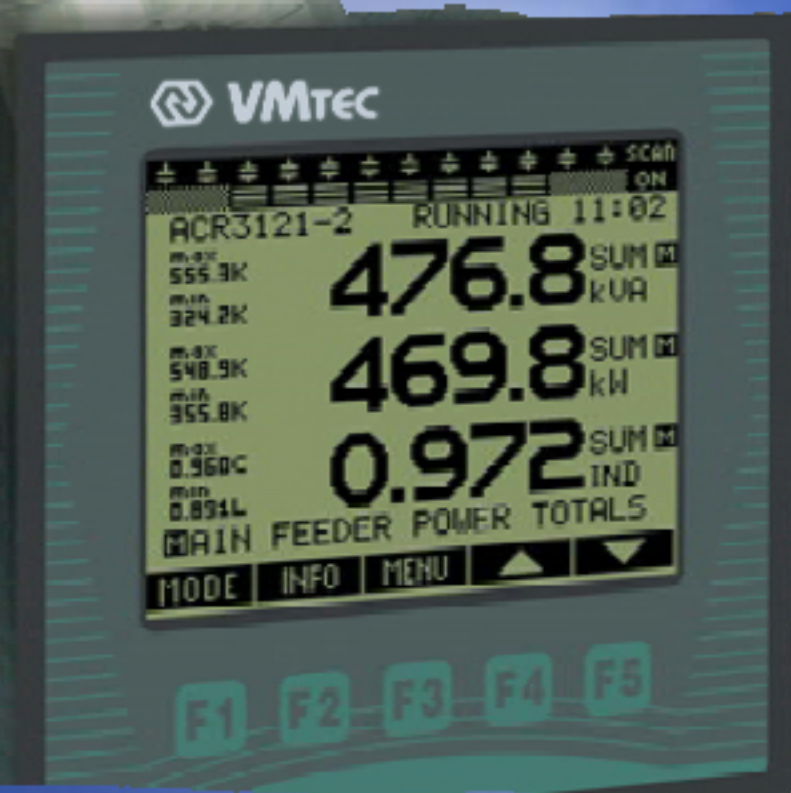




Экономия и Качество Электроэнергии

Автомобилестроение

Август 2005



VMtec

P o w e r Q u a l i t y S o l u t i o n ¹ s

Факторы Качества Сварки



VMtec

www.vmttec.de



Точечная
Сварка

Нестабильность
и Провалы
Напряжения

Потеря
Мощности
($P \sim V^2$)

Неравномер
ное Качество
Сварки

Некачественная
сварка, брак и
высокая
себестоимость



ВМТЭК PFC-FT1



VMTEC

www.vmttec.de

Лучшее решение для компенсации реактивной мощности
на сварочных производствах
(сверхбыстрая работа за 20 мс без переходного процесса)

