

Technologies for the future

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YOU NEED**



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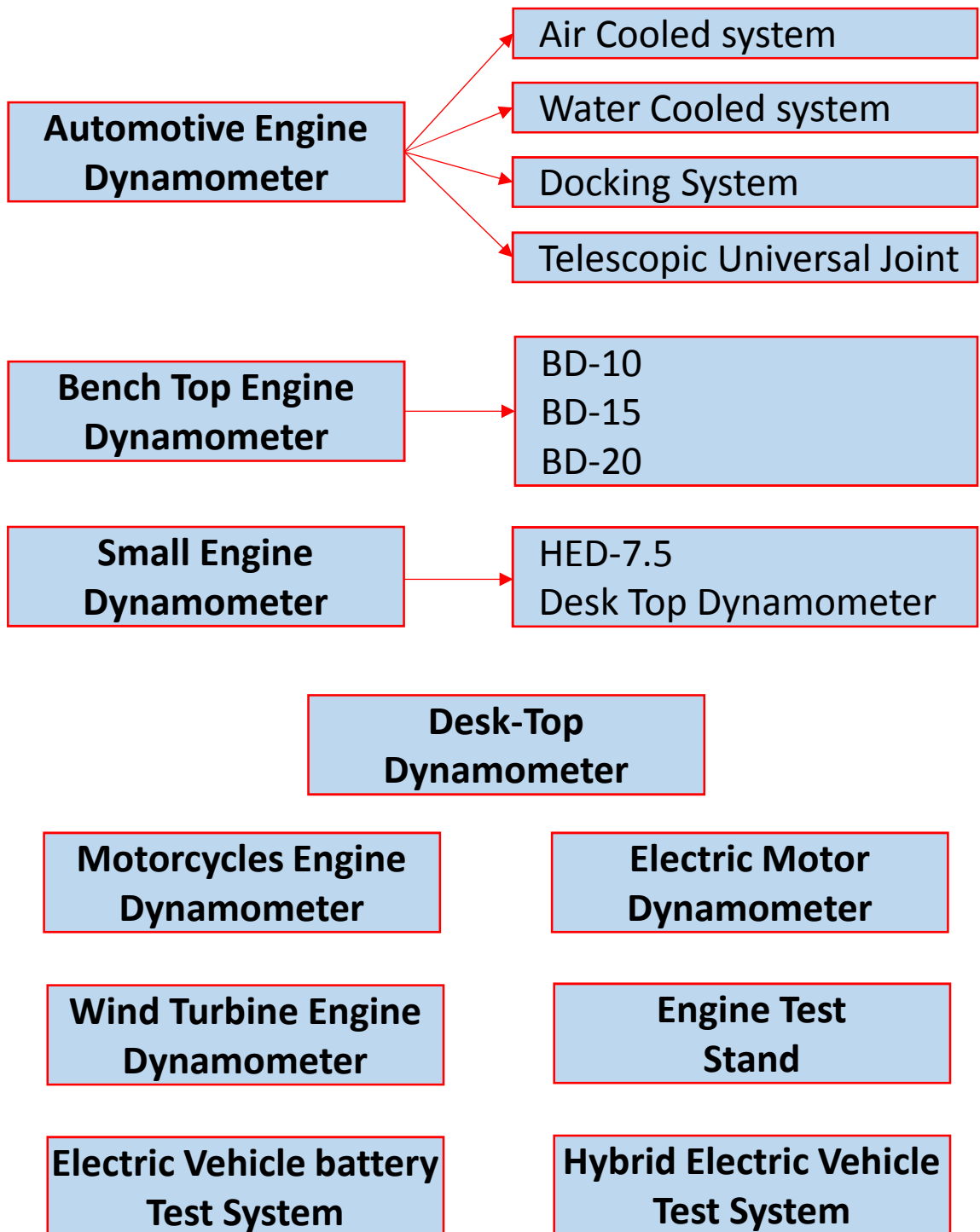
Lot 463 Jalan Relau K143, Sungai Kechil Iiir

Nibong Tebal 14300 Penang, M'sia

Tel : +60 11-16322699

RV5-2020

ENGINE DYNAMOMETER SYSTEM



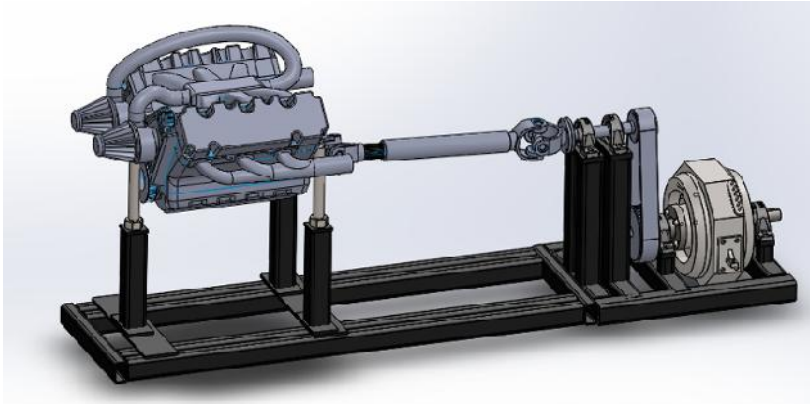
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AUTOMOTIVE ENGINE DYNAMOMETER



Model AED-300

This heavy duty engine dynamometer can extract 300kW of mechanical power from automotive engines, including cars and trucks. Its heavy-duty frame and universal engine coupling shaft are ideal for high torque applications. The air-cooled eddy current dynamometer requires no external cooling lines, and is easy to install and use, giving years of trouble free service. The sophisticated controller can operate the dynamometer from the front panel or from a computer via the remote mode. Control modes include Manual Load, Speed, Torque and Road Load control. The dynamometer can hold the vehicle under test at a given speed for tuning, or fuel consumption measurements, or mimic actual road load conditions. Drive cycle software is included allowing vehicles to be tested on any drive cycle required. Additional inputs are included for Data Acquisition, display and logging. With optional throttle servo motor the dynamometer can run fully automated test cycles.

