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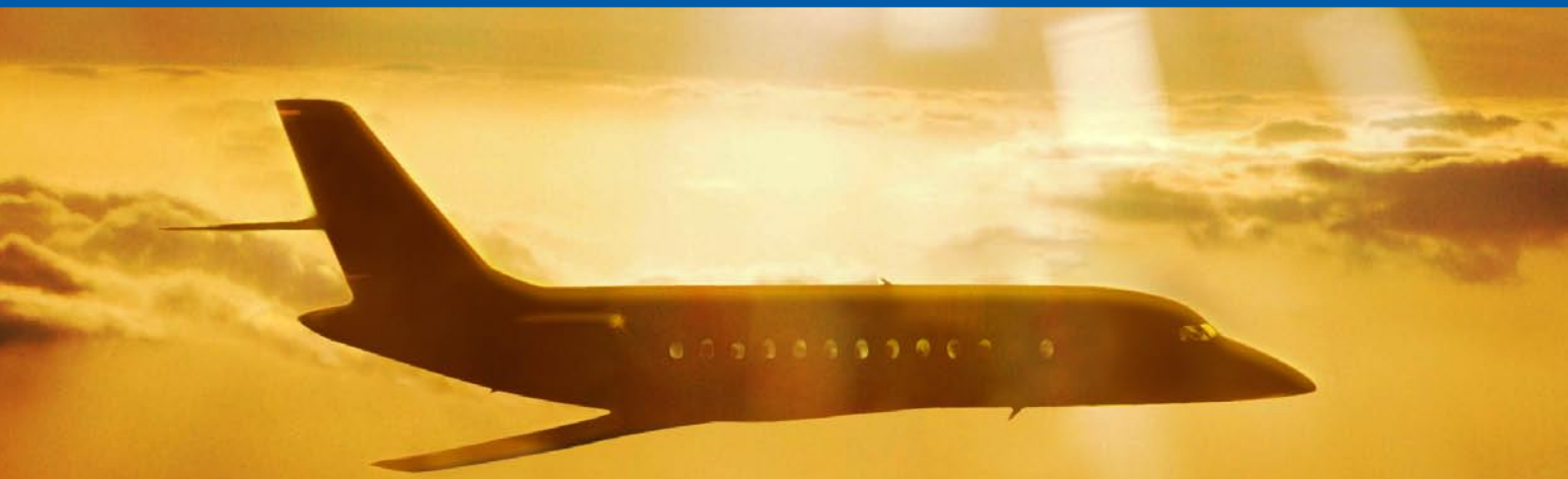
MPS39C/40C

3 & 4 Channel Air Data Test Sets

- 3 or 4 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/40C Precision Multi-channel Air Data Test Sets

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/40C are digital technology portable Air Data Test Sets incorporating many standard features normally found on more expensive test instruments. The construction is both rugged and rainproof for demanding flight line use. Each unit is housed in a single case with wheels and a stowable handle.

AUTOMATIC CONTROL OF 3 OR 4 INDEPENDENT PRESSURES

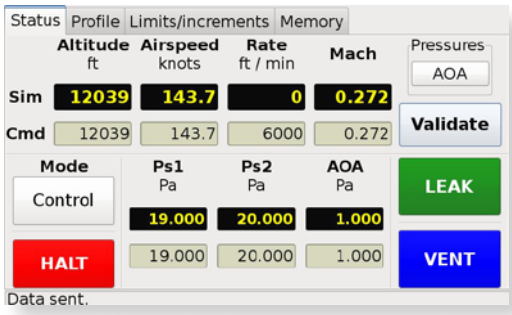
In the MPS39C, three pressures are controllable separately and independently: Static for altitude and Qc/Pt for airspeed together with Angle of Attack (AOA) pressure to test those aircraft equipped with the Smart pitot probe. The MPS40C offers four independent channels.

The angle of attack pressures 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/40C are easy to use by both beginners and experts. Testing and troubleshooting can be performed via the built-in intuitively arranged colour-coded keypad and large 4 x 20 character backlit 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.

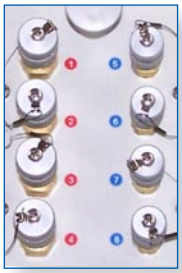
EXCLUSIVE 5000 HOUR PUMP LIFE GUARANTEE

The MPS39C/40C are rugged flight line instruments 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 standard connectors, 1 x altitude, 1 x airspeed and 1 x AoA (2 x AoA for MPS40C) 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/40C are equipped with internal rechargeable batteries which provide an emergency power supply able to give up to four hours of full operation. This feature also ensures that operation away from available a.c. supplies causes no problems. 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/40C are 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 backlit display and colour coded keypad

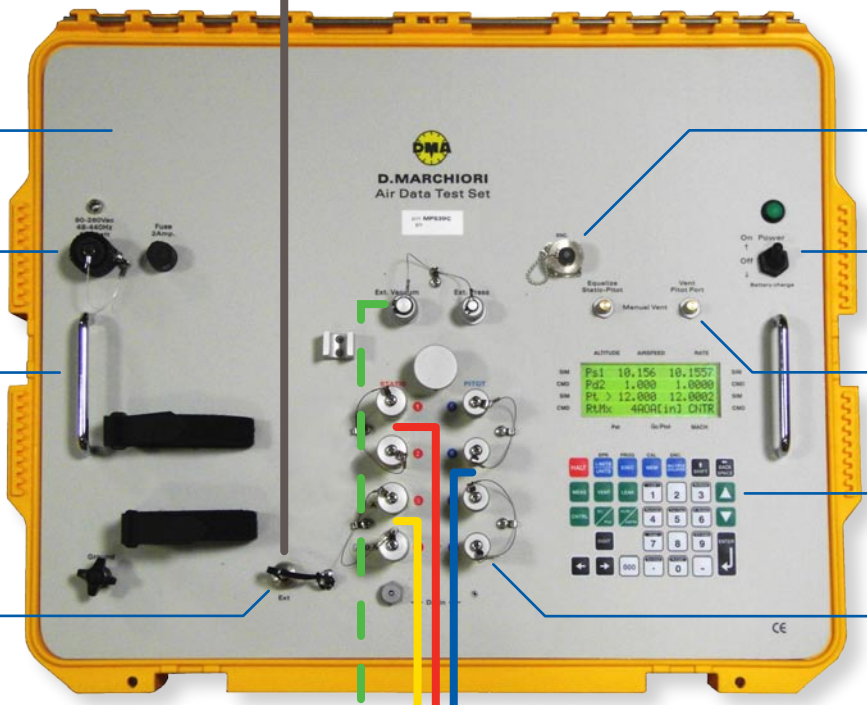
Rugged splashproof case with wheels, stowable handle and removable lid

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 backlit display and colour coded keypad for laboratory use

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

3 or 4 Independent channels of pressure control Static, Pitot and AOA

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

MPS39C/40C Standard Specifications

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	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	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→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	Standard	(kts)	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(s)		*(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: SL = Sea level. 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

[1] High rate achievable into small system volumes

[2] 10 above 1,500 ft/min, 25 above 3,000 ft/min, 50 above 6,000 ft/min, 100 above 12,000 ft/min

[3] Standard mode of test set below 200 kts

[4] 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 (x2 for MPS40C)
- 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 splashproof and shock protected front panel.
Backlit 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 VDC Power supply: (18 to 30 VDC)
- **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

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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