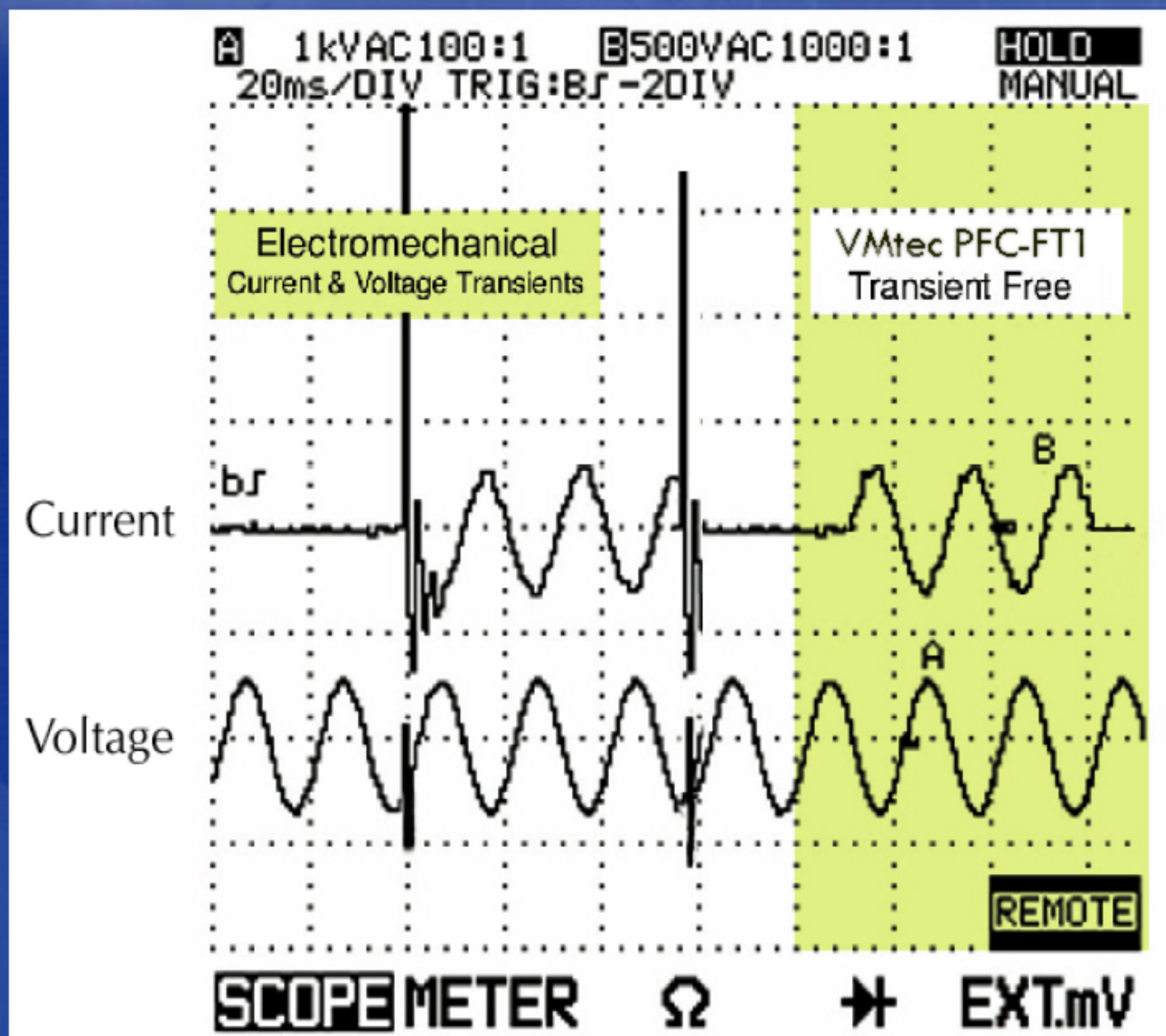


- Улучшает качество точечной сварки
- Стабилизирует сеть
- Экономит электроэнергию
- Уменьшает себестоимость
- Уменьшает эксплуатационные расходы и простой
- Автоматическая работа

