

Intelligent Motor Controller



Topics

- What is the Powerboss?
- How the Powerboss Works
- Powerboss vs VFDs
- Application for Data Centers
- Demonstration

What is the Powerboss?

- The Powerboss is an intelligent motor controller that works on AC induction motors with variable load conditions.*

Powerboss Advantages

Accurate Control Of Motor Current
Match Motor and Load Torque

Smooth Acceleration - **SOFT-START**

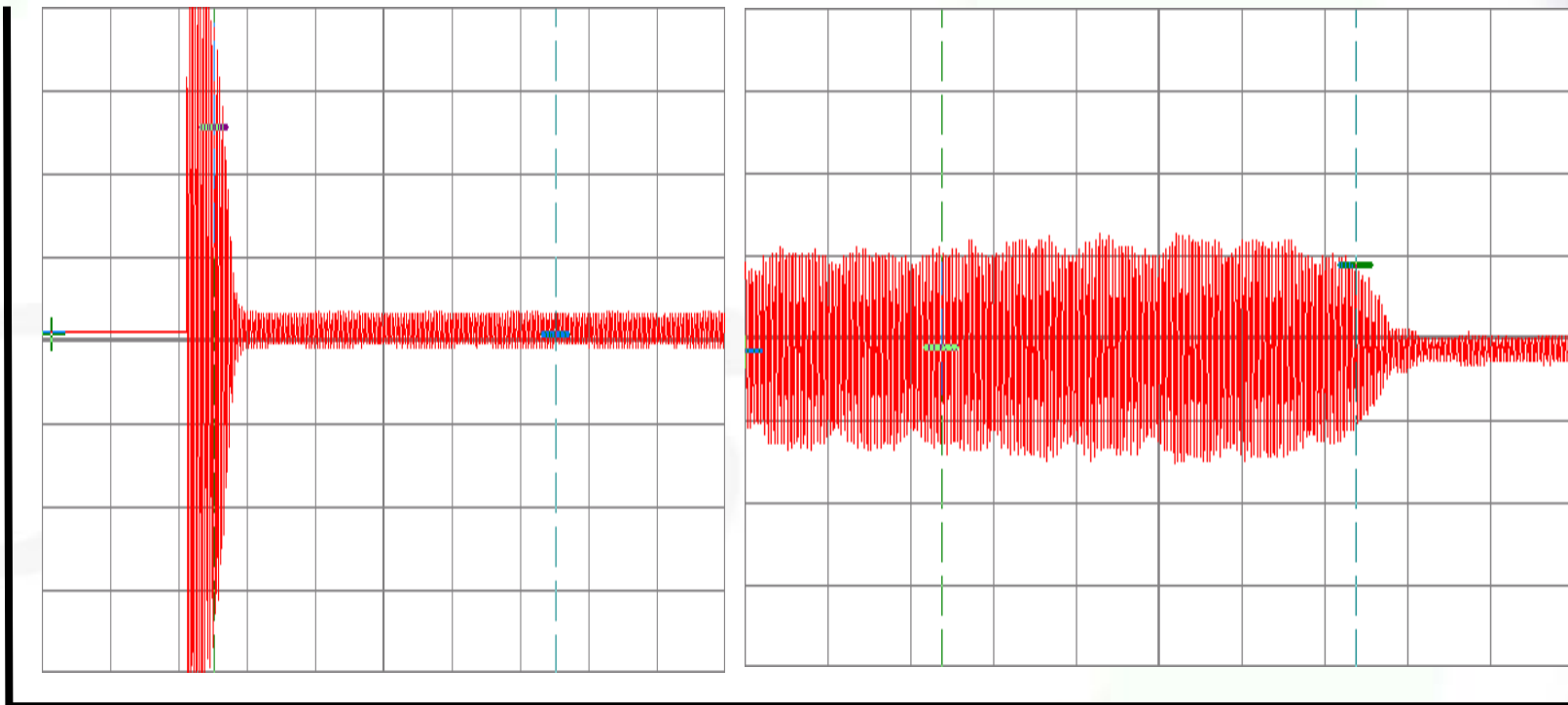
SOFT-STOP - on Pumps

Energy Saving Load Optimization

•Without Soft Starting

•With Soft Starting

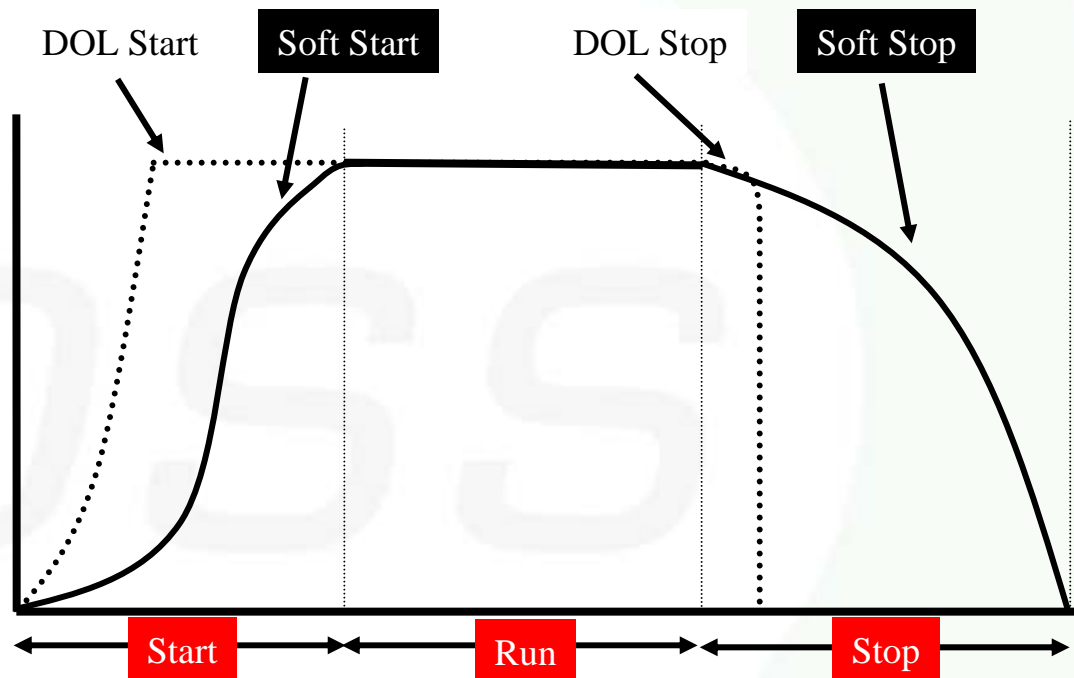
