DMA-Aero

MTG7

Digital 3 Axis Tilt Table

- Digital Test Bench for gyroscopic testing
- Microprocessor based system for movement control
- Independent control of 3 angles and 3 speeds
- Remote control via touch screen and keyboard
- Programmable safety limits

MTG7 Digital 3 Axis Tilt Table

DMA design and manufacture a wide range of aerospace ground support equipment. The MTG7 digital 3 axis tilt table test bench is a further example of the laboratory testing devices produced by DMA.

The MTG7 is a fully automatic digital three-axis tilt table. The 15.75" (400 mm) square table is able to take loads up to 35 lbs (16 Kg). Independent control of all three angular axes and all three angular speeds, coupled with high accuracies and comprehensive safety features, makes the MTG7 a versatile test bench for gyroscopic testing.

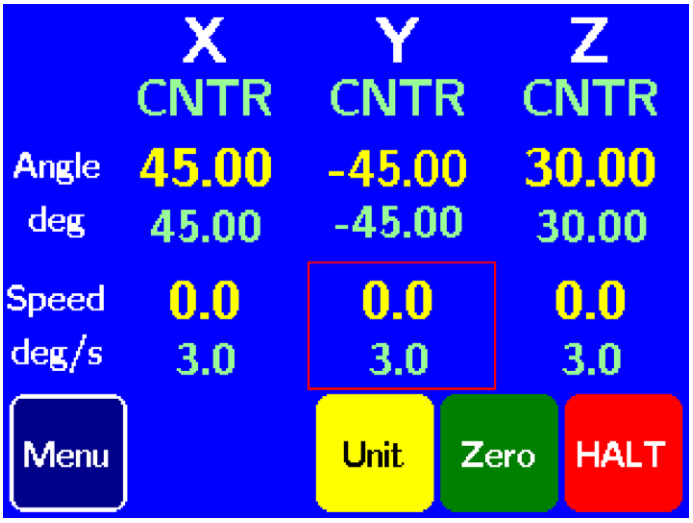
The metal frame contains the microprocessor based control system and provides mounting for the motors and encoders. The unit under test mounts on to the moving platform.

The platform is able to turn around the three axes, X, Y and Z. The structure allows for the platform to move freely inside its maximum limits, in a totally safe manner for both the operator and the instrument under test and without any measurement distortion due to the moving mass.

The operator input is via a touch-screen display and a 20-element keyboard. The commanded and current values of angles and angular speeds around each axis are shown on the 320 x 200 pixel color touch panel LCD display.

There are 3 motors each independently controlled, for the 3 axis individual speeds and accelerations. A total of 6 encoders are fitted for the accurate reading of the axis angles and angular speeds around the 3 axes. A microprocessor based electronic system controls the various movements. The tilt table provides for the simple setting of maximum values (limits) to which the unit can operate. No value can be set beyond the maximum safe limits.

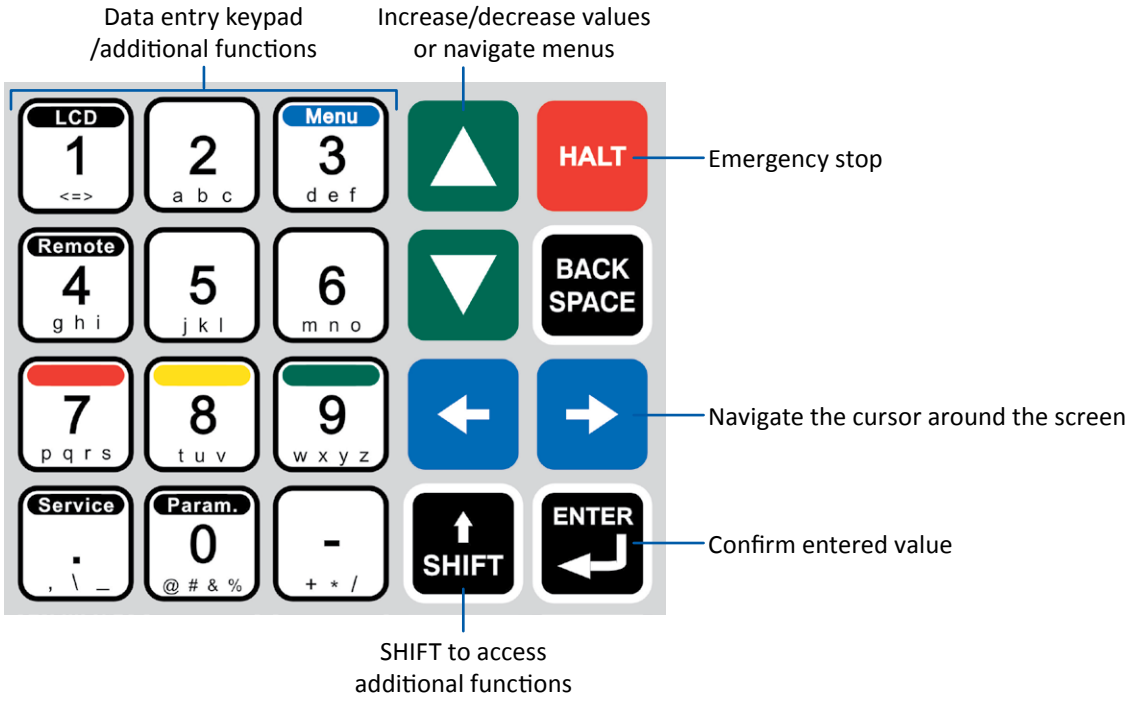
A variety of safety features are included in the design. An automatic safety stop feature is included in case any unexpected condition is detected. In addition to the entered safety limits there are panel mounted and remote STOP buttons that immediately cut off the motors' power supplies. Once pressed, the buttons must be manually reset before operation can continue.



