

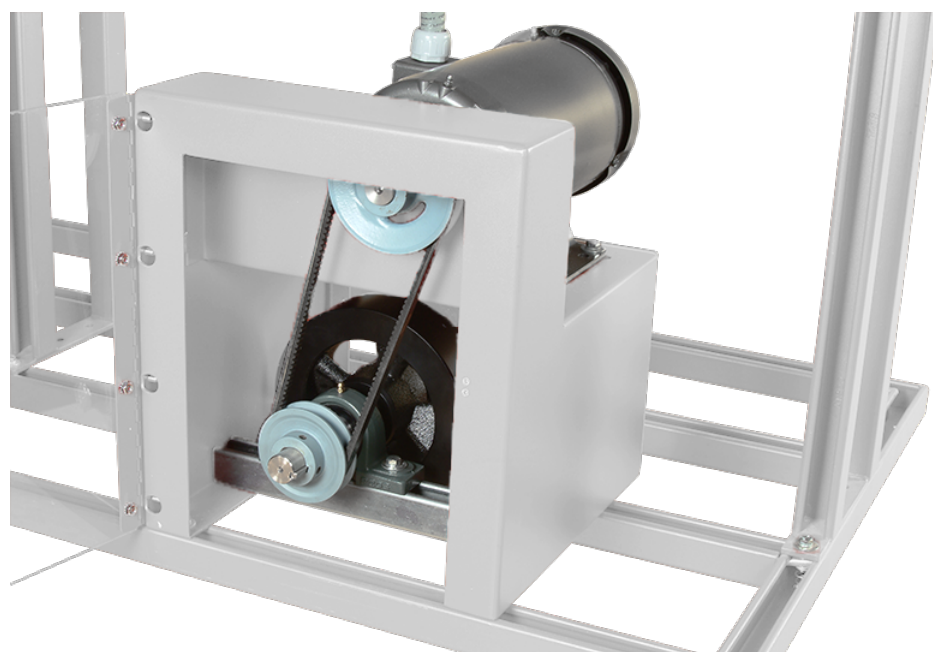
# Inertia Load

580044 (46830-00)

**FESTO**

LabVolt Series

Datasheet



Festo Didactic  
en  
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## General Description

The Inertia Load is an optional equipment that consists of an inertia wheel which can be coupled to a drive motor using a rubber belt. For safety purposes, the inertia wheel is enclosed in a metal case with a transparent front door that can be locked. The metal case also serves as a support for the drive motor. The Inertia Load includes a set of 3D drawings that shows how to assemble the unit.

When used with the Three-Phase Motor Starters training equipment package and the optional Power Quality Clamp Meter, the Inertia Load allows students to measure the transient (starting) and steady-state motor's parameters and observe the behavior of an induction motor driving a high-inertia load. Optional manipulations in the student manual supplied with the Three-Phase Motor Starters package indicate how to mechanically couple the Inertia Load to the three-phase induction motor. Optional manipulations using the Inertia Load and the Power Quality Clamp Meter are also suggested in the instructor guide supplied with the Three-Phase Motor Starters package.

## Manual

Description	Manual number
Inertia Load (Drawing Set) _____	584819 (38840-00)

## Optional Equipment

Qty	Description	Model number
1	Power Quality Clamp Meter _____	596228 (46832-10)

## Specifications

Parameter	Value
<b>Inertia Wheel</b>	
Diameter	215 mm (8.5 in)
Thickness	57 mm (2.25 in)
Shaft Diameter	29 mm (1.125 in)
Moment of Inertia	0.066 kg·m <sup>2</sup> (1.57 lb·ft <sup>2</sup> )
<b>Physical Characteristics</b>	
Dimensions (H x W x D)	430 x 380 x 380 mm (17 x 15 x 15 in)
Net Weight	TBE

## Module Options Description

### Power Quality Clamp Meter 596228 (46832-10)



The Power Quality Clamp Meter is a sophisticated, easy-to-use, portable instrument for measuring current, voltage, and power quality. It can be used to measure various motor parameters, such as the RMS voltage, peak starting current, power factor, current inrush duration, etc., as well as to perform time and frequency domain analysis.

When used with the Three-Phase Motor Starters and Inertia Load or with the AC Motor Drive and Blower Application, the Power Quality Clamp Meter allows students to learn about the behavior of an induction motor driving a mechanical load by measuring the transient (starting) and steady-state motor parameters.

