

Electric Power / Controls

2 kW



FOUR-QUADRANT DYNAMOMETER, MODEL 8540



GENERAL DESCRIPTION

The Four-Quadrant Dynamometer, Model 8540, is a new model which can be integrated to the Lab-Volt 2-kW Electromechanical Training System, Model 8013. This model can act as a prime mover or as a dynamometer, depending on user preference, and it can easily be coupled to any motor and generator from the Lab-Volt 2-kW product line.

The Four-Quadrant Dynamometer consists of a squirrel cage induction motor with an encoder feedback. The motor is driven by a closed-loop vector drive which is coupled to a touch-screen HMI (Human-Machine Interface). This interface enables the user to select the mode of operation (Speed or Torque mode) and to set either the speed (rpm) and direction or the output torque (N·m or lb·ft). The interface displays the main parameters of operation in real-time (Voltage, Current, Torque, Speed, Frequency).

Electrical connections between the vector drive and the motor are made through jumpers on the front panel. This makes the separation of both components simple

and allows the motor or the vector drive to be used independently in other experimentations.

The vector drive is well protected against abuse. The vector drive will stop if a problem occurs and the LCD will show the current alarm along with its description. The user is then able to reset the alarm and resume normal operation.

The Four-Quadrant Dynamometer comes with an electronic user guide which describes how to use the different functions of the module. The model can also be interfaced with a computer for monitoring and control. A demonstration application using National Instruments LabVIEW is included on same DVD-ROM as the electronic user guide. To use that application, the user must also order an optional communication cable, Model 88362. For more information on that particular feature or for any inquiry, please contact Lab-Volt Customer Services (services@labvolt.com).

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Model 8895 – Three-Phase Splitter (optional)



The Three-Phase Splitter, Model 8895, is required when users need to connect their own equipment in addition to the Four Quadrant Dynamometer, Model 8540 at a workstation equipped with only one three phase wall outlet.

Model 88362 – PC Communication Cable (optional)



The PC Communication Cable, Model 88362, permits the user to connect the Four-Quadrant Dynamometer, Model 8540, to a computer serial port (or a standard USB-to-Serial converter can be used). This will enable the user to monitor and control the Four-Quadrant Dynamometer with the demonstration application included in the model DVD-ROM or any custom application.

SPECIFICATIONS

8540 – Four-Quadrant Dynamometer		120/208 V – 60 Hz	220/380 V – 50 Hz	240/415 V – 50 Hz
Power Requirements		208 V - 3 ~ - 12 A	380 V - 3 ~ - 6.5 A	TBE
Operation Ranges	Speed Range	0 to 3600 rpm	0 to 3000 rpm	
	Nominal Torque Range	0 to 12.18 N·m (0 to 8.98 lb·ft)		
	Peak Torque	48.72 N·m (35.93 lb·ft)		
	Direction of Rotation	CW / CCW		
HMI		228 mm (3.7 in), monochrome, background illuminated, 160 x 64 pixels touch-screen		
Communication Port		RS-485 (accessible by removing the inverter front panel)		
Braking Resistors Capacity		5000 W		
Circuit Breaker		15 A		
Physical Characteristics	Dimensions (H x W x D)	82 x 65 x 36 cm (32.3 x 25.6 x 14.2 in)		
	Net Weight	TBE		
8895 – Three-Phase Splitter		120/208 V – 60 Hz	220/380 V – 50 Hz	240/415 V – 50 Hz
Power Requirements		208 V – 3 ~ - 20 A	TBE	TBE
Number of outlets		2		
Physical Characteristics	Dimensions (H x W x D)	110 x 180 x 132 mm (4.3 x 7.1 x 5.2 in)		
	Net Weight	TBE		
88362 – PC Communication Cable				
Description		Mitsubishi cable for connection between the Four-Quadrant Dynamometer drive (RJ45 port located behind control panel) and a PC (serial port). Standard USB-to-Serial Converter could be used if no serial port is available.		

ORDERING NUMBERS

120/208 V - 60 Hz			220/380 V - 50 Hz			240/415 V - 50 Hz
ENGLISH	FRENCH	SPANISH	ENGLISH	FRENCH	SPANISH	ENGLISH
8540-00	8540-01	8540-02	8540-05	8540-06	8540-07	TBE
8895-00	8895-00	8895-00	8895-05	8895-05	8895-05	TBE
88362-00	88362-00	88362-00	88362-00	88362-00	88362-00	88362-00

Table 1. Equipment Ordering Numbers

Reflecting Lab-Volt's commitment to high quality standards in product, design, development, production, installation, and service, our manufacturing and distribution facility has received the ISO 9001 certification.

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