X Nominal Current



Time in Milliseconds

Software Programmer Main Menu - Standard Soft Start

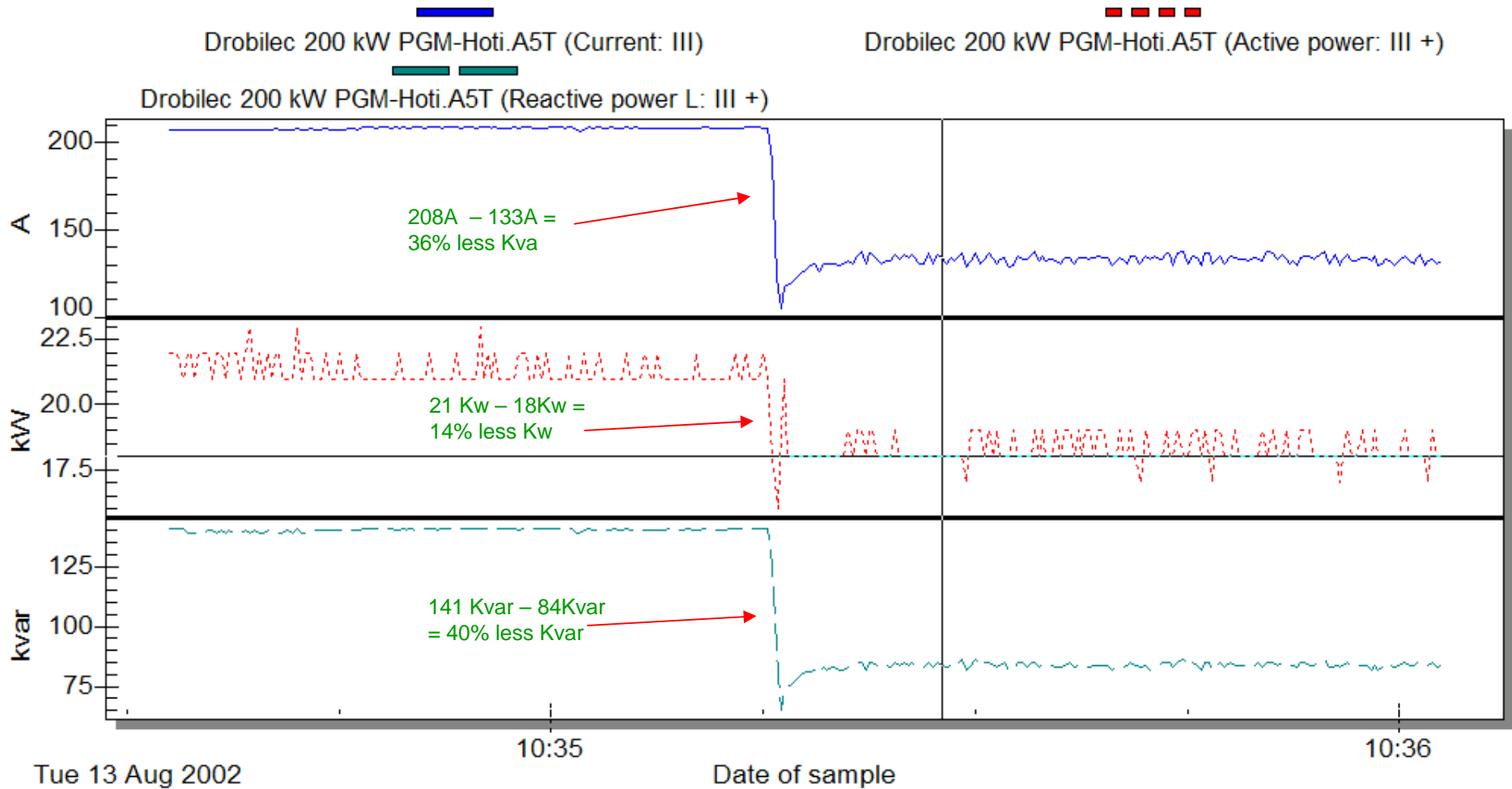
Actual Pump Profile with Ramp Down



How Powerboss Works

boss

MULTIGRAPHIC



Selected Variable: Drobilec 200 kW PGM-Hoti.A5T (Active power: III +)