### Specifications

Parameter	Value
<b>Functions</b>	
	Voltmeter / Ammeter / Oscilloscope / Harmonic Analyzer / Power Meter / 3-Phase Power Meter / Inrush-Current Recorder
<b>Voltmeter</b>	
Measurements	RMS Voltage / DC Voltage / AC Voltage / Average Voltage / Peak Voltage / Voltage/Frequency Ratio / Voltage Ripple / Voltage Crest Factor / Frequency
Measuring Range	0-825 Vdc or ac rms
Autorange Facility	4 V / 40 V / 400 V / 750 V
Resolution	1 mV in 4 V Range / 10 mV in 40 V Range / 100 mV in 400 V Range / 1 V in 750 V Range
Frequency Range	DC / 15-1000 Hz
Maximum Overload	1000 Vrms
<b>Ammeter</b>	
Measurements	RMS Current / DC Current / AC Current / Average Current / Peak Current / Current/Frequency Ratio / Current Ripple / Current Crest Factor
Measuring Range	0-2000 Adc or 1400 Aac rms
Autorange Facility	40 A / 400 A / 2000 A
Resolution	10 mA in 40 A Range / 100 mA in 400 A Range / 1 A in 2000 A Range
Frequency Range	DC / 15-1000 Hz
Maximum Overload	10 kA or Arms x Frequency < 400000
<b>Oscilloscope</b>	
Measurements	Current / Voltage
Current Ranges	10 A / 20 A / 40 A / 100 A / 200 A / 400 A / 1000 A / 2000 A
Current Resolution	1 A in 40 A Range / 10 A in 400 A Range / 50 A in 2000 A Range
Current Maximum Overload	10 kA
Voltage Ranges	4 V / 10 V / 20 V / 40 V / 100 V / 200 V / 400 V / 1000 V
Voltage Resolution	100 mV in 4 V Range / 1 V in 40 V Range / 10 V in 400 V Range / 31.25 V in 1000 V Range
Voltage Maximum Overload	1000 Vrms
Frequency Range	DC / 15-600 Hz
Time Base	2.5 ms/div / 5 ms/div / 10 ms/div / 25 ms/div / 50 ms/div
Refresh Rate	0.5 seconds
Maximum Sampling Rate	15.625 kHz
<b>Harmonic Analyzer</b>	
Modes	Current / Voltage
Measurements	THD (Total Harmonic Distortion) / DF (Distortion Factor)
Ranges	Up to 30th Harmonic (40th Harmonic for 15-22 Hz)
Resolution	0.1 % (THD and DF)
Frequency Range (Fundamental)	15-22 Hz / 45-65 Hz
<b>Power Meter</b>	

Parameter	Value
<b>Measurements</b>	Active Power / Apparent Power / Reactive Power / Power Factor (PF) / Displacement Power Factor (DPF)
Active and Apparent Power Measuring Range	DC = 0-1650 k / AC = 0-1200 k
Active and Apparent Power Autoranging Facility	4 k / 40 k / 400 k / 1650 k
Active and Apparent Power Resolution	1 in 4 k Range / 10 in 40 k Range / 100 in 400 k Range / 1 k in 1650 k Range
Reactive Power Measuring Range	0-1250 kVAR
Reactive Power Autorange Facility	4 kVAR / 40 kVAR / 400 kVAR / 1200 kVAR
Reactive Power Resolution	1 VAR in 4 kVAR Range / 10 VAR in 40 kVAR Range / 100 VAR in 400 kVAR Range / 1 kVAR in 1200 kVAR Range
Reactive Power - Power Factor Range	0.3 < PF < 0.99
PF and DPF Measuring Range	0.3 Capacitive - 1.0 - 0.3 Inductive
PF and DPF Resolution	0.001
PF Frequency Range	15-1000 Hz
DPF Frequency Range	15-22 Hz / 45-65 Hz
<b>3-Phase Power Meter</b>	
<b>Measurements</b>	Active Power / Apparent Power / Reactive Power / Power Factor (PF) / Displacement Power Factor (DPF)
Measuring Range	0-1200 k
Autorange Facility	4 k / 40 k / 400 k / 1200 k
Resolution	1 in 4 k Range / 10 in 40 k Range / 100 in 400 k Range / 1 k in 1200 k Range
Reactive Power - Power Factor Range	0.3 < PF < 0.99
PF and DPF Measuring Range	0.3 Capacitive - 1.0 - 0.3 Inductive
PF and DPF Resolution	0.001
PF Frequency Range	15-1000 Hz
DPF Frequency Range	15-22 Hz / 45-65 Hz
Remark	The connected load must be well balanced, and connected in either Wye or Delta.
<b>Inrush-Current Recorder</b>	
Ranges	40 A / 400 A / 2000 A
Resolution	10 mA in 40 A Range / 100 mA in 400 A Range / 1 A in 2000 A Range
Frequency Range	DC / 15-1000 Hz
Maximum Overload	10 kA or Arms x frequency < 400000
Capture Time	1 s / 3 s / 10 s / 30 s / 100 s / 300 s
Maximum Sampling Rate	15.625 kHz
<b>Included accessories</b>	
	Soft Carrying Case
	Power Log Software
	Test Leads
	Alligator Clips
	Test Probes
	USB Cable
	International AC Adapter / Battery Eliminator
	Printed English Language User Manual
	Multi-Language Manual CD
<b>Physical Characteristics</b>	
Dimensions (H x W x D)	300 x 98 x 52 mm (12 x 3.75 x 2 in)
Jaw Opening	60 mm
Jaw Capacity	58 mm (Diameter)
Weight (Batteries Included)	820 g / 1.8 lb

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