MTG7 Display

A warning light signals when the table is in motion. For use during mounting or unloading the test instrument a bolt is provided to keep the platform locked. An electronic "relative zero" function is provided for any misalignment of the UUT. A counter weight is supplied for use dependant on the UUT weight.

The operation of the MTG7 3 axis Tilt Table is as described above. The unit is supplied with a comprehensive operators manual that covers not only the instructions for local control but also covers driving the assembly from a remote PC via RS232. Each instrument is delivered complete with a calibration and adjustment manual to enable the owner to carry out routine checks throughout the life of the device. DMA also offer full support and, if preferred by the owner, the table can be returned to DMA for servicing and calibration.



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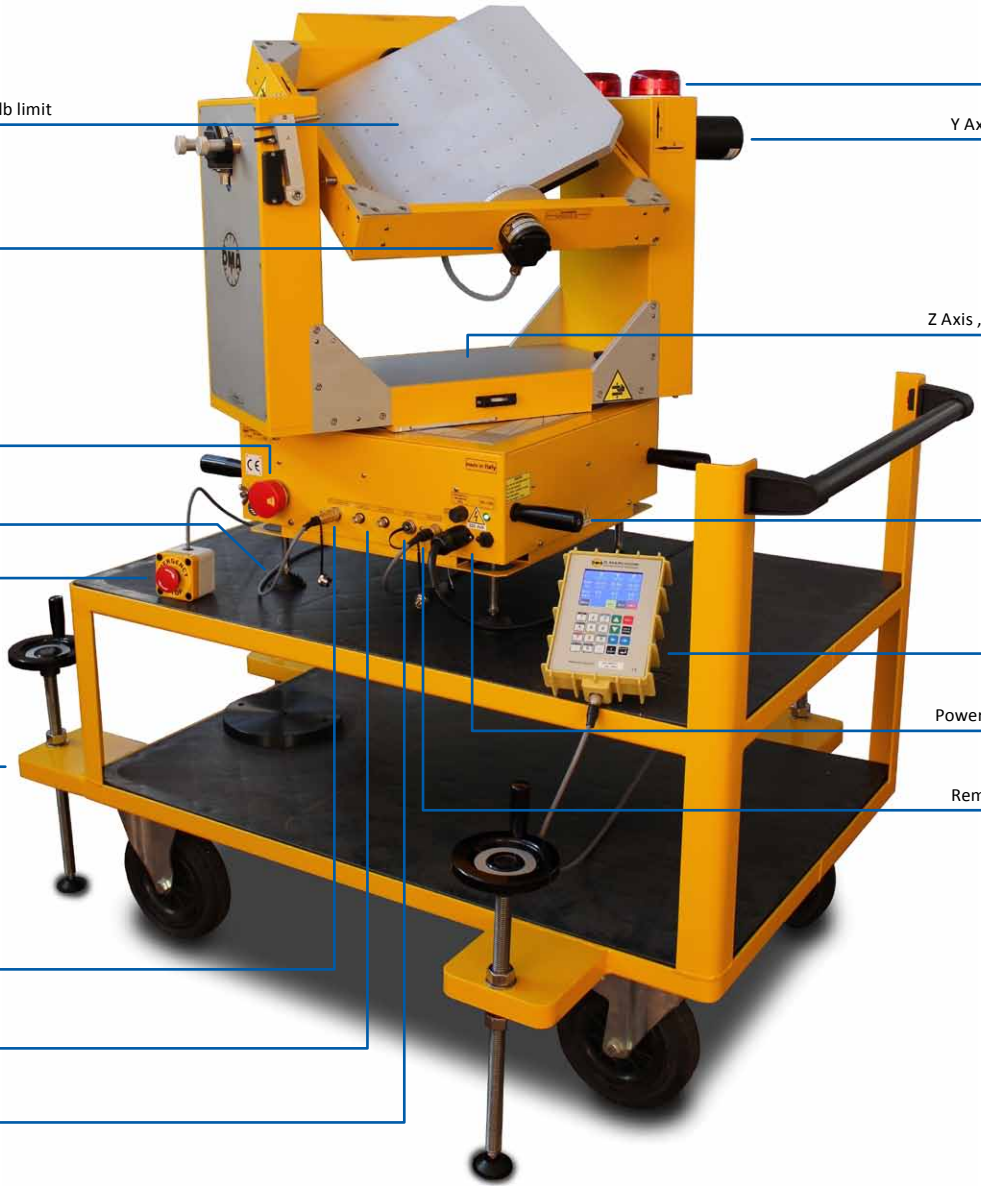
Warning light
3 Axis table, 15.75" x 15.75", 35 lb limit
Y Axis, -90° to 90° rotation
X Axis, -90° to 90° rotation
Z Axis , -360° to 360° rotation
Local stop button
Adjustable feet for levelling
Carry handles
Remote stop button
Remote control
Power connector and switch
Cart (option)
Remote control connector
Remote stop connector
ARINC 429 connectors
PC connector (RS232)

