



# MAXIMUM POWER TRANSFER SOLUTION MPTS OVERVIEW



Energy savings  
Clean energy technologies  
Carbon reduction

## MPTS DEFINED

MPTS, maximum power transfer solutions are next generation power quality products that decrease the electrical demand, total electrical power generation (KVA), and carbon footprint without replacing inefficient electrical and mechanical equipment in buildings. The MPTS is patented in 28 countries and is a UL approved solution.

## The SCIENCE

MPTS is a unique and innovative industry changing technology. The MPTS precisely senses the supply input and demand output, matches the impedance parameters, adjust the resonance of the resulting network loop, synchronizes and optimizes the output. This occurs at very high speeds in the device eliminating nearly all the wasted electrical power in the system. This reduces total electrical consumption by significant levels and enhances electrical efficiency of the network to near unity.

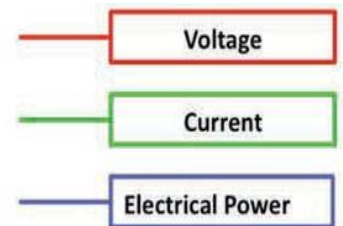
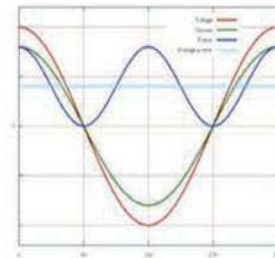
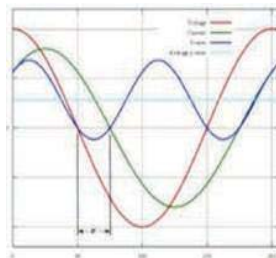
Maximum Power Transfer Theorem (*Jacobi's Law - 1840*) focuses on increasing total electrical efficiency by decreasing losses using impedance matching.

When losses decrease the phase angle is zero (0) and the power factor approaches unity (1)

When phase angle is zero (0) as a result of Impedance matching

$$\begin{aligned} \text{KVA} &= \text{KW} \\ \text{KVAH} &= \text{KWH} \end{aligned}$$

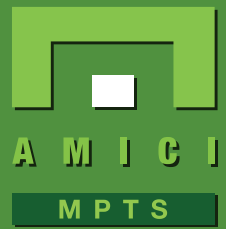
When current decreases, power consumption will decrease



## MPTS BENEFITS

- Decrease** Current and electrical Demand (20 to 40%) of inductive loads
- Avoids Overload conditions and hot spots in panels and equipment. Decreases I<sup>2</sup>R losses, KVA<sub>r</sub>, Harmonics
- Extend** life of connected inductive equipment (20%) - Delay aging or replacement of mechanical equipment
- Reduce** service, repair, and maintenance costs (25%) for inductive loads
- Protects** investment in connected equipment
- Save** money on utility bills based on utility tariffs

# FEATURES & BENEFITS



## MPTS BENEFITS

- Improves any value of low power factor to greater than 95 percent
- Stabilizes electric network voltage, provides surge protection
- Decreases electric current consumption measured in Amperes
- Reduces heating of switchgear and local network from excessive current draw
- Reduces KVA, KVAH, KVA<sub>r</sub>, and KVA<sub>r</sub>H
- Reduces thermal and eddy current loss

## ENERGY SAVING SOLUTIONS THROUGH EFFICIENCY



## MAXIMUM POWER TRANSFER SOLUTION

### MPTS FEATURES

- Reduces system harmonics - load and power grid
- Reduces carbon footprint and greenhouse
- Reduces wasted electrical power, decreasing total current required to operate equipment
- MPTS is a solution for balanced or unbalanced loads
- MPTS is an electronic solution, consumes less than one ampere of current for every 100 amps/480V/380V/220V/3 phase
- MPTS does not add capacitance into network
- MPTS releases capacity due to reduced current and runs the network cooler
- MPTS does not require programming, as it is self programming upon commissioning
- Except for ventilating fans there are no moving parts in the MPTS
- MPTS performs with the same efficiency & effectiveness from 20 % to 100% utilization of its rated capacity
- MPTS is a fail- safe technology, does not interrupt power to facilities equipment when it is either ON or OFF
- As a consequence of above attributes, the MPTS improves and maintains a power factor of greater than 95 percent

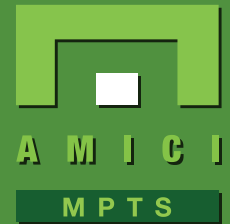
MPTS compliments and/or replaces Capacitors, Automatic Power Factor Correction systems (APFCs), Harmonics Filters, Power Conditioners, Voltage Stabilizers and Surge Protectors – all in one solution.

