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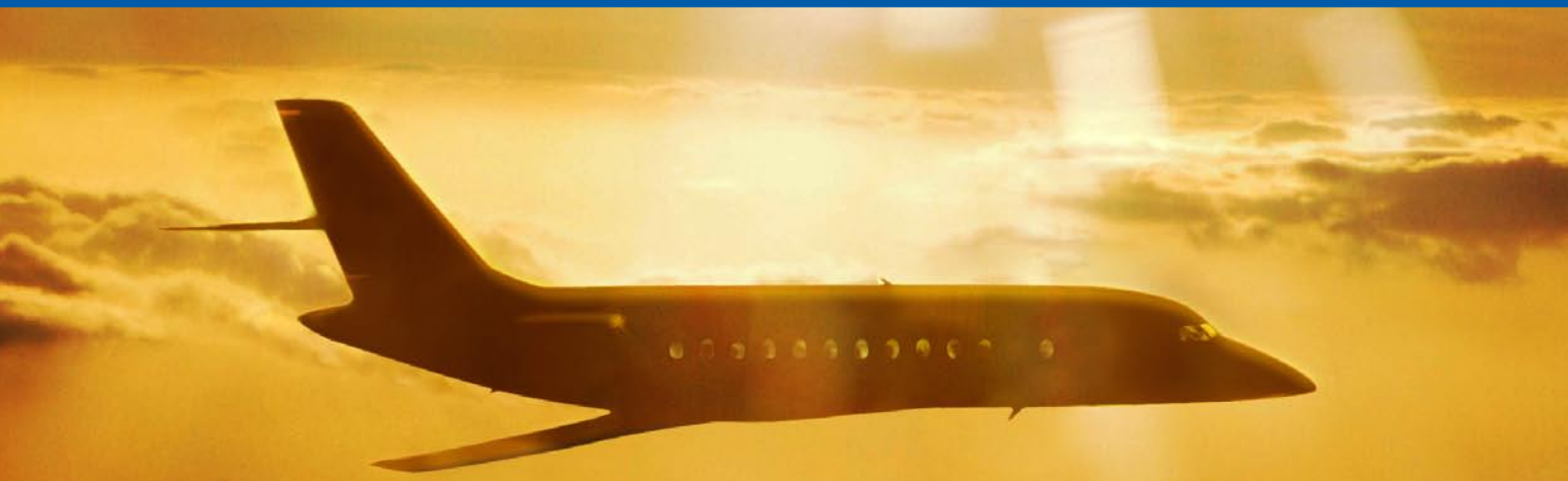
MPS36

Laboratory Air Data Test Set

- Independent control of Altitude & Airspeed
- Exceeds RVSM accuracy, with 12 months recalibration period
- IEEE488 and RS232 interfaces for ATE systems compatibility
- User programmable safety limits and multiple test programs
- Optional internal pumps for low Ps and Pt ranges
- 19 inch Rack mount 3U high and table-top configurations



MPS36 Precision Laboratory Digital Air Data Test Set

SUPPLYING AIR DATA TEST SETS TO THE WORLD

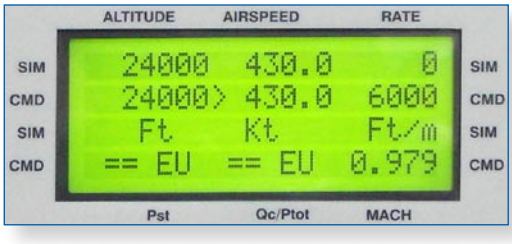
DMA traces its origins back to 1938, mainly as a test equipment manufacturer to support European aviation requirements. Today DMA supply precision Air Data Test Sets and other aviation ground support equipment to aircraft manufacturers, repair stations and operators throughout the world.

LABORATORY TESTER FOR DEMANDING APPLICATIONS

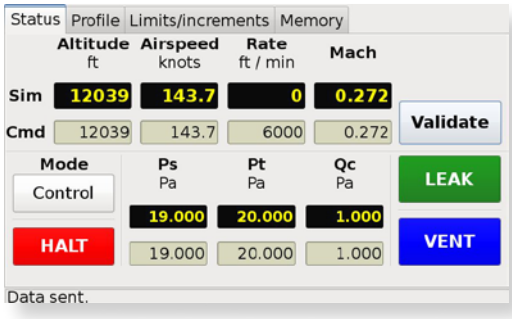
The MPS36 is a twin channel, Static and Pitot, digital technology rack mount / table top Air Data Test Set incorporating many standard features normally found on more expensive test instruments. The construction is both rugged and compact utilising a standard 19 inch by 3U enclosure. For table top use it is supplied in a laboratory style case

EASY INTUITIVE INTERFACE

Using logical key press routines the MPS36 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. Optionally remote control can be via the standard RS232 connection to one of three control options; 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 the RS232 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 vibrating element absolute transducers are utilised for the static and pitot channels. 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.