FEATURES

- 300kW (400hp) mechanical power absorption
- 600Nm Torque from 500 to 6000 rpm
- Heavy-Duty Universal Joint Coupler
- 5th Generation controller included
- Integrated DAQ Input Channels for Logging
- Engine Jacks for easy adjustments
- Free computer software for Graphic Display
- 1 Year Warranty Included



Our systems are 100% Made in Malaysia
We have local technical support, straight from the factory

For continuous duty testing
we also have Water Cooled
Eddy Current Dynos!



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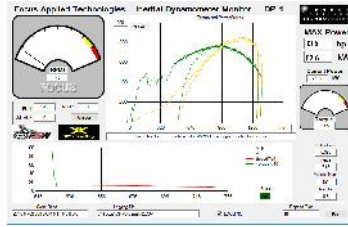
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AUTOMOTIVE ENGINE DYNAMOMETER

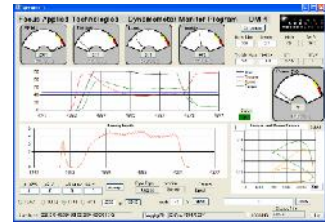
Model AED-300



Typical Application



"Power Pull"



R&D Screen Shot

SPECIFICATIONS

PHYSICAL

Weight: 450kg (approx)
LxWxH: 240 x 60 x 65 cm

MAINS POWER

Voltage: 120/240VAC
Frequency: 50/60Hz
Current Draw: 30/15A max

CONTROLLER OUTPUT

Controller Power: 3.5kW (100V, 35A)
Coms: 9600 baud, 8bit, NP

DYNO

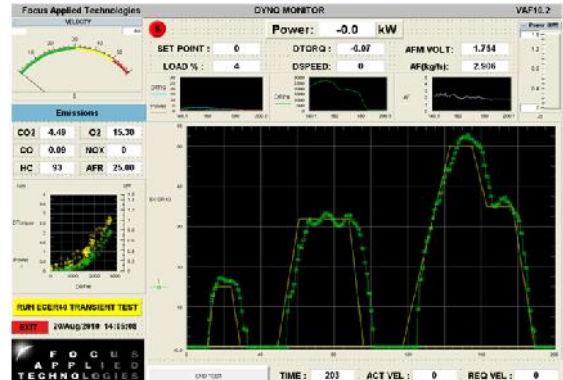
Mechanical Power: 400hp max
Torque: 600Nm max
Speed: Hall Effect, 5V excitation
30 pulse per revolution
3,500 rpm, 200kph

maximum
Load Cell: 1000Nm, 200 to 500 ohm
4-wire Wheatstone bridge
5 or 10V excitation

ENVIRONMENTAL

Temp: 10 to 40° C Operational
0 to 50° C Non-Operational
Humidity: 5 to 90% Non-condensing
Shock/Vibe: <10g

The Automotive Engine Dynamometer is used for testing engines, measuring torque, power, fuel consumption and emissions at various loads. It is extensively used by R&D organizations for tuning engines, as it can hold the engine at a constant load or speed, for long periods of time. The Air-Cooled Eddy Current Dynamometer requires no water lines or external cooling tower, making it easy to install and relocate.



OPTIONS

- High-volume, low noise blower and stand
- Wide Band O2 (AFR) sensor
- Digital Fuel Scale
- 5-Gas Analyzer
- Combustion Analysis System
- Servo Throttle Motor and Controller



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BENCH DYNAMOMETER

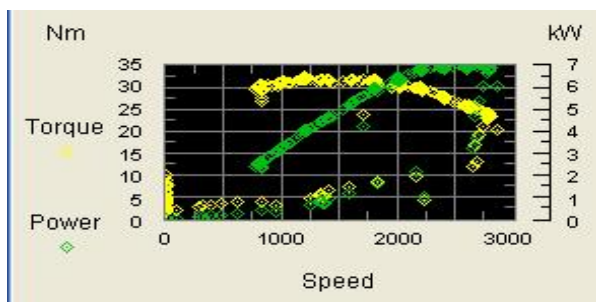
Model BD-10



Available in 10Kw – 100Kw

This Student Benchtop Dynamometer System consists of a dynamometer frame incorporating the electric motor/Diesel/Gasoline engine, inertial wheel, a load dynamometer and associated sensors & data acquisition system. It is designed for performance testing of the electric motor regenerative braking performance. The inertial wheel is mounted on the shaft using taper lock device for easy dismantling and change/add another inertia wheel (purchased optionally) to match different motor power.

Features of heavy duty frame, integrated torque and speed measurements, and a universal dynamometer controller for control, display and recording of information via a computer interface. Our generator type dynamometer does not require water circulation, and the electrical dump load may be mounted remotely. Various power sources and coupling options are available.



Laboratory Exercise Manual Included with Labs, Quizzes and sample data



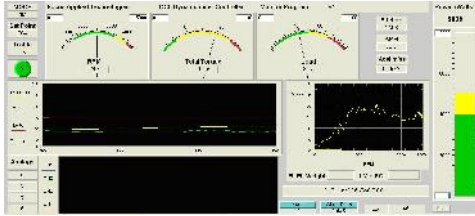
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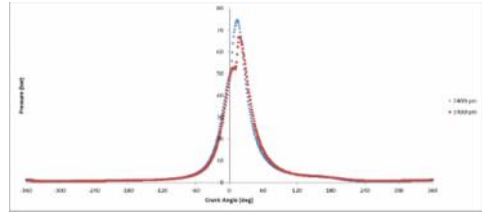
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BENCH DYNAMOMETER



Torque Screenshot



Cylinder pressure vs crank angle

SPECIFICATIONS

PHYSICAL

Weight:: Approx 65kg (without engine)
LxWxH: 1200 x 490 x 400 mm

POWER IN

Voltage: 220VAC +/- 10%
Frequency: 50Hz
Current Draw: 4A max

CONTROLLER OUTPUT

Resistance : 10 ohms Min
Power : 300W Max
Voltage : 50V Nominal
Current : 5A Max

DYNO

Mechanical Power: 10,000W Max
Voltage Output : 400V Max
Current : 10A Max

INPUTS

Speed Input : Variable Reluctance type input
1 to 60 pulse per revolution
10V pk-pk Max
60 to 10,000 rpm (typical)
Strain : 200 to 500 ohm
4 wire Wheatstone bridge
5 or 10V Excitation

ENVIRONMENTAL

Temp: 10 to 40° C Operational
0 to 50° C Non-Operational
Humidity: 5 to 90% Non-condensing
Shock/Vibe: <10g

The Bench-Top system is widely used by student laboratories in Universities and Polytechnics and for Research and Development. Laboratory exercises are available, including sample data, physical explanations and quiz questions and answers.

