoses are contained in an accompanying shoulder bag.



## USER INTERFACE

A conventional keypad is augmented by a multi-coloured touchscreen display for the operator to enter the test details. For flight deck use the MPSRC remote control or MPSRW wireless remote control are available. All the important air data functions are simultaneously displayed on either local or remote displays and constant screen or menu changes are not required. Readings of both commanded and measured, actual, 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

Two independent absolute pressure sensors are employed for the measurement of Ps altitude and Pt airspeed parameters. Advanced pressure and temperature characterisation is applied to these high quality precision sensors ensuring very high accuracy is achieved under all operating conditions without any significant warm-up time effects being relevant. Equally important is the stability of the sensors which provides a recalibration period of 18 months with RVSM compliance.

## EXCLUSIVE 5000 HOUR PUMP LIFE WARRANTY

The MPS45HF 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 warranty (see specification for details), 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 sensors exceeds the RVSM industry requirements. The DMA Transfer Standard PAMB11H, under the recommended operating conditions, can be utilised for the MPS45HF calibrations.

## FLEXIBLE MULTIPLE LINE SWITCHING OPTION

The MPS45HF standard 2 connectors, for altitude and airspeed, can optionally be changed to independently addressable configured ports to control up to 8 lines for Ps altitude and 4 lines for Pt airspeed. This enables rapid leak detection of problematic multi-point systems all via the operator interface by isolating ports until the leaking line is found.

Additionally the Multiple Isolator gives the ability to establish different parameter values in the lines by selected isolation. This feature can then introduce the desired different values to enable, for example, the altimeter comparator test. At the completion of the test the MPS45HF automatically balances all the port values and brings the total system safely to ambient.

## 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 65W power consumption from the AC line.

## INTERNAL BATTERY FOR SAFETY AND VERSATILITY

The MPS45HF is equipped as standard with an internal rechargeable battery that provides an emergency power supply that gives up to two hours full operation should AC supply fail or be unavailable, such as for remote use. For those occasions when the AC power fails during a test the battery will seamlessly replace the AC supply permitting the test to continue or for the safe shut-down under total control. The battery is flight approved for transportation purposes and can be accessed and replaced from the front panel of the instrument. Operation without a battery is also possible.

## BUILT IN SAFETY LIMITS FOR UUT PROTECTION

The MPS45HF 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 AC 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 MPSRW wireless remote terminal with backlit 7" LCD touchscreen

Optional MPSRE2 backlit 7" LCD touchscreen hand terminal



Optional MPSRC Hand held remote unit: Backlit 3.5" LCD touchscreen and keypad



Optional multiple line switching.  
Up to 8 Static lines and 4 Pitot lines

Universal power input with 28 VDC Option

Internal 2 hour battery for safety and versatility (removable)

Low power consumption for high accuracy and reliability

Optional ARINC 429, IEEE 488, Ethernet and Altitude encoder interfaces

Vacuum supply for static adaptors

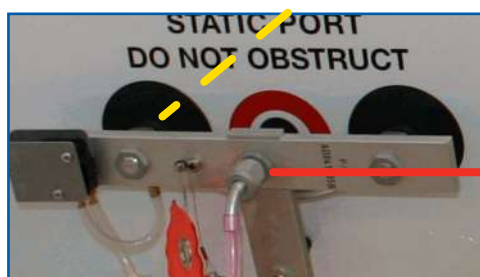
Rugged splash proof case with wheels, stowable handle and removable lid