MTG7 Standard Specifications

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RANGE

X angle: from -90° to 90° *
Y angle: from -90° to 90° * ‡
Z angle: from -360° to 360° *
Max angular speed: 20°/s for each axis
Max angular acceleration: 5°/s² for each axis
** Default values set before delivery*
‡ Specified angular travel is available for a centered UUT up to 12.6" x 12.6" x 8.25" high (320 mm x 320 mm x 210 mm high). If the UUT is more than 12.6" x 12.6" the Y axis angular travel will be limited and the height must then not exceed 6.7" (170 mm). For dimensions outside these limits then the angular travel may be limited due, for example, to an odd shaped UUT. Please contact DMA for further information.

ACCURACY AND RESOLUTION

Position accuracy: 0.07°
Position resolution: 0.01°
Rate accuracy: 0.1°/s
Rate resolution: 0.1°/s

INTERFACES

Remote control via RS232, using a simple text-based protocol.

ARINC 429 connection for receiving data from units under test.

LOAD PLANE

Dimension: 15.75" x 15.75" (400 mm x 400 mm)

MAXIMUM LOAD

35 lbs (16 Kg)
Please enquire for higher load.

NOISE LEVEL

Less than 70 dBA.

MEASURE UNITS

The operator can change the default units as required. In addition, if so required, DMA can deliver the Tilt Table with different default units.
Default Units are: degrees (°), degrees/sec, degrees/sec².

The following additional units are available by pressing the appropriate key:

- for angles: radians and revolutions;
- for angular speeds: degrees/min, radians/sec, radians/min, revolutions/min;
- for angular accelerations: radians/sec², revolutions/min².

ENVIRONMENTAL LIMITS

The MTG7 can be safely operated in an ambient temperature ranging from 10°C up to 40°C.

CE compliant.

POWER SUPPLY

90 to 240 VAC and 50 to 400 Hz.

WARRANTY

24 months

PHYSICAL SPECIFICATIONS

The MTG7 features adjustable feet to ensure alignment of the horizontal (x=0°, y=0°) position.

Weight: 180 lbs (82 Kg) with all counter-weights mounted. This value is approximate since the actual figure will be dependant on the counter-weight that is itself dependant on the UUT loads.

Dimensions: H 26.8" (68 cm),
L and W: 34.7" (88 cm) maximum.

OPERATION AND CALIBRATION

Full operating manuals and calibration manuals are provided.

OPTIONS

Cart with adjustable feet for levelling.

ORDERING INFORMATION

Please specify any special requirements, preferred units , limits etc.

UUT details required at the time of ordering;-
1. Weight
2. Dimensions
3. C of G location of test article
4. Screw fixing / attachment layout

Ongoing development results in specifications being subject to change without notice

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