2.2 Closed Loop Speed Control

PURPOSE

The purpose of this experiment is to:

PROCEDURE

1. Power on the bench dynamometer.
2. Adjust the speed setpoint to 3000 rpm.
3. Start the engine.
4. Allow the engine to reach a steady state.
5. Increase the speed setpoint to 4000 rpm.
6. Record the engine speed.
7. Repeat the procedure for 5000 rpm and 6000 rpm.
8. Record the engine speed.
9. Increase the speed setpoint to 7000 rpm.
10. Record the engine speed.
11. Repeat the procedure for 8000 rpm and 9000 rpm.
12. Record the engine speed.
13. Shut down the engine.
14. Shut down the bench dynamometer.
15. Plot the data.

DISCUSSION

Speed Control Mode: This mode is used to control the engine speed. The engine speed is controlled by the speed setpoint. The engine speed is controlled by the speed setpoint. The engine speed is controlled by the speed setpoint.

QUESTIONS

Based on your data and observations answer the following questions:

1. What was the initial torque reading?
2. How did the torque change when the speed setpoint was increased?
3. What was the maximum torque reading?
4. How did the torque change when the speed setpoint was decreased?
5. What was the minimum torque reading?
6. How did the torque change when the speed setpoint was increased again?
7. What was the maximum torque reading?
8. How did the torque change when the speed setpoint was decreased again?
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97. What was the minimum torque reading?
98. How did the torque change when the speed setpoint was increased again?
99. What was the maximum torque reading?
100. How did the torque change when the speed setpoint was decreased again?

OPTIONS

- Throttle Controller
- Fuel Scale
- Gasoline / Diesel Engine
- Blower / Fan
- Electric Motor
- Combustion Analysis
- Inertial
- Wide Band O2 Display (AFR)
- Gas Emission Analyzer



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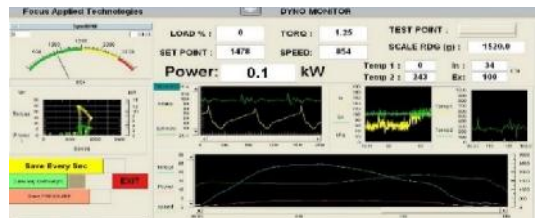
DESKTOP DYNAMOMETER



This "Desk Top" Dynamometer is a complete eddy current dynamometer system designed for use in student teaching laboratories. It can be provided with a Honda GX35 4-stroke engine, AC or DC electric motors. The air-cooled eddy current dynamometer requires no external cooling lines, and is easy to install and use. The sophisticated controller can operate the dynamometer from the front panel or from a computer via the remote mode. Control modes include Manual Load, Speed, Torque and Road Load control. Software provided allows logging of speed, torque and load and additional inputs can be used for measuring engine temps and fuel flow, or motor voltage and current. A throttle position controller is included which outputs an analog Throttle Position command. Student laboratory exercises and teaching material are included.

FEATURES

- ICE Dynamometer weighs only 17kg
- 2kW mechanical power absorption
- ICE, AC and DC motors available
- Motors/Engine can be quickly changed
- 5th Generation controller included
- Integrated DAQ Input Channels for Logging
- Power is Circuit Breaker Protected
- Free computer software for Graphic Display
- 1 Year Warranty Included



Laboratory Exercise Manual Included with Labs, Quizzes and sample data



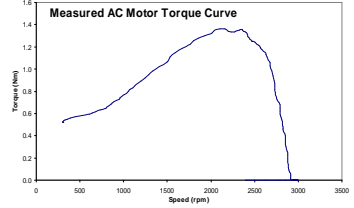
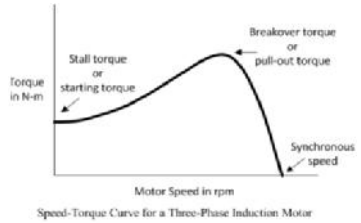
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DESKTOP DYNAMOMETER



AC Motor Dynamometer Theoretical and measured AC Induction Motor Torque Curves

SPECIFICATIONS

PHYSICAL

Weight: 13, 14, 17kg (DC, AC, ICE)
LxWxH: 500 x 160 x 170 mm

MAINS POWER

Voltage: 120/240VAC
Frequency: 50/60Hz
Current Draw: 4A max

CONTROLLER OUTPUT

Controller Power: 200W (50V. 3A)

DYNO

Mechanical Power: 2kW max
Disk: 200mm diam., 6mm thick
Speed: Hall Effect type, 5V excitation

4 pulse per revolution
5V Zero-peak
10,000 rpm maximum
Load Cell: 20Nm, 200 to 500 ohm
4-wire Wheatstone bridge
5 or 10V excitation
Baud, Bits, Parity, Stop:
9600, 8, N, 1

ENVIRONMENTAL

Temp: 10 to 40° C Operational
0 to 50° C Non-Operational
Humidity: 5 to 90% Non-condensing
Shock/Vibe: <10g

The Desktop Dynamometer is widely used by student laboratories in Universities and Polytechnics. It comes with an extensive library of Laboratory exercises, including sample data, physical explanations and quiz questions and answers.