Act : 13/08/2002 10:35:27.666

From : 13/08/2002 10:34:33.000

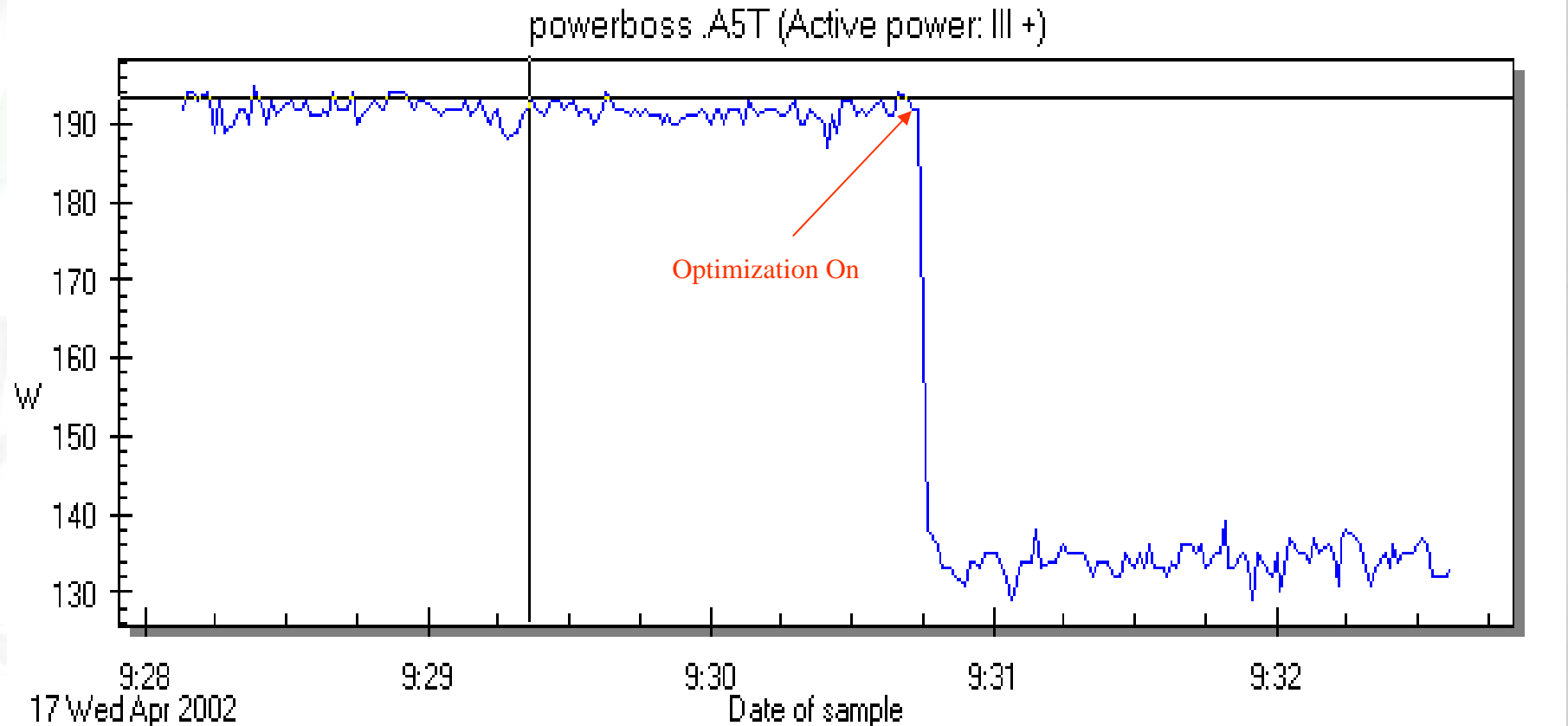
To : 13/08/2002 10:36:03.000

Act : 18 (kW)

Maximum : 23 (kW)

Minimum : 16 (kW)