## FINANCIAL BENEFITS

- Reduced total electrical power cost
- Reduced maintenance, repairs, replacement costs
- Environmental sustainability



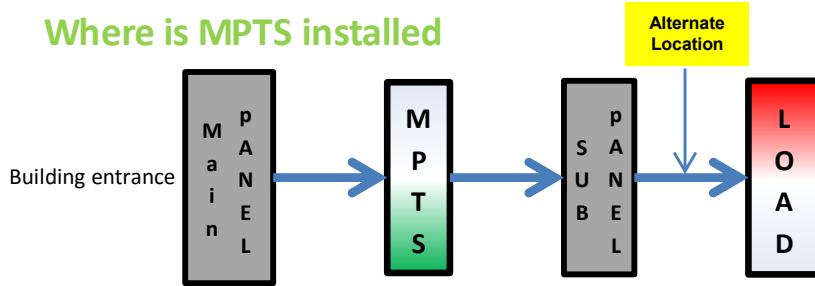
# Installation and Test Report



## SWEET SPOT FOR MPTS

- HVAC – Chillers, AHUs, RTUs, Pumps, Fans, VFDs
- Refrigeration – Freezer s, Compressor Racks, Cold storage
- Factories - Manufacturing Equipment
- Escalators, Elevators and conveyor belts
- 24 hour or high electrical energy consumption panels or loads
- Data Centers – Air conditioning and clean power requirements
- Water Filtration Plants – Pumps, and Motors

## Where is MPTS installed



MPTS 450



MPTS 225



MPTS 100

MPTS is installed on the main electrical supply panel or a sub-panel of the selected inductive load(s).

MPTS is fail-safe and non-intrusive, and does not alter the existing equipment.



## MPTS Performance results at accredited laboratory

UL Whitefield Labs New Zealand

Without MPTS					With MPTS					Improvement with MPTS			
Voltage	Current	Reactive Power	Power Factor	Total Power	Voltage	Current	Reactive Power	Power Factor	Total Power	Reactive Power % Reduction	Current - Amps % Savings	Power Factor % Improvement	Total Power % Reduction
Volts	Amperes	KVAr	PF	KVA	Volts	Amperes	KVAr	PF	KVA	KVAr	Amperes	PF	KVA
276.96	64.83	13.80	0.62	17.70	282.70	44.82	1.52	0.99	12.20	88.99	30.87	37.37	31.07
275.72	68.75	13.80	0.67	18.80	279.03	51.64	3.34	0.97	14.20	75.80	24.89	30.93	23.47
277.58	73.02	16.60	0.62	20.00	281.56	49.80	0.44	0.99	13.30	97.38	31.80	37.37	33.50
Unbalanced Load @277 volts													
272.77	94.35	21.10	0.57	25.70	279.47	69.47	0.96	0.99	16.00	95.45	26.37	42.42	37.74
277.73	53.09	13.70	0.34	14.80	281.41	24.90	1.03	0.99	6.31	92.48	53.10	65.66	57.36
276.71	70.19	8.58	0.89	19.30	275.80	66.25	4.51	0.96	18.10	47.44	5.64	7.29	6.22
Unbalanced Load @240 volts													
242.06	92.96	16.90	0.70	22.30	246.38	69.68	3.42	0.97	16.80	79.76	25.04	27.84	24.66
242.87	54.27	10.20	0.61	12.90	246.63	37.47	2.06	0.97	8.81	79.80	30.96	37.11	31.71
243.68	73.31	9.05	0.85	17.60	243.16	64.93	0.33	0.98	15.50	96.35	11.43	13.27	11.93

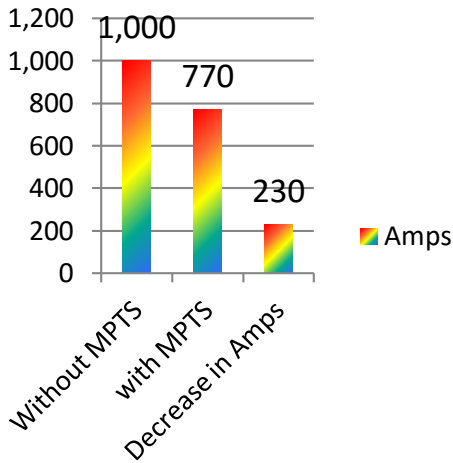
## Applications for MPTS

- Commercial Office buildings
- Hospitals and Clinics
- Data Centers
- Industrial Plants and Factoring - Manufacturing
- Warehouses and Distribution Centers
- Water Filtration Plants – Pumps, and Motors
- Retail Outlets
- Education – School building
- Pumping Stations