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ELECTRIC MOTOR DYNAMOMETER

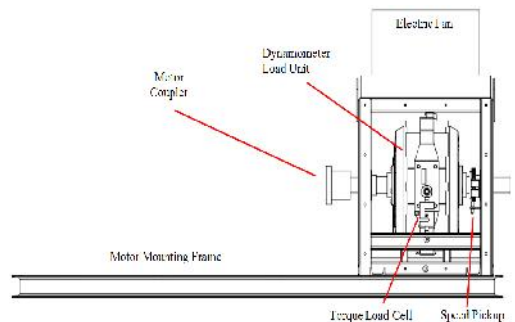
EMD-100



This Electric Motor Dynamometer is capable of extracting over 400Nm at 3000rpm, for a power over 100kW. It is used to measure motor performance, torque and efficiency (with optional current clamp meter and voltage probe). Other common usages are for incoming or re-worked motor checking and burn in including bearing slip check, overheating, vibrations and brush arcing. The air-cooled eddy current dynamometer requires no external cooling lines, and is easy to install and use. The sophisticated controller can operate the dynamometer from the front panel or from a computer via the remote mode. Control modes include Manual Load, Speed, Torque and Pump Load control. The dynamometer can hold the motor under test at a given speed, or torque, or mimic actual load conditions. A throttle controller is included which outputs an analog voltage for controlling motor excitation voltage. Additional inputs are included for Data Acquisition, display and logging.

Features

- 100kW (133hp) mechanical power absorption
- Over 250Nm from 500 rpm
- 4000 rpm top speed
- 5th Generation controller included
- Integrated DAQ Input Channels for Logging
- Free computer software for Graphic Display
- 1 Year Warranty Included



Laboratory Exercise Manual Included with Labs, Quizzes and sample data



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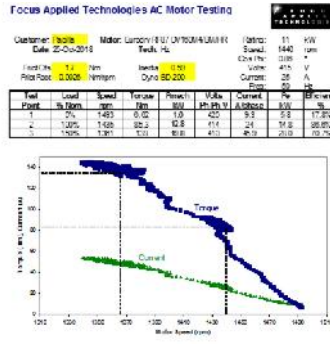
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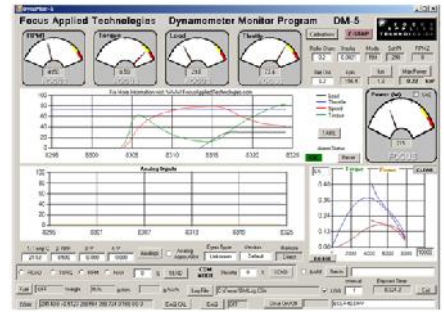
ELECTRIC MOTOR DYNAMOMETER



11kW Motor on test



50% Over Torque Certification



R&D Screen Shot

SPECIFICATIONS

PHYSICAL

Weight: 350kg (approx)
LxWxH: 55 x 60 x 60 cm

MAINS POWER

Voltage: 120/240VAC
Frequency: 50/60Hz
Current Draw: 30/15A max

CONTROLLER OUTPUT

Controller Power: 3000W
Coms: 9600 baud, 8bit, NP

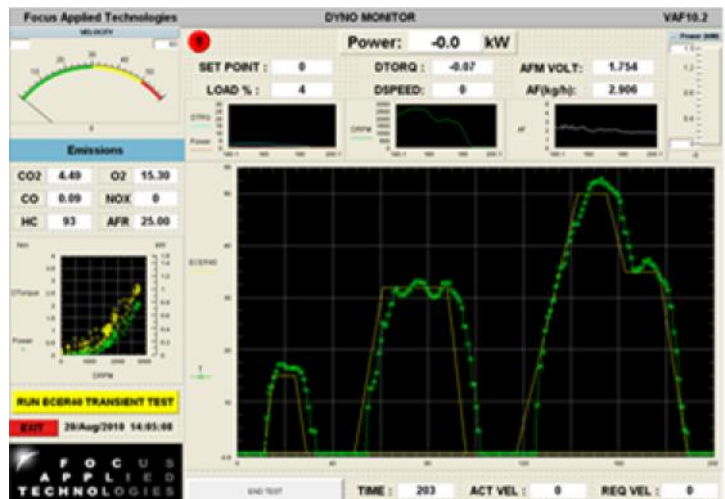
DYNO

Mechanical Power: 120kW max
Torque: 400Nm max
Speed: Hall Effect, 5V excitation
30 pulse per revolution
4,500 rpm maximum
Load Cell: 1250Nm, 200 to 500 ohm
4-wire Wheatstone bridge
5 or 10V excitation

ENVIRONMENTAL

Temp: 10 to 40°C Operational
0 to 50°C Non-Operational
Humidity: 5 to 90% Non-condensing
Shock/Vibe: <10g

The Electric Motor Dyno is widely used by winding shops to prove power output, burn in new brushes and coils, certify over torque, check for bearing slip, brush arcing and vibrations before placing motors back on line. It is also extensively used by organizations trying to optimize their electrical power consumption as it can hold the motor at a constant load or speed while measuring efficiency. Pump load mode can simulate process performance for usage cycle testing, including energy efficiency and temperature testing



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ENGINE TEST STAND

Model AETS-1



Frame only 40kg, 1400 x 700 x 1300mm height

This Engine Test Stand is designed to allow maintenance of an automotive engine, rotation of the engine to an inverted position, as well as no-load operation of the engine. The minimum required ancillary hardware for starting the engine are provided on a basic frame.

Frame on heavy-duty wheels for easy relocation, movement of engine.

Ancillary equipment included on frame:

- Radiator Bypass Hose and pressure release valve or small Radiator
- Fuel tank and Pump
- Battery
- Instrument Panel (from target engine/Vehicle)
- Key Switch
- Original manual of Operation, Installation, Servicing and Maintenance, wiring diagrams and Calibration procedures

ENGINE TEST STAND



Model AETS-2

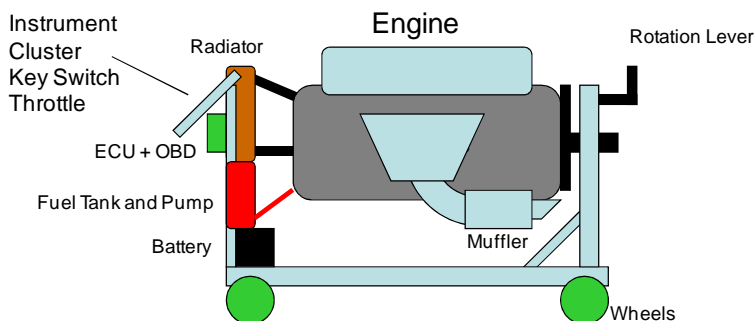
Frame only 50kg, 1400 x 700 x 1300mm height

This Engine Test Stand is designed to allow maintenance of an automotive engine, rotation of the engine to an inverted position, as well as no-load operation of the engine. All the required ancillary hardware for running the engine are provided on a reinforced frame. A "Quick-disconnect" connection will be added to the engine's wiring harness for facilitation of maintenance of the engine

Frame on heavy-duty wheels for easy relocation, movement of engine.