Преимущества тиристорного переключения конденсаторов



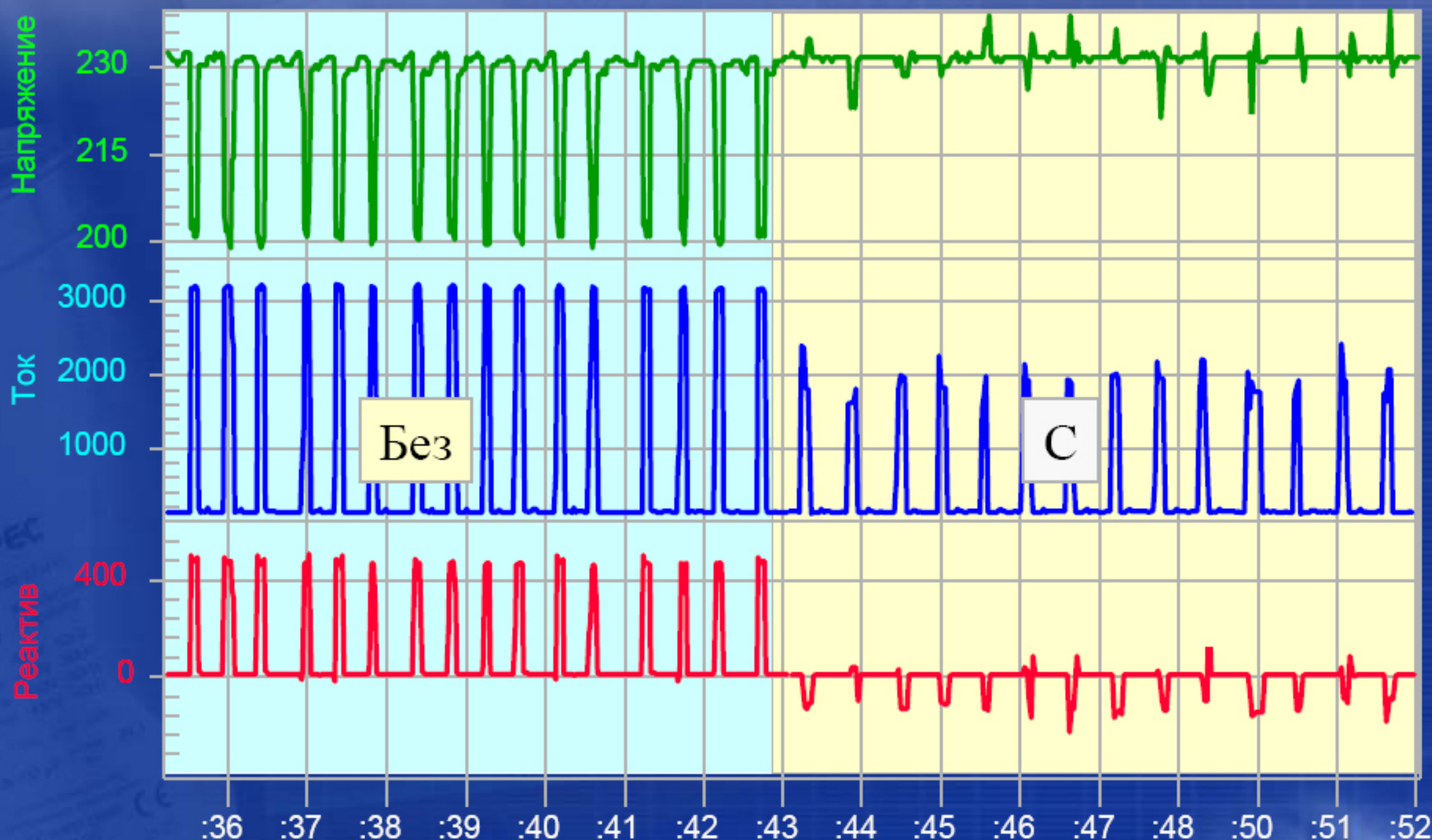
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Компенсация для одного сварочного аппарата



VMTEC
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Без компенсации :

Пиковый ток = 3200 Amp.

Пик kVAr = 3*500 kVAr

Провал напряжения = 32 Volt

С компенсацией:

Пиковый ток = 2100 Amp.

