

TRANSIENT TOSION ANALYZER & CONTROLLERS

(Swinging type/programmable)

Application: MTDM series of low time constant transient Torsional analyzers are available in more than 10 different models (10-to1000 kilo watts/ 500 to50, 000 strain) including some tailor made models practically offering readymade solution in measurement, testing /diagnostic of any principal parameter like torque, strain and torque as well as other inferential parameter like rated power/torque capacity, overload power/ torque capacity, efficiency, plotting torque/speed and power/speed curve, desired phase trajectories of any torque transmission device(low/ high strain). These fast responding Torsional analyzers has ability to detect fast variation in engine parameters on account of its ultra low constant due to low mechanical time constant, windage losses,tribological problem, mechanical black-lash/ dead band, and exhibits a repeatable and hysteresis less Torque/Power vs rent characteristics which guarantees accurate identification of parameters during steady state/transient conditions

Operating Principle: These transient. Torsion analyzers can operate in both absorbing mode as well in motoring mode with smooth transition between each mode. While performing in regenerative mode, power is transferred into electricity main. with this type of torsion analyzers an infinitely variable load can be applied at constant speed or set to a constant load with a variable speed. It offers linear/stable torque/speed behaviour, especially at lower speed range with speed holding within +0.1% of full speed. These torsional analyzers can also be used to estimate internal losses in engine while working in motoring mode Torque speed behaviour of torsion analyzers is as under.....

$$w = K1.V/l_f - K2.T/l_f^2$$

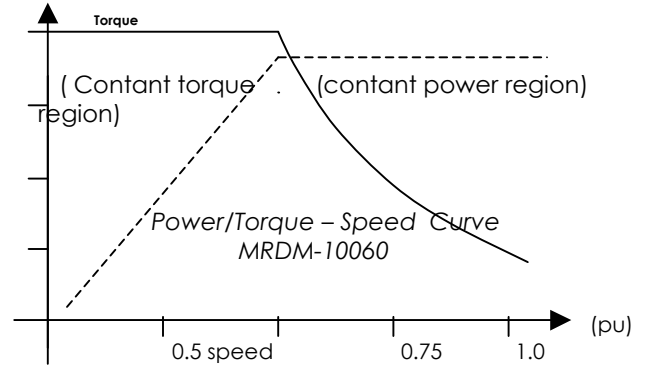
(Maximum torque varies between 0.3 lbs-ft to 1000.0 lbs-ft)
Feedback controlled power supply ensure fine resolution in loading i.e. 0.1% of torque/power at any time, with a very high degree of Stability and repeatability.

Technical specifications of Torsion controller controller:

- Operating Power supply 220 volts/50 Hz
- Excitation current 10-50 amps (max)
- Torque pulsation 50 mili N.m- 1000N.m.
- Strain: as in data sheet
- Conversion frequency of chopper 50 Hz/50 kHz
- Display Power/Torque/Speed (3-1/2 digit)
- Control: cascade control (1.armature speeds/current feed back) 0.25
- Working in constant power/torque
- Repeatability 100 percent
- Response time 0.5 -1.1 mill-seconds
- Accuracy of loading: 100%
- Interface Signal 0.0-12.0 volts D.C. (proportional to power)
- Control range (torque/speed) 0.0-100%
- Step down ratio 0-100%
- Display: Voltage/vurrent/power /RPM over load
- Interface: RS-232

Benefits:

- Simple installation and operational compatibility.
- Consistent performance over large temperature range (80°C)
- Scaled directly in Volt/Ampere with repeatable accuracy.
- Auto zero offsets without drift with ultra high input impedance...
- Facility of programming profile of display in six steps/ RS-232 interface.



Braking Torsion analyzers machine MRDC-20005

Technical specifications and selection chart (MTDM series) TORQUE<2000.0N.m.

Model	Rate Torque (N.m)	Non excited Torque % R.T.	Strain/ Other strain condition	% Angular strain/ Torsion mode	Clearance Between Grips (mm)/ Grips for Round bars (mm)/ Grips for flat bars (mm)
MTI V150003	30,000	0.0	05	Bi-directional/optional	0-10 /10-30/60/75
MTI V150003	15,000	0.0	05	Bi-directional/optional	0-10 /10-20/50/75
MTI V150003	08,000	0.0	05	Bi-directional/optional	0-50 /10-30/60
MTI V150003	04,700	0.0	10	Bi-directional/optional	0-05 /10-30/60
MTI V80005	01,900	0.0	20	Bi-directional/optional	0-05 /10-30/50
MTI V75010	0071	0.0	60	Bi-directional/optional	0-05 /08-25/50
MTI V50015	0031	0.0	60	Bi-directional/optional	0-03 /08-25/40
MTI V25030	0079	0.0	20	Bi-directional/optional	0-03 /06-20/30
MTI V10060	0016	0.0	20	Bi-directional/optional	0-02 /06-20/30
MTI V50120	0081	0.0	20	Bi-directional/optional	0-02 /06-20/20
MTI V20150	0120	0.0	00	Bi-directional/optional	0-01 /04-08/15

Last two numeral after MDCD indicates volt.x100 an remaining numeral indicates power (kilo-watts).Company may develop braking dynamometer on specific requirement

A.C. TRANSIENT DYNAMOMETERS & CONTROLLERS

(Swinging type/programmable)