Ancillary equipment included on frame:

- Radiator
- Fuel tank and Pump
- Battery
- Muffler
- Throttle Control Lever
- Instrument Panel (from target engine/Vehicle)
- Key Switch
- Original manual of Operation, Installation, Servicing and Maintenance, wiring diagrams and Calibration procedures



WIND TURBINE DYNAMOMETER



Our Wind Turbine Dynamometer series can either load the turbine directly (Turbine Dyno) or load the generator (Generator Dyno). Either system can be used to load the turbine, and measure the mechanical power. The generator dyno can (with optional current clamp meter and voltage probe) also measure the generators output, and thus the generator efficiency (electrical power output divided by mechanical power input). Turbine loading is accomplished by coupling the turbine to an air cooled eddy current dynamometer matching the turbines characteristics. Generator loading is accomplished by applying a controllable electrical load to the generators output. Varying the load allows measurement of the turbines coefficient of performance (C_p) at various Tip-Speed Ratios (TSR). With variations in wind speed this allows complete characterization of the turbine.

SPECIFICATIONS

DYNAMOMETER

Resistive dump load: 4x25ohm, 25W each

SENSORS AND DAQ POWER IN

Voltage: 12 VDC +/- 10%

INPUTS

Speed Input: Variable Reluctance type input

50V pk-pk maximum

30 to 10,000 rpm (typical)

Torque: 0-4.3V differential inputs

Voltage: DC 0-55V maximum

Current: -1A to 1A maximum

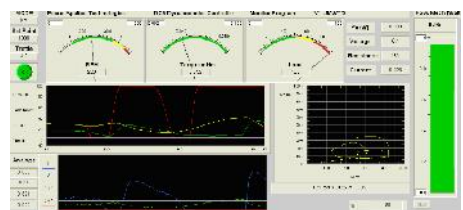
ENVIRONMENT

Temperature: 10 to 45°C Operational

0 to 50°C Non-Operational

Humidity: 5 to 90% Non-condensing

Shock/Vibe: <10g



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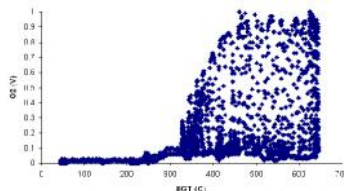
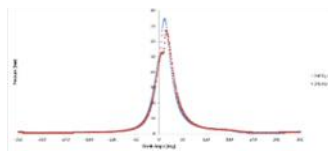
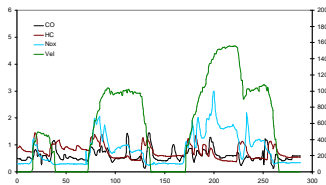
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CUSTOM DESIGN

Need to track or measure something in your process, on a moving vehicle or in the field? Let us help you with our custom instrumentation systems development. We have years of experience in tracking vehicles (cars, boats, UAV's) with GPS, cell com interpolation, altitude, velocity and attitude, as well as more mundane thing like temperature, and shock and vibe. We have stand along environmental monitoring systems with integrated solar power for long term remote measurements. Data can be retrieved from an SD card, computer link, via SMS or even 4G data link. We've instrumented every thing from buses to jets to UAVs and off-shore power generation systems, so we're sure we can help you with your instrumentation needs



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DYNAMOMETER CONTROLLERS

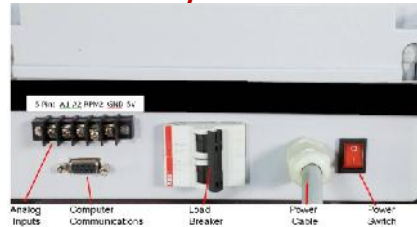
DC5-RM



DC5-MB



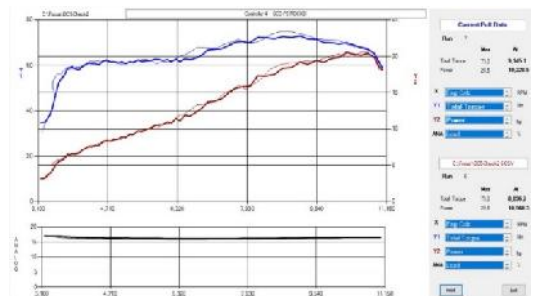
DC4/DC4-I



Along with our extensive line of dynamometers Focus also produces Dynamometer Controllers for use in other manufacturers dynamometers, or for upgrading older systems. Dyno Controller 5 come in a Rack mount (DC5-R) and a bench top (DC5-M) black anodized case with front panel controls and display for Research and Development or Educational systems. The lower cost systems use the same controller embedded (DC4) in the frame of the dynamometer, operating in Computer Control mode. Both controllers can use the same software, and DC4 systems can be upgraded to DC5 controllers at any time. For inertia only dynamometers, we also offer the DC4-I without the retarder power supply.