Пик kVAr = 3*50 kVAr

Провал напряжения = 8 Volt

Ток ДС на электродах сварочного аппарата



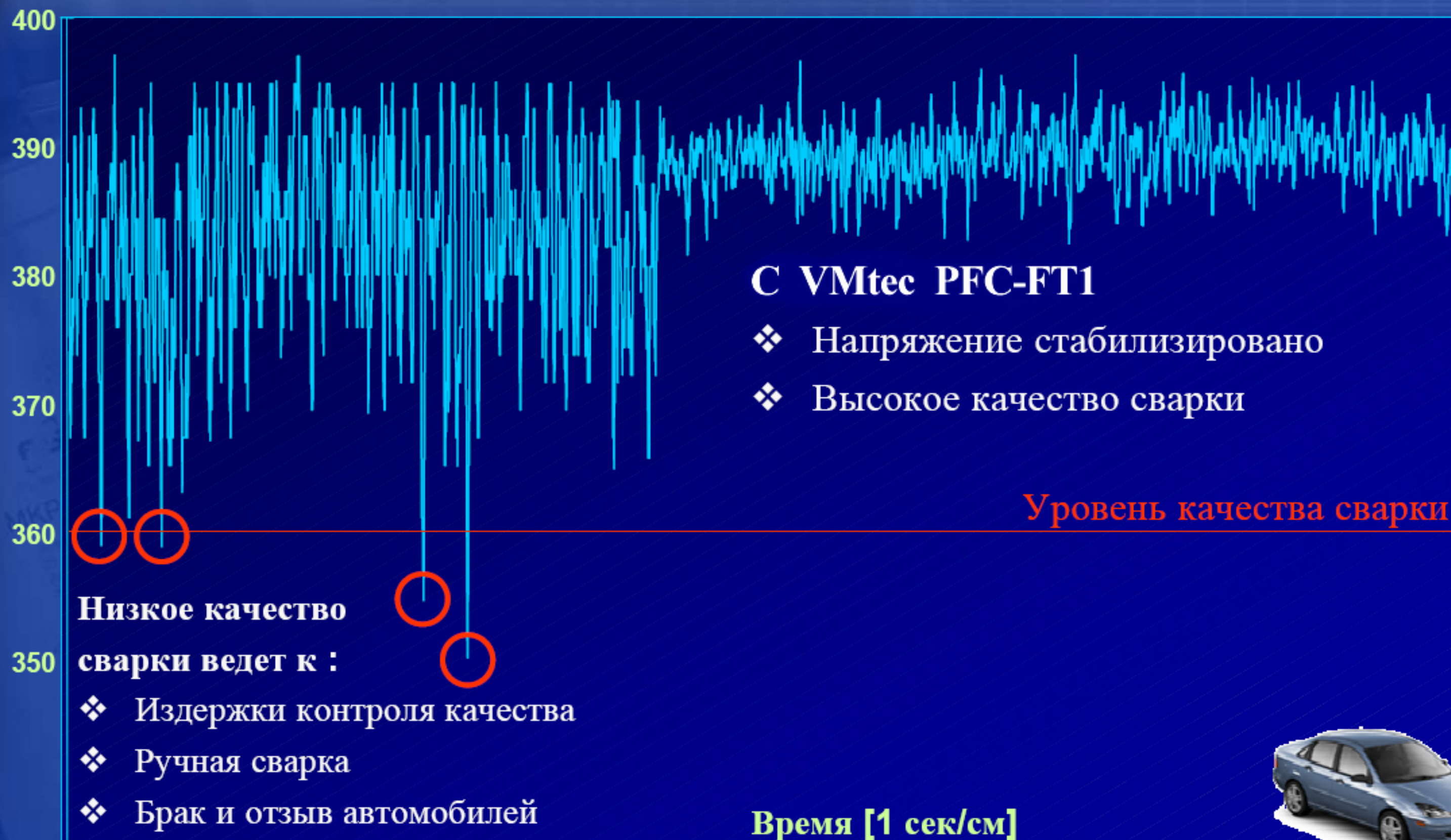
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Напряжение измеренное на питающем трансформаторе



