DMA-Aero

MPS39C/40C
3 & 4 Channel Air Data Test Sets

- Testing for AoA, Ps and Pt
- RVSM compliant
- 5000 hour pump warranty
- 4 hour battery back-up
- Multiple line switching option
**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 aircraft equipped with Smart pitot probes. 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. When three pressures are not required, AoA ports can be used as Static ports.

**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 color-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.

**ACCURACY ACHIEVED BY THE END OF SELF TEST**
A vibrating element absolute transducer is utilized for the static, altitude channel and a differential transducer for the Qc/Pt, airspeed channel. Pressure and temperature characterization 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 WARRANTY**
The MPS39C/40C are low maintenance rugged flight line instruments. The low maintenance internal pumps run only on demand, extending the pump life and carrying a 5000 hours industry exclusive warranty (see details for specification), 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. An enhanced version of the MPS40C, the MPS41C, offers additional line switching versatility. 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 phase ensures low power consumption giving minimal internal temperature rise which consequently results in high reliability: typically 100 VA power consumption from the AC 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 battery power feature also ensures that operation away from available AC supplies causes no problems. For those occasions when the AC 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. 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 and can be password protected.

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

ARINC429, IEEE488 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 color 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 adapters and adapter kits are available from DMA.
MPS39C/40C Standard Specifications

## STANDARD TEST FUNCTIONS
- Pressure/vacuum generation
- Automatic leak check
- Controlled venting to ambient
- Altitude/airspeed input
- Static/dynamic(Qc)/total pressure 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.
ATEX version also available.

## STANDARDS

### STATIC

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>RANGE</th>
<th>RESOLUTION</th>
<th>ACCURACY [5]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude (ft)</td>
<td>-3,000 → 80,000</td>
<td>1</td>
<td>± 3 @ SL</td>
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<tr>
<td>Vertical speed</td>
<td>0 → 6,000</td>
<td>1</td>
<td>± 10 @ 1% of setting</td>
</tr>
<tr>
<td>Static</td>
<td>0 → 30,000</td>
<td>0.001</td>
<td>± 0.1</td>
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</table>

### AIRSPEED

<table>
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<tr>
<th>PARAMETER</th>
<th>RANGE</th>
<th>RESOLUTION</th>
<th>ACCURACY [5]</th>
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<tbody>
<tr>
<td>Standard</td>
<td>10 → 650</td>
<td>1 @ &lt; 50</td>
<td>± 0.5 @ 50</td>
</tr>
<tr>
<td>Ultra low speed</td>
<td>5 → 200</td>
<td>0.1 @ &gt; 20</td>
<td>± 0.1 @ &gt; 500</td>
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</table>

### MACH NO.

<table>
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<tr>
<th>Paramet</th>
<th>RANGE</th>
<th>RESOLUTION</th>
<th>ACCURACY [5]</th>
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<tbody>
<tr>
<td>Mach No.</td>
<td>0 → 4</td>
<td>0.001</td>
<td>± 0.002</td>
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### AOA

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<th>PARAMETER</th>
<th>RANGE</th>
<th>RESOLUTION</th>
<th>ACCURACY [5]</th>
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<tbody>
<tr>
<td>Angle of attack pressure</td>
<td>-2.5 → 2.5</td>
<td>0.001</td>
<td>± 0.003</td>
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</tbody>
</table>

### 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: 66 lbs. (30 kg.)
- Dimensions: L 24.6 x W 19.7 x H 11.7 in. (L 625 x W 500 x H 300 mm)
- 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 or 4 years, whichever expires first

### OPTIONS
- A0 28 VDC Power supply: (18 to 30 VDC)
- B4 IEEE488 GPIB control (RS232 is standard)
- B5 ARINC429 monitoring interface
- B7 Gray Code Altitude Device Read-out
- E4 Multiple Pitot, Static and AOA isolators controlled from keypad: 2 Ps + 4 Pt + 2 AoA in 3 channel mode, or 4 Ps + 4 Pt in dual channel mode
- F2 ADWIN PC Control software (locked to S/N)
- F4 ADWIN PC Control software (unlocked)
- G0 Hand held remote control unit: 4 x 20 characters LCD with 50 ft extension cable
- – Custom Pitot/Static connections available

### ASSOCIATED PRODUCTS
- MPSRE Touch screen remote control
- Pitot-static adapters
- Pressure indicators/transfer standards

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Notes:
- SL = Sea Level. Control capability on all load volumes: Static: 0 to 125 cu. in. (2 L), Pitot: 0 to 80 cu. in. (1.3 L). Larger volumes acceptable
- High rate achievable into small system volumes
- Activated on request, below 200 kts
- Total accuracy includes all metrological uncertainty contributions for the pressure measured. Metrological data has full traceability to NIST.