FEATURES

- Loading: 200V, 15A output
- Inertial and Frictional Compensation
- Universal: Can be used on any dyno
- Suitable for motorcycle from 50 to 1500 cc
- Speeds over 200kph at wheel
- Throttle Command for Automated Testing
- Includes Analog Input Channels for Logging
- Free computer software for Graphic Display
- 1 Year Warranty Included



Our systems are 100% Made in Malaysia
We have local technical support, straight from the factory



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Nibong Tebal 14300 Penang

Tel : +60 116322699

STANDARD SPECIFICATION ENGINE DYNAMOMETER

Focus Applied Technologies

Engine Dynamometer Specifications

REV: 1-17

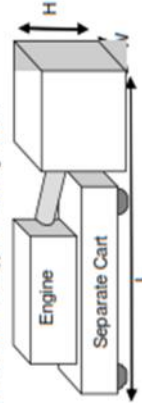
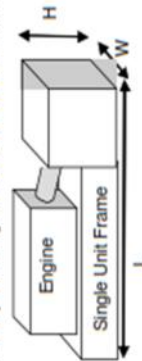
Dynamometer:	Units	BENCH UNITS										Automotive															
		BD-10	BD-15	BD-50	BD-100	AED-100	AED-200	AED-500	WED-100	WED-200	WED-500	HED-100	BED-1000	BD-10	BD-15	BD-50	BD-100	AED-100	AED-200	AED-500	WED-100	WED-200	WED-500	HED-100	BED-1000		
Maximum Power	kW	10	15	50	100	100	200	500	100	200	500	100	200	500	100	200	500	100	200	500	100	200	500	100	200	500	1000
Nominal Max Torque	Nm	12.5	40	135	400	400	600	1200	400	600	1200	400	600	1200	400	600	1200	400	600	1200	400	600	1200	400	600	2400	
Maximum Continuous Speed	rpm	5000	2600	5000	4000	4000	7000	7000	7000	7000	7000	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	6000	5000	8000	8000	
Load Unit	Type	Gen	Gen	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	ACEC	WCEC	WCEC	WCEC	HP	WB	
External/Cooling Required	Y/N	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	
Gear Ratio (Engine/Dyno)		1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	
Power Required	V	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	
Power Required	A	2	3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
Power to Dyno	V	100	75	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Power to Dyno	A	4	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Single Unit Dimensions L	mm	1200	1400	1200	1400	2300	2300	2500	2300	2300	2500	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2500	2000	2000	2000	
W	mm	490	530	530	530	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	
H	mm	400	440	440	440	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	
Weight	kg	65	70	80	130	290	310	340	310	310	340	310	310	310	310	310	310	310	310	310	310	310	350	200	210	210	
Separate Engine Cart	Dims L					2400	2400	2600	2400	2400	2600	2400	2400	2600	2400	2400	2600	2400	2400	2600	2400	2400	2600	2100	2100	2100	
W	mm					600	600	700	600	600	700	600	600	700	600	600	700	600	600	700	600	600	700	600	600	600	
H	mm					850	850	950	850	850	950	850	850	950	850	850	950	850	850	950	850	850	900	850	850		
Weight	kg					310	330	360	330	330	360	330	330	360	330	330	360	330	330	360	330	330	370	220	230		

Load Types:

Generator
Air Cooled Eddy Current
Water Cooled Eddy Current
Hydraulic Pump
Water Break

Gen
ACEC
WCEC
HP
WB

Specifications subject to change without notice. For latest information please contact us at www.FocusAppliedTechnologies.com



OPTIONAL EQUIPMENT

Along with our standard dynamometers and controllers we also feature a large array of optional equipment popular with our customers, and available separately from the dynamometers.

Wide Band O2 Sensor and Display (AFR Meter)

We distribute Innovative Motor Sports AFR meters. These seamlessly integrate into our existing dynamometer controllers for the easiest possible tuning of both carbureted and fuel injected engines. We even have them mounted in a box which includes a pump for tail-pipe AFR testing!

AFR-1



Engine Speed Clamp

You need to know the engine's actual speed during testing. With our Engine Speed Clamp, just clip it on any synchronous signal (injector control current, Spark control current) and you get an instant engine speed measurement. You can plot engine torque vs engine speed without needing to use the gear ratio. A must for CVT and automatic transmissions.

SC-1



Engine Cooling Fans

To remove heat from the engine during dyno runs, we have a variety of high-flow cooling fans. For motorcycles we recommend 1000 CFM air flow, and 5000 CFM for cars, or 10,000 CFM for trucks and busses.

ECF-1/5/10



Dyno Side Table with Monitor Stand

Having trouble reaching your laptop? Need a place to store your tools? Want to see your torque curve on a big screen? Try our dyno side stand, designed especially for use with our MCD-ACD dyno series. It includes a heavy duty frame on rollers, powder coated paint, 3 shelves (including a removable tool bin) and an adjustable monitor stand.

FSS-M/A



Integrated Weather Station

When compensating for atmospheric pressure, altitude or temperature variations it is important to have accurate Temperature, Pressure and Humidity numbers. These can be automatically read from Integrated Weather. This automatically updates the Temperature and Pressure of the test, and SAE correction factor is calculated and applied.

WS-1

Power Correction Factors:	<input checked="" type="checkbox"/> AUTO Data
Ambient Temp (15-35 C)	25
Pressure (90-105 kPa)	105
% Rel. Humidity	50



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OPTIONAL EQUIPMENT

Current Clamp Meter

Available in many different current ranges this is used in diagnosing vehicle electrical power issues, electric and hybrid vehicle systems. Currents from <10A to over 1000A are available

CCM-60/600



Hand Held Remote

For remote actuation of Load, Break and List/Break or Pneumatic Clamp, you only need the Dynamometer Remote Control hand held unit. This can be used for starting tests, and incorporated into a number of automated test sequences.

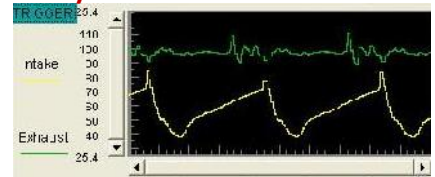
DRC-3



Intake and Exhaust Pressure Sensors

Serious tuners know that intake and exhaust flow is key to getting the most out of an engine. Instead of guessing, you can measure the intake and exhaust pressures and actually see how the air/exhaust flow is effected by the intake and exhaust system design.

MP-1/2



OBD Scanner

To simultaneously read from the vehicles On Board Diagnostics, you can use our OBD-Scanner. This integrates seamlessly with out dynamometer controllers, and allows you to view and save the OBD data.