MDCD010008



MDCD030008

Technical specifications and selection chart (MDCD series) P<2000.0 kilowatts

Model	Power (k.W.)	Rated volt AC/DC (V _r m/c)	Non excited load %	Amperes AC/DC	Cooling Water/Air	Thermal rise °C (in hour)
MD :D150010	150 .0	000	0.0	500.0	Liquid	5
MD :D100010	100 .0	000	0.0	300.0	Liquid	5
MD :D075008	750 .0	50.0	0.0	300.0	Air	5
MD :D060008	600 .0	400/800	0.0	150.0/750.0	Air	5
MD :D030008	300 .0	400/800	0.0	750.0/375.0	Air	5
MD :D010008	100 .0	400/800	0.0	250.0/125.0	Air	5
MD :D005004	50.0	400	0.0	25.0	Air	5
MD :D002004	20.0	400	0.0	50.0	Air	5
MD :D001002	10.0	200	0.0	50.0	Air	5
MD :D000502	5.0	200	0.0	25.0	Air	5
MD :D000202	2.0	100/200	0.0	20.0/10.0	Air	5
MD :D000102	1.0	100/200	0.0	10.0/5.0	Air	5
MD :D000101	0.5	100/20/50	0.0	5.0/25/10	Air	5

Last two numeral after MDCD indicates volt.x100 and remaining numeral indicates power (kilo-watts).Company may develop electronic load tester on specific requirement.

MOTORON SEMICONDUCTORS CORPORATION

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A.C. TRANSIENT TORSIONAL ANALYZERS & CONTROLLERS

Introduction: MLCTC series of precision piezo/capacitive/inductive based column type torque sensors are available in (0.1 to 1000,000 kg), more than 20 different models virtually offering solution to torque measurement related to organic/inorganic chemical, heavy electrical/mechanical industries, machine tools, non-conventional energy, solids state physics application and many uncountable defense/nuclear applications. Here strain gauge torque sensors convert the load acting on them into electrical signals. The gauges themselves are bonded onto a beam or structural member that deforms when weight is applied. In most cases, four strain gauges are used to obtain maximum sensitivity and temperature compensation. Two of the gauges are usually in tension, and two in compression, and are wired with compensation adjustments. When weight is applied, the strain changes the electrical resistance of the gauges in proportion to the load. Other torque sensors are fading into obscurity, as strain gauge torque sensors continue to increase their accuracy and lower their unit costs. Careful selection design topology ensures better controllability and reliability with additional integrated power/voltage and control/protection. Company offers tailor made solution to custom requirement.

Benefits:

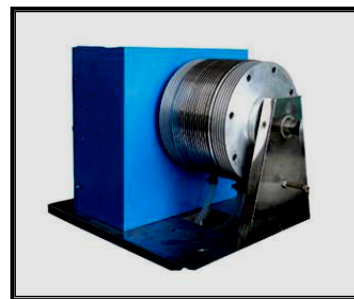
- Simple installation and operational compatibility.
- Consistent performance over large temperature range (80°C)
- Scaled directly in Volt/Ampere with repeatable accuracy.
- Auto zero offset without drift with ultra high input impedance...
- Facility of programming profile of display in six steps/ RS-232 interface.
- All standards din sizes and custom sizes.



MSLC- 00020



MSLC- 00500



MSLC-00100

MODEL	Capacity [kg.m]	I.D.1 [mm]	I.D.2 [mm]	Length [mm]	Weight [kg]	connector	Record point	Metal
MSLC-00020	000C 5-000C 0	063.	025	07.0	2.6	option	RDB-1	A.S.
MSLC-00100	000C 0-001C 0	075.	025	07.0	3.2	option	RDB-2	A.S.
MSLC-00500	002C -005C 0	080.	060	07.0	4.6	option	RDB-3	A.S.
MSLC-01500	007C -015C 0	140.	065	07.0	5.6	option	RDB-4	A.S.
MSLC-05000	002C 0-005C 00	160.	065	07.0	7.8	option	RDB-4	A.S.

Electrical/Mechanical specifications of Torque sensor

Torque<0.050 to 50000.0 K.g.m

General specification of signal conditioner/monitor:

Operating voltage 220 volts/110volts A.C or 12 volts D.C.
 Excitation current 0.0- 12 VOLTS/500 ma
 Regulation better than 0.5 % of measurement
 Accuracy 99.5% of set point
 Repeatability 100 percent
 Response time 0.05 –10.0 sec
 Interface Signal 0.0-20.0 m.volts D.C. (proportional to force)
 Step down ratio 1:100000
 Display : 3/4/5/6 digit LED/LCDPM/Torque in 3½ & 4½ digit red glow LED/LCD display
 Protection: Over/under voltage & with power on Indication

General specification of Torque sensor:

Capacity: 1, 5 20,50,100,200,1000,2000,3000,5000 and upto 900,000 Kg.m.
 Rated o/p: 3 mv/V
 Non linearity: 0.03%
 Hysteresis: 0.03%
 Creep error: 0, 02%
 Zero balance: 0.03%00
 Compensated temp. Range: -20-80 °C .
 Operating temperature:-20-80 °C
 TCR: less than 0.1%
 Protection class: IP65

Five numerals x 10 after MSLC indicate power of load cell .Torque sensor with tailor specs are also available.Company offer tailor made software solution.

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