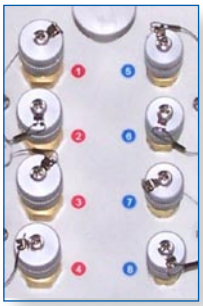
PRESSURE AND VACUUM SUPPLIES

The MPS36 requires external pressure and vacuum supplies connected via appropriate fittings on the rear panel. DMA do manufacture a rack mounted Pressure and Vacuum Unit, see the EPSR1 data sheet for details. The MPS36P is also available. This is a version of the MPS36 with an internal, small capacity, pump.

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 MPS36 standard 2 connectors for altitude and airspeed are installed on the instrument front panel. Independently addressable ports are available as an option, mounted on the rear panel, 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.

BUILT IN SAFETY LIMITS FOR UUT PROTECTION

The MPS36 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 a.c. power is lost then 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.

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

Terminal connector and RS232 port on rear panel

ARINC429, IEEE488 and Altitude encoder interfaces available as rear panel options

Universal a.c. power input connector on rear panel. Low power consumption for high accuracy and reliability

Manual vents for Static and Pitot

Front panel power switch

Intuitive user interface using large back-lit display and colour coded keypad

Front panel pressure connectors. Multiple switched outputs available as rear panel option

Splashproof front panel

MPS36 Standard Specifications

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	PARAMETER			RANGE MEASURE	RANGE CONTROL	RESOLUTION MEASURE	RESOLUTION SETPOINT	ACCURACY	CONTROL STABILITY
STATIC	Altitude		(ft)	-7,000→99,999	-7,000→80,000 [1]	1	1	± 2 @ SL ± 4 @ 30,000 ± 7 @ 50,000	± 2 [2]
	Vertical speed	Standard	(ft/min)	0→6,000	0→6,000	5 @ < 1,500 [4]	1	± 10 ± 1% of reading	± 10 ± 1% of reading
		High rate option [3]	(ft/min)	0→60,000	0→60,000				
	Static	Standard	*(inHg abs)* (hPa abs)	*0.3→38* 10→1300	*0.3→38* 10→1300	*0.0001* 0.2	*0.001* 2	*± 0.001 @ 3.5, ± 0.002 @ 30* *± 0.01 @ 50 inHg* ± 0.03 @ 100, ± 0.07 @ 1000 ± 0.34 @ 1700 hPa	*0.002* 0.07
		Option J	*(inHg abs)* (hPa abs)	*0.3→50* 10→1700	*0.3→50* 10→1700				
PITOT	Airspeed	Standard	(kts)	10→850	10→850	1 @ < 50 0.1 @ > 50	0.1	± 0.5 @ 50 ± 0.1 @ > 500	± 1
		Ultra low speed function [5]	(kts)	2→200	2→200	0.1 @ > 20		± 0.03 hPa	± 0.03 hPa
	Airspeed slew rate		(kts/min)	0→900	0→900	10	10	± 10 ± 1% of reading	± 5%
	Mach No.		(mach)	0→6	0→6	0.001	0.001	< ± 0.002	± 0.002
	Pitot	Standard	*(inHg abs)* (hPa abs)	*0.3→77* 10→2600	*0.3→77* 10→2600	*0.0001* 0.01	*0.0001* 0.01	*±0.002 @ 3.5, ±0.004 @ 30* *±0.006 @ 80 inHg* ± 0.07 @ 100, ± 0.14 @ 1000 ± 0.1 @ 2700 hPa	*± 0.003* ± 0.1
		Option J	*(inHg abs)* (hPa abs)	*0.3→103* 10→3500	*0.3→103* 10→3500				
	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 (cu. in.): Static: 0 to 2 L (125 cu. in.), Pitot: 0 to 1.3 L (80 cu. in.). Larger volumes acceptable

[1] 99,999 ft with 2 pumps, -2,000 to 65,000 for MPS36P

[2] Control stability: Typically ±10ppm FS pressure at 40,000 ft into leak tight system

[3] High rate achievable into small system volumes

[4] 10 above 1,500 ft/min, 25 above 3,000 ft/min, 50 above 6,000 ft/min, 100 above 12,000 ft/min

[5] Standard mode of test set below 200 kts

STANDARD TEST FUNCTIONS

- 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 (2 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, with case: 22.7 kg. (50 lbs.)
Dimensions: L 483 x W 380 x H 132 mm
(L 19 x W 15 x H 5.2 in.)
Connections: Quick release Hansen fittings.

ENVIRONMENTAL

Temperature range
Operating: 0°C to +50°C
Storage: -20°C to +70°C
Front panel splashproof.
CE compliant.

POWER SUPPLY

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

WARRANTY

Unit: 2 Years

SOFTWARE LIBRARY

Serial Command Set
GPIB Command Set
Circa 1975 IEEE488 Command set
Customer interface software for modular ATE applications.

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 (on rear panel)
- **F.** ADWIN PC Control software
- **G.** Hand held remote control unit: 4 x 20 characters LCD
- **H.** Gray Code Altitude Device Read-out
- **J.** Extended range to: Ps 1700 hPa, Pt 3500 hPa
- **L.** Touch Screen Remote Control
- **N.** EPS1 External Vac/Pressure supply
- **M.** EPSR1 External rack mount Vacuum/Pressure supply
- – 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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