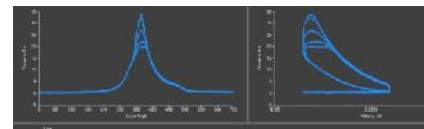
OBD-S/I



Combustion Analysis

If you really want to know what's happening in the combustion chamber, you really need our Combustion Analysis system. This includes a combustion pressure sensor, high-precision shaft encoder, and high-speed DAQ to see the actual pressure in the combustion chamber during engine operation.

CAS



SENSORS

We offer w wide range of sensors to help you tune your engine quickly and safely. These can be read via the dynamometers Analog Inputs, or extended DAQ module. Sensors include: Thermocouple, Thermistor, Mass Air Flow, Exhaust Gas Temperature, Knock Sensor and many more.



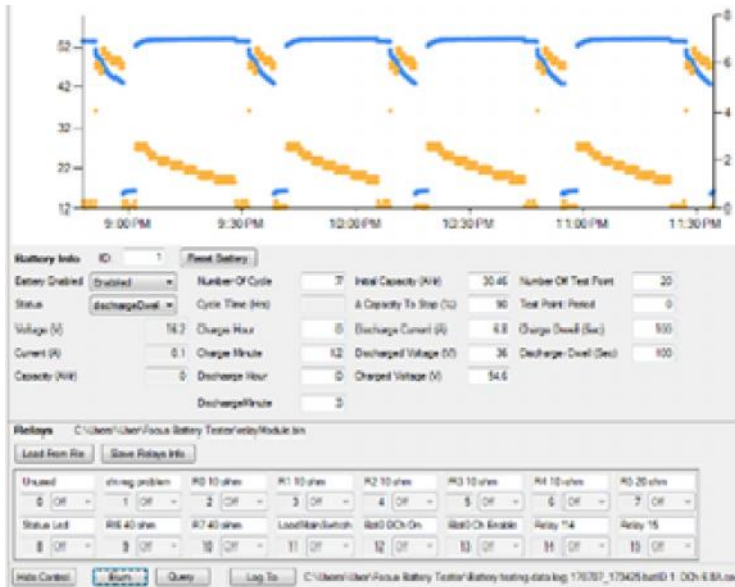
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ELECTRIC VEHICLE BATTERY TEST SYSTEM



This Battery Life Cycle Tester allows testing of Electric Vehicle Batteries of up to 300A and 300V. Tests can be constant current, or drive-cycle current profiles. Batteries are discharged to the large air-cooled resistor bank until the BMS shuts down, or the battery reaches its designated stop voltage. Battery capacity is calculated continuously. The battery pack is then recharged with the product's native battery charger, including proper charging every time. Charging is cycled by stand-alone controller, which continues even after line power interruptions. Data can be logged for analysis, and displayed, or the system can be operated "stand alone" with out a computer present. Accelerated battery testing can also be done, allowing faster testing with the appropriate acceleration factors. The system allows pre-set life pass/fail limits, and Charge Capacity measurement. The single load unit can operate up to 3 separate battery packs simultaneously (one loading while other two are in charging modes).

FEATURES:

- Continuous currents of up to 150A
- Voltage of up to 300V
- 200mA Current Control Resolution
- Automated Tester operates "Stand Alone"
- Automatically continues after power glitch
- Free computer software for Graphic Display
- 1 Year Warranty Included



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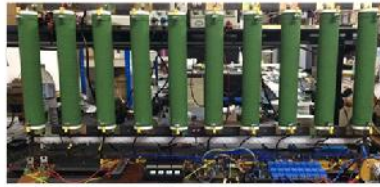
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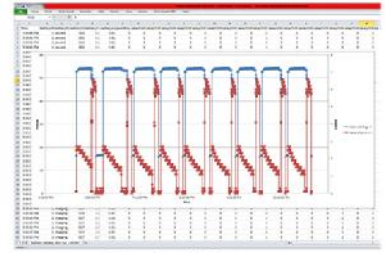
ELECTRIC VEHIUCE BATTERY TEST SYSTEM



Load Cabinet



Exposed Load Resistors



Typical Data

SPECIFICATIONS

PHYSICAL

Weight: 60kg (approx)
LxWxH: 130 x 95 x 40 cm

BATTERY TESTING

Current 0 to 300A
Voltage 10 to 250V
Temperature 0 to 200C
Cycles Unlimited
End Of Test
Fixed # of cycles
Battery Capacity
Discharge Time
Battery Temperature

LOAD BANK

Air Cooled
Digitally Controlled to +/-0.2A

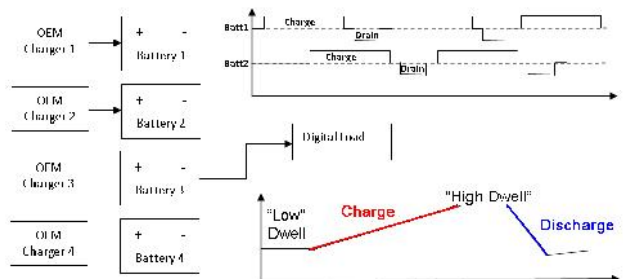
ALARMS

Battery Temperature Over Limit
Battery Voltage Over/Under Limit
Excessive Voltage "droop" @ Dwell
Battery Current Over/Under limit
Charge/Discharge Time High/Low

ENVIRONMENTAL

Temp:10 to 40°C Operational
0 to 50°C Non-Operational
Humidity:5 to 90% Non-condensing
Shock/Vibe:<10g

The Electric Vehicle Battery Test System is used to measure the batteries charge capacity under controlled loads. The battery is tested together with the BMS and charger as a single system to characterize the systems longevity in terms of charge/discharge cycles. Charger and Battery Charging current can be measured for Charger and Charge/Discharge efficiency calculations. As the charging time is longer than the discharge time, a single load unit can be used with up to 4 different battery packs simultaneously. Only one battery pack is discharged, while the others are either being charged, or in a "high" or "low" dwell period.