Colour touchscreen display

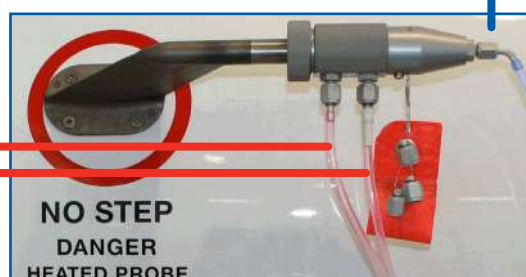
Local control keypad

Terminal connector

2 Channels of independent pressure control for Static and Pitot



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



# MPS45HF Standard Specifications



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|        | PARAMETER                      |                                    | RANGE             |                   | RESOLUTION                      |               | ACCURACY [6]                                          |
|--------|--------------------------------|------------------------------------|-------------------|-------------------|---------------------------------|---------------|-------------------------------------------------------|
|        |                                |                                    | MEASURE           | CONTROL           | MEASURE                         | SETPOINT      |                                                       |
| STATIC | Altitude (ft)                  |                                    | -7,500→80,000     | -7,500→80,000     | 1                               | 1             | ± 3 @ Sea level (SL)<br>± 7 @ 30,000<br>± 18 @ 50,000 |
|        | Vertical speed                 | Standard (ft/min)                  | 0→6,000           | 0→6,000           | 5 @ < 3,000 [3]<br>25 @ > 3,000 | 1             | ± 1% of setting                                       |
|        |                                | High rate [1] (ft/min)             | 0→50,000          | 0→50,000          |                                 |               |                                                       |
| PITOT  | Static (inHg abs)<br>(hPa abs) |                                    | 0.8→38<br>27→1300 | 0.8→38<br>27→1300 | 0.001<br>0.01                   | 0.001<br>0.01 | ± 0.003<br>± 0.1                                      |
|        | Airspeed                       | Standard (kts)                     | 10→850            | 10→850            | 1 @ < 50<br>0.1 @ > 50          | 0.1           | ± 0.5 @ 50<br>± 0.1 @ > 500                           |
|        |                                | Ultra low speed function [2] (kts) | 2→200             | 2→200             | 0.1 @ > 20                      |               | ± 0.03 hPa                                            |
|        | Airspeed slew rate (kts/min)   |                                    | 0→500 [4]         | 0→500 [4]         | 10                              | 10            | ± 10 ± 1% of setting                                  |
|        | Mach No. (mach)                |                                    | 0→10              | 0→10              | 0.001                           | 0.001         | < ± 0.002                                             |
|        | Pitot                          | (inHg abs)                         | 0.8→79.8          | 0.8→79.8          | 0.001                           | 0.001         | ± 0.004 @ 30<br>± 0.006 @ 80                          |
|        |                                | (hPa abs)                          | 27→2700           | 27→2700           | 0.01                            | 0.01          | ± 0.14 @ 1000<br>± 0.20 @ 2700                        |
|        | Engine Pressure Ratio (EPR)    |                                    | 1→2.7 @ SL [5]    | 1→2.7 @ SL [5]    | 0.001                           | 0.001         | 0.001                                                 |

Notes: Performance achieved on all load volumes: Static: 0 to 10 L (610 cu. in.), Pitot: 0 to 5 L (305 cu. in.). Larger volumes acceptable.

Pump capability: 6,000 ft/min on 15 L (10 Static + 5 Pitot) up to 40,000 ft.

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

<sup>2</sup> ULS is enabled by pressing SHIFT + 6

<sup>3</sup> Selectable to ± 1 ft/min

<sup>4</sup> 1000 kts/min rate achievable into small system volumes

<sup>5</sup> SL = Sea Level. Maximum EPR range 0.1 to 10 at higher altitudes.

<sup>6</sup> Total accuracy includes all metrological uncertainty contributions for the pressure measured. Metrological data has full traceability with International accredited Labs.

## STANDARD TEST FUNCTIONS

- Automatic leak check
- Controlled venting to ambient
- Altitude/airspeed input
- Static/total/dynamic(Qc) 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 (2 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
- Vacuum port on front panel

## DISPLAY AND KEYPAD

Integral display and keypad in splash proof and shock protected front panel. Multi-coloured backlit LCD touchscreen, 4.3" diagonal, displays all test parameters.

## DISPLAYED UNITS

Altitude: ft, m, hm  
Airspeed: kts, km/h, mph  
Pressure: InHg, hPa, kPa, Pa, psi, mmHg, inH2O 4°C

## CALIBRATION

Performed using software.

Ongoing development results in specifications being subject to change without notice

## PHYSICAL SPECIFICATIONS

Weight: 15 kg. (33 lbs.)  
MPSRC: 0.48 kg. (1.1 lbs)  
Dimensions: L 558 x W 356 x H 230 mm  
(L 22 x W 14 x H 9 in.)  
Connections: Ps: AN-6, Pt: AN-4  
AN 37° flare fittings with o-rings allow finger tight connections

## ENVIRONMENTAL

Temperature range  
Operating: -10°C to +50°C  
Storage: -20°C to +70°C  
Extended range available on request  
Splashproof and shockproof  
CE compliant

## POWER SUPPLY

Universal: 90-240 VAC; 50-400 Hz. 65 W  
2 hours operation internal rechargeable and removable battery

## WARRANTY

Unit: 2 Years  
Pumps: 5000 running hours or 4 years, whichever expires first

## OPTIONS

- A0** 28 VDC Power supply: (18 to 30 VDC)
- A2** Without battery
- B3** Ethernet interface
- B4** IEEE-488 GPIB interface
- B5** ARINC429 monitoring interface
- B7** Gray code altitude device read-out
- B8** Bluetooth interface
- B9** Wi-Fi interface
- E** Up to 8 + 4 multiple isolators (refer to DMA for option variations)
- F4** ADWIN PC Control software (unlocked)
- J2** 1000 kts range
- M1** Total temperature simulation: 30 to 130 ohm
- S2** Pressure oscillating function
- W2** Operating temperature range -40°C to +50°C
- Custom Pitot/Static connections available

## INCLUDED ACCESSORIES (in shoulder bag)

ADWIN PC Control software (locked to MPS45/45HF)  
USB cable & USB memory device  
Power cable, plug to be chosen from: EU, US, UK, SWISS, AUSTRALIAN  
Hoses and fittings

## OPTIONAL ACCESSORIES

MPSRC Remote control unit - 3.5" LCD  
MPSRW Wireless remote control - 7" LCD  
MPSRE2 Remote control unit - 7" LCD  
Other communication cables

## ASSOCIATED PRODUCTS

Pitot-static adaptors  
PAMB11H Pressure indicator/transfer standard



**D. Marchiori srl**  
Via Pontina km 43,856  
04011 Aprilia (Lt)  
Italy

Tel: +39 06 9282 733  
+39 06 9270 3073  
Fax: +39 06 9275 401

E-mail: marchiori@dma-aero.com  
Web: www.dma-aero.com

Representative