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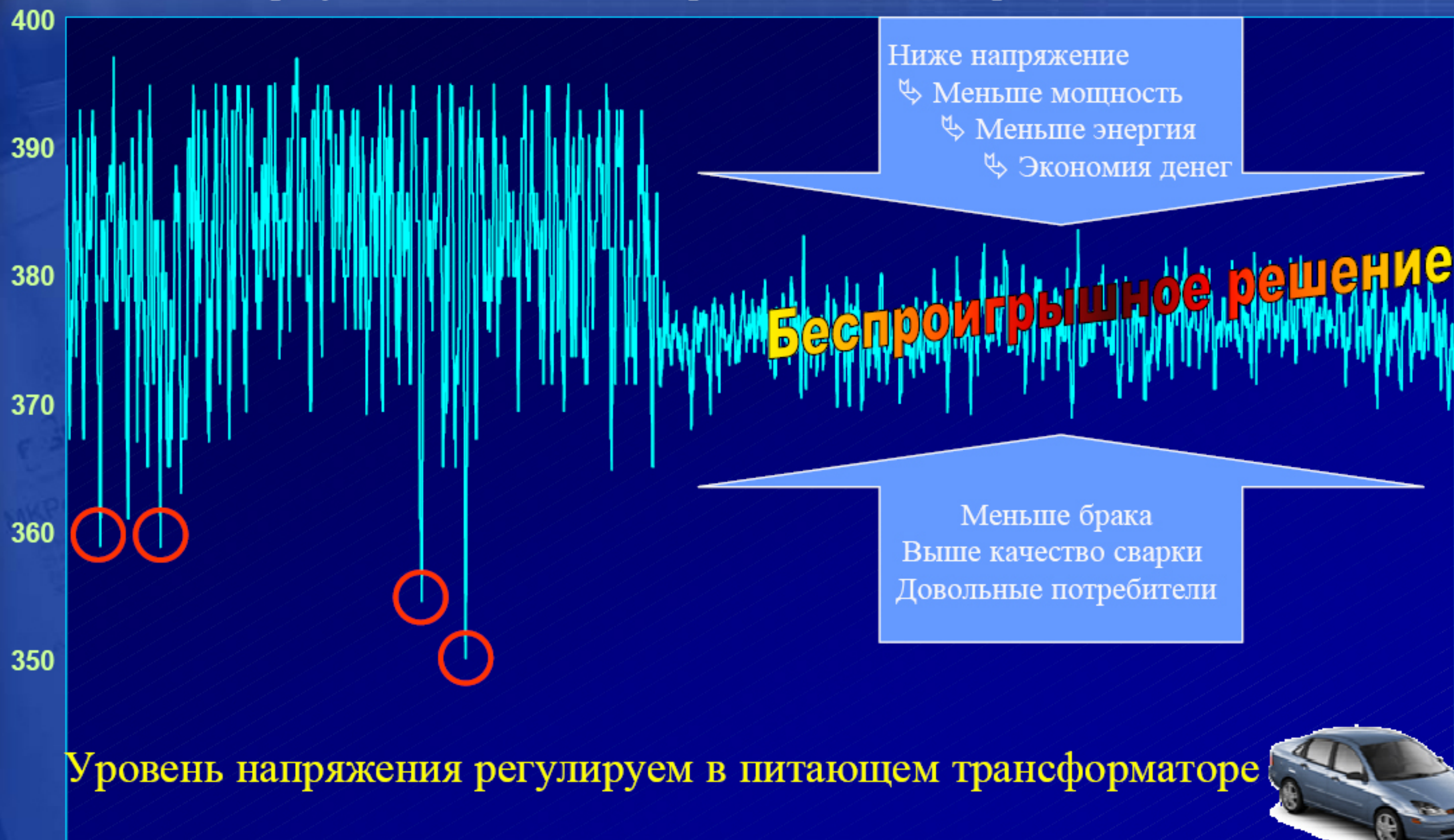
После Стабилизации Напряжения



VMtec

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Два важных результата достигаемых при стабильном напряжении



Референсы



и многие другие ...



FAST RESPONSE, TRANSIENT-FREE REACTIVE POWER COMPENSATION SYSTEMS

ULTRA FAST RESPONSE (UFR):