Example



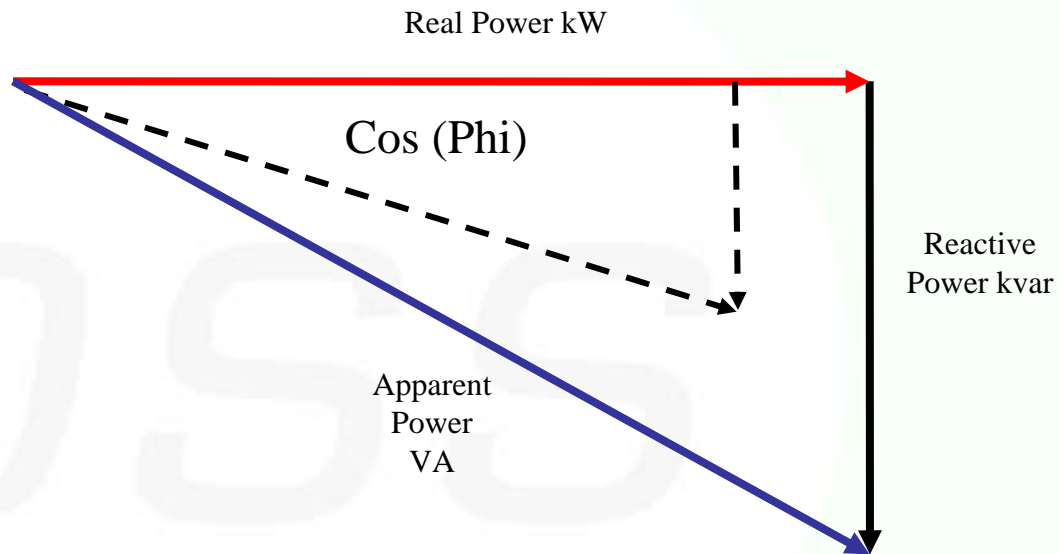
Act : [17/04/2002 09:29:22]
Act : 193 (W)

From : [17/04/2002 09:28:08]
Maximum : 195 (W)

To : [17/04/2002 09:32:37]
Minimum : 129 (W)



Resultant Power Triangle with Powerboss



Advantages of Kvar Savings

1. Will have an impact of up to 40% savings on Peak Demand.
2. Less Kvar means Less Heat within motor and cables
3. Improves Motor Efficiency - Motor will last longer 2-3 times longer
4. Some utilities measure and charge separately for Kvar

Advantages of Kva Savings

- Less Heat Loss through motor and associated equipment.
- Associated equipment - i.e. cables, fuses, contactors and overload.
- Less Strain on the total supply as current is reduced.
- A Reduction in Kva will have a direct impact on Energy Consumption

Variable Frequency Drives

Vs.

Powerboss

profit through intelligence

powerboss
integra



Variable Frequency Drives

Pros

- Ideal when speed control is required
- Soft starter capability
- Cheaper than DC Motors
- Relatively Easy to Implement
- Proven Technology

Variable Frequency Drives

Cons

- Causes unnecessary heat in motors - decreasing motor life
- Requires 3%-6% increase in energy consumption due to inverter and rectifier
- Requires manual reset after power outages on less expensive models
- Not cost effective if used only for soft starting function
- Not an optimization device
- Does not save any operational KW dollars w/o causing long-term damage to the motor
- Causes heavy harmonic distortions (8 and 16 pulse drives)
Inherently a switching power supply, these devices cause EMI and RFI interruption in the electrical system

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Pros

- A cost effective solution to many problems associated with motors: start up torque, currents and spikes, and operational kW consumption.
- 20%-30% less than the cost of VFD's
- Soft starter capability AND Optimization
- Can be applied to motors without regard to their age or insulation class
- Perfect for retrofit, and much smaller than VFD's
- Can replace contactor and shading coil (motor starter), eliminating a failure point
- Significantly reduces the motor heat (by upwards of 35%) as a result, doubling the life of the motor
- Proven technology in over 100,000 installations worldwide

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Cons

- Can't control speed – constant speed only
- Cannot be combined in concert with VFD's



Applications in Data Centers

- Pumps
- Compressors
- Fans

Conclusion Electrical Benefits

- Reduces Starting Current
- Improves Supply Stability
- Allows More Equipment to be Connected to Supply
- Reduces Overall Power Bill

Conclusion

Mechanical Benefits

- Reduces Starting Torque Stress
- Prolongs Life of Driven Equipment
- Reduced Maintenance Costs and Mechanical Failures
- Improves Motor Life by 2–3 Times

Optimization Demonstration

Visit the New Energy Advantage Booth for a
Powerboss demonstration.

Thank you for your attention!

The End

boss