

Mesta DPM™ Active Harmonic Filter

- Actively eliminates harmonic distortion
- Provides active power factor correction
- Meets IEEE-519-2014

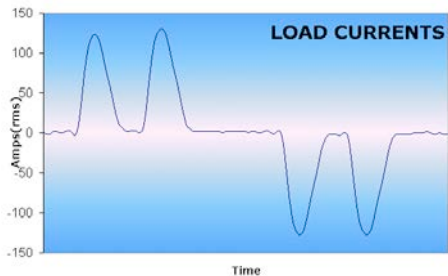
New Color HMI Display



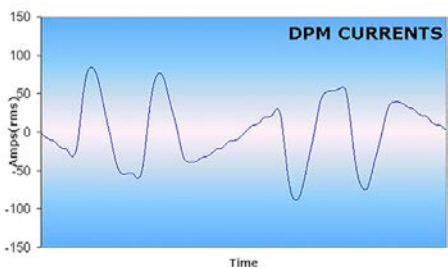
Pioneers in Power Electronics

Features

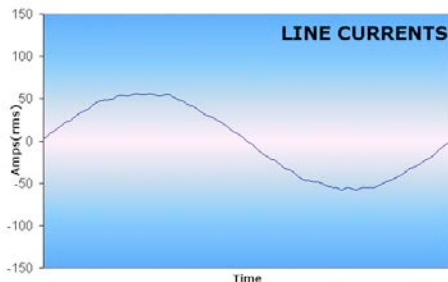
- Actively reduces harmonic distortion to below 5%
- Instantly reacts to varying loads
- Improves power factor to near unity
- Parallel system installation
- 98% operational efficiency
- Advanced LCD touchscreen display
- USB Data Retrieval
- Balances three phase loads
- Corrects for single/multiple loads
- UL and CUL listed



Sample DC Bridge Load
Power Factor (PF) =0.70
Total Harmonic Distortion (THD) =69.72%



480V-50A-3 phase delta Mesta DPM™
Approximately 85% loaded



Actual current drawn from utility
Power Factor (PF) =1.00
Total Harmonic Distortion (THD) =2.54%

Benefits

- Facilitates IEEE-519-2014 compliance
- Eliminates high transient harmonics during sudden load changes
- Decreases utility costs
- Accomodates large scale applications
- Lowers operating costs and increases reliability
- Provides detailed power information
- Delivers comprehensive historical information
- Increases usable system capacity
- Enables cost effective solutions
- Ensures quality production and standards

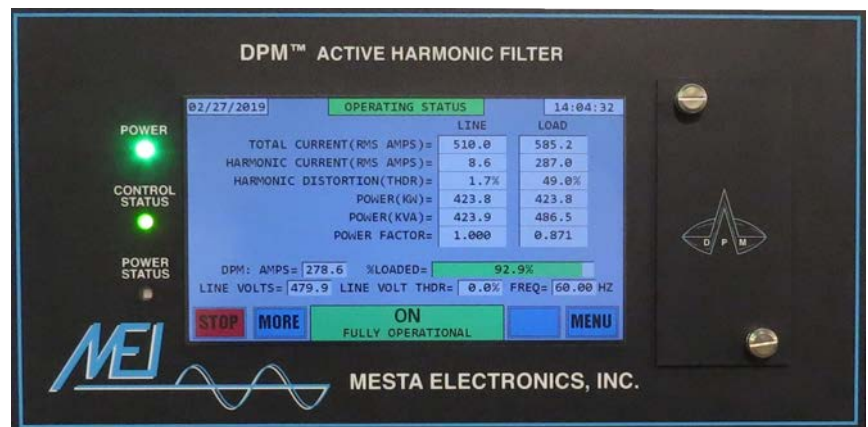
Correcting the Currents

The Mesta DPM™ (Digital Power Manager™)

The Mesta DPM™ (Digital Power Manager) is a true Active Filter, and it is a comprehensive solution for harmonic mitigation and power factor correction. Its implementation does not require detailed knowledge regarding the nature of the load(s) or the type of harmonics present. The Mesta DPM™ responds to the exact need as it develops. The degree of the load non-linearity, which determines the amount, as well as, the type of harmonics involved, will determine the activity of the filter.

Shown to the left are actual current waveforms of a non-linear load with 69.72% total harmonic distortion (THD), the corrective current of a Mesta DPM™, and the resulting sinusoidal line current. The resulting sinusoidal line current in this example has a THD of less of 3% and a power factor 1.00.

Full Color HMI Display



Provides a real time look of the electrical system, both before and after active harmonic filter correction. Providing information such as THDr%, RMS Current, kW, KVA, and Power Factor.

Applications

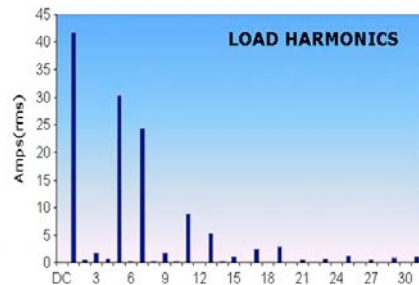
The Mesta DPM™ is a critical addition to a plant that is being required to become IEEE-519 compliant. It is a proven technology that ensures a comprehensive solution for harmonic mitigation and power factor correction.

- OEM Switchgear & Motor Control Centers
- Industrial Manufacturing Factories
- Water Treatment Plants
- Heat Treating Facilities
- Waste Water Plants
- Material Growth Facilities
- Food Processing Plants
- Mass Transit Facilities
- Hospitals
- HVAC Applications

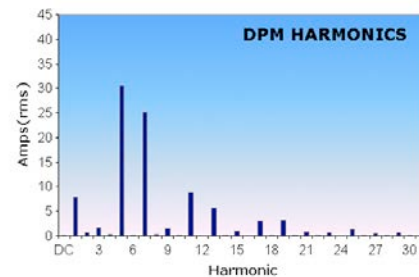
The Mesta DPM™ gives you the advanced control and proven reliability that your facility needs to solve its power quality issues.

Mitigating Harmonics

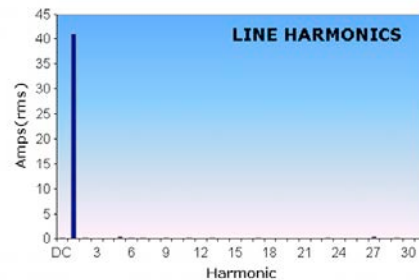
The Mesta DPM™ output coexists in parallel with the utility voltage, while it is precisely phase-locked and voltage-equalized. The unit utilizes high frequency current sensors to continuously monitor the load harmonics and instantaneously directs the energy/current flow in and out of its IGBT based inverter to make the resulting line current harmonic free, balanced, and at unity power factor. The graphs to the right represent the individual harmonics created by a non-linear test load, the corrective current that is provided by the active harmonic filter, and the resulting line harmonics.



Sample DC Bridge Load
Power Factor (PF) = 0.70
Total Harmonic Distortion (THD) = 69.72%



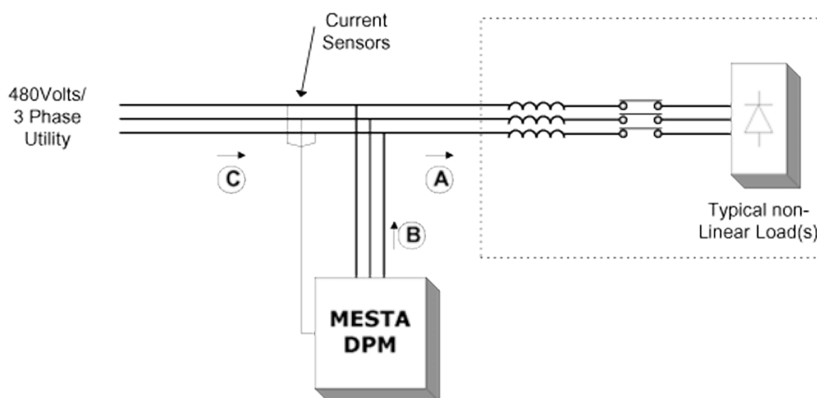
480V-50A-3 phase delta Mesta DPM™
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Power Factor (PF) = 1.00
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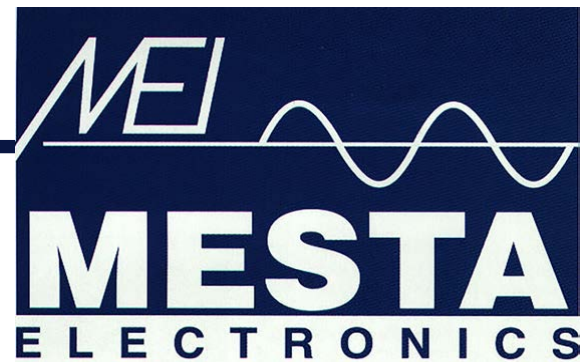
DPM™ Installation