OPTIONS

- Temperature monitoring and recording
- Charge/Discharge Efficiency Measurement
- Charger Efficiency Measurement



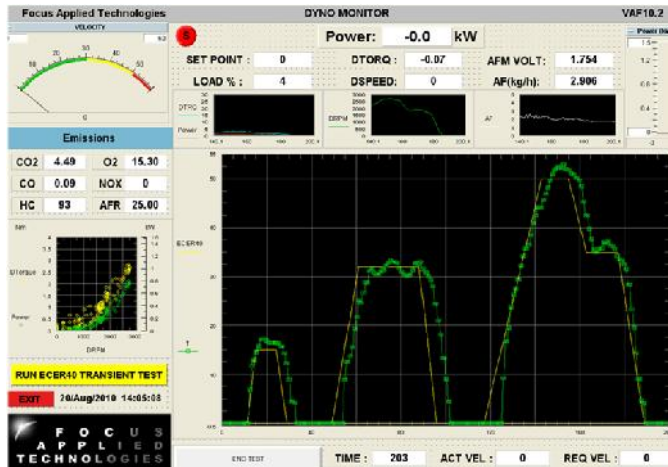
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HYBRID VEHICLE BATTERY TEST SYSTEM



This test system is a complete, functioning electric motorcycle drive wheel and swing arm mounted to a chassis dynamometer. The wheel is powered by a battery pack using the electric motorcycle controller as used on the road going product. The air-cooled eddy current dynamometer requires no external cooling lines, and can load the motorcycle wheel to simulate normal operation, hill climb, and different vehicle characteristics and drive cycles. The sophisticated controller can operate the dynamometer from the front panel or from a computer via the remote mode. A gasoline engine connected to a generator allows “on the fly” charging of the batteries when they go below a minimum State Of Charge. Speed and Torque is measured at the drive wheel, and Voltage and Current are measured from the generator, as well as the Electric Motor Controller. This allows measurement of the power and efficiency of the motor and controller, as well as the genset . The system can be operated in fully manual mode, allowing the student to set the throttle, load, and generator current, or in an automated mode for overall system efficiency evaluation

FEATURES

- 1.2kW Electric Motorcycle Drive wheel
- 5kW Eddy Current Dynamometer
- 1kW Gasoline Electric Generator
- Generator Electric power measured
- Motor Electric & Mechanical power measured
- Free computer software for Graphic Display
- 1 Year Warranty Included



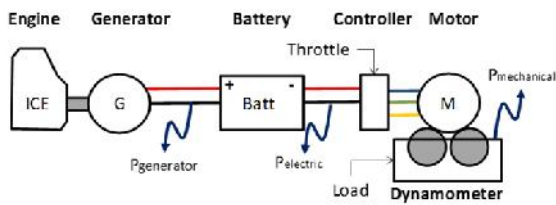
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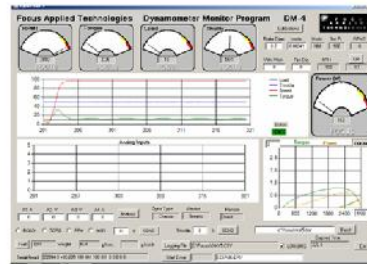
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HYBRID VEHICLE BATTERY TEST SYSTEM



Schematic Diagram



Screen Shot

SPECIFICATIONS

PHYSICAL

Weight: 100kg (approx)

LxWxH: 130 x 95 x 45 cm

MAINS POWER

Voltage: 120/240VAC

Frequency: 50/60Hz

Current Draw: 10/5A max

CONTROLLER OUTPUT

Controller Power: 50W (50V, 3A)

Coms: 9600 baud, 8bit, NP

DYNO

Mechanical Power: 5kW max

Torque: 10Nm max

Roller: 100mm diameter

Speed: Hall Effect, 5V excitation

30 pulse per revolution

5000 rpm, 80kph maximum

Load Cell: 50Nm, 200 to 500 ohm

4-wire Wheatstone bridge

5 or 10V excitation

ENVIRONMENTAL

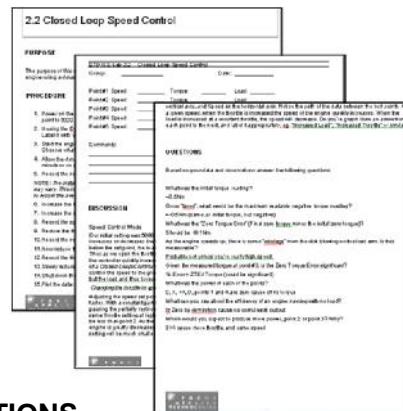
Temp: 10 to 40°C Operational

0 to 50°C Non-Operational

Humidity: 5 to 90% Non-condensing

Shock/Vibe: <10g

The Hybrid Electric Vehicle Test System is used to demonstrate and investigate the performance characteristics of a series hybrid electric motorcycle. It is provided with 20 different laboratory exercises exploring many different aspects of hybrid systems for student teaching laboratories. It is also extensively used by R&D organizations for developing HEV control systems and algorithms. Road load mode can simulate road performance for drive cycle testing for emissions or fuel consumption certification testing. Testing can be automated for vehicle range testing, as well as battery performance testing



OPTIONS

- Temperature sensors for battery, motor
- Wide Band O2 (AFR) sensor
- Digital Fuel Scale
- 5-Gas Analyser
- Current/Voltage Clamp Meter
- Oscilloscope for Wave Form Display



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CONTACT INFORMATION

FOCUS APPLIED TECHNOLOGIES SDN BHD

Lot 463 Jalan Relau K134, Sungai Kechil Iiir
Nibong Tebal 14300, Penang, Malaysia

Tel: +60 11-1632 2699

Email : sales@focusappliedtechnologies.com

Website : www.focusappliedtechnologies.com

PRODUCT ENQUIRY

- DR. HORIZON GITANO BRIGGS

Tel : +6016 484 6524

Email : horizon@focusappliedtechnologies.com

- TANG CHEE MENG (ALESI)

Tel : +6018 472 0499

Email : tang.c.m@focusappliedtechnologies.com



FOCUS APPLIED TECHNOLOGIES SDN. BHD.

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Nibong Tebal 14300 Penang

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