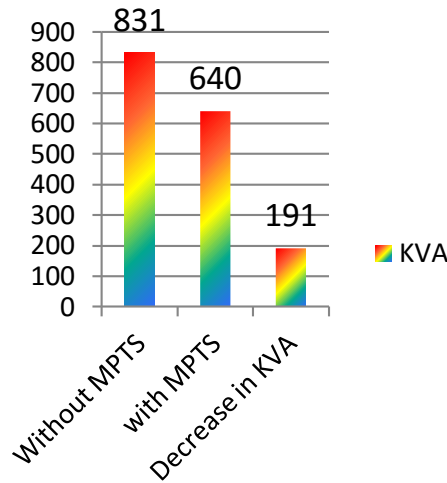
# Measurement and Performance of MPTS



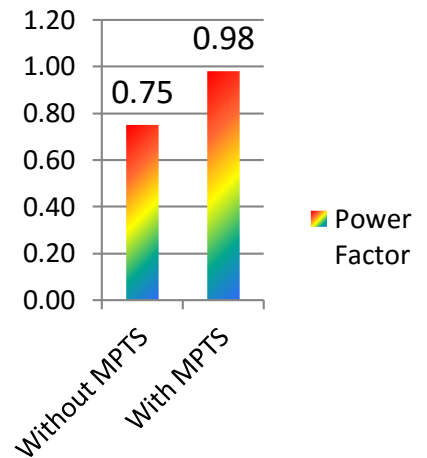
## Amps



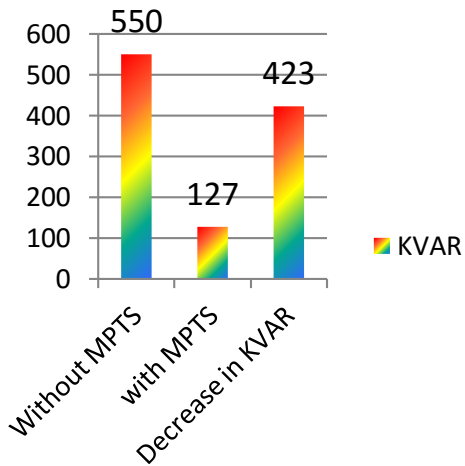
## KVA



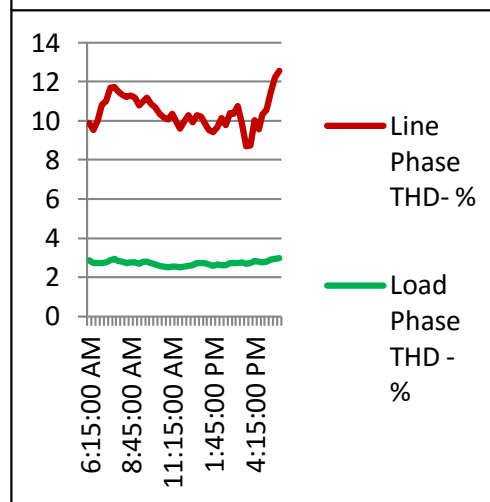
## Power Factor



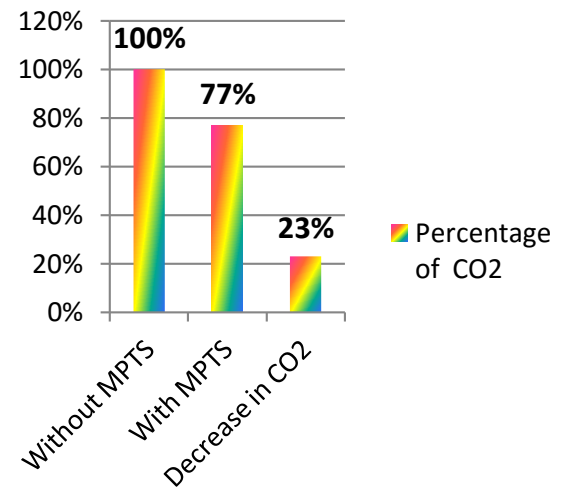
## KVAR



## Total Harmonic Distortion



## Percentage of CO2



TransPower is focused on clean energy technologies, energy savings, and carbon footprint reduction

### Sample list of Customers in USA

- Kaiser Permanente Hospital
- Underwriters Laboratory (UL)
- Aurora Mental Health Centers
- Fitzsimons Bio Science Research Center
- United States GSA - Federal Center and Courthouse Denver
- Approved for installation at US Air Force, Peterson AFB and Cheyenne Mountain Air Station



### Contact:

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