The parallel installation of the Mesta DPM™ results in higher overall efficiency than series installed devices. Because of the parallel installation, the DPM™ does not need to be sized to provide 100% of the current required by the loads. It only has to be sized to provide the harmonic and out of phase current drawn by the non linear loads, creating a much more efficient solution to harmonic distortion.



Commitment to Quality & Service

Mesta's cutting edge technology and products emerge from our outstanding engineering and production teams. From design to shipment, our products are extensively tested to meet and exceed our customers' expectations and industrial standards. We strive to make advanced technology, high reliability, and customer satisfaction synonymous with the Mesta name.



Mesta DPM™ Active Harmonic Filter Specifications

Model	Total Corrective Current	Dimension (WxHxD in)	Weight (lbs.)	Losses/Max Load (kw)
NEMA-1 Enclosures				
3AC3DPM050-480-1	50	21x53x14.25	230	.9
3ACD3PM100-480-1	100	21x53x14.25	270	1.7
3AC3DPM150-480-1	150	27x63.5x16.5	440	2.5
3AC3DPM200-480-1	200	27x63.5x16.5	480	3.3
3AC3DPM300-480-1	300	33x75x18	630	5.1
Open Panel Mounts				
3AC3DPM050-480-0	50	16.9x45x12.7	135	.9
3AC3DPM100-480-0	100	16.9x45x12.7	175	1.7
3AC3DPM150-480-0	150	22x54x13.7	245	2.5
3AC3DPM200-480-0	200	22x54x13.7	280	3.3
3AC3DPM300-480-0	300	27x56x13.7	400	5.1

Electrical

Voltage: 480, 400, 240, 208 VAC +12%, -15%, 3 phase, 3 wire plus gnd

Voltage: 600 (rated at 40A, 80A, 120A, 160A, 240A)

Frequency: 60 or 50 Hz, ± 5 Hz

Performance Specifications

Limit harmonic current to <5% TDD immediately upstream of installation point (IP) as per IEEE 519-2014, table 2

Power Factor: Near unity (.99) immediately upstream of IP

Line Current Balancing: ± 2% immediately upstream of IP

Efficiency: 98% efficient at full load

Crest Factor Capability: 3.0

Parallel Unit Installation: Up to 10 DPM™ units

Overload Protection

Output is electronically current limited to 300% peak, 100% rms

Class T fuses provide redundant overload protection

Electronic over temperature protection

Third Party Certifications

UL & CUL Listed

Indicators and Controls

LCD touchscreen display provides power quality information, operating parameters, operational status

Touchscreen functions: Run, Stop, Menus, Parameter Setup

Ethernet interface for remote communication

LED indicators: Power, Control Status, Power Status

USB data download from front LCD display

Relay contacts provide system run, fault and max load status

(3 relays rated @ 125 VAC/0.5A or 24VDC/1.0A)

Remote enable input

Physical

Operating Temperature: 0 to +40 C ambient without derating

Humidity: 95% maximum non-condensing

Storage Temperature: -20 to +40 C

Cooling: internal forced air

Altitude: ≤1000m, derated 1% per 100m above 1000m

Power: hardwired internal (top or bottom access)

Options (consult factory)

Ethernet/IP & Modbus TCP connectivity

Enclosure types

Specifications are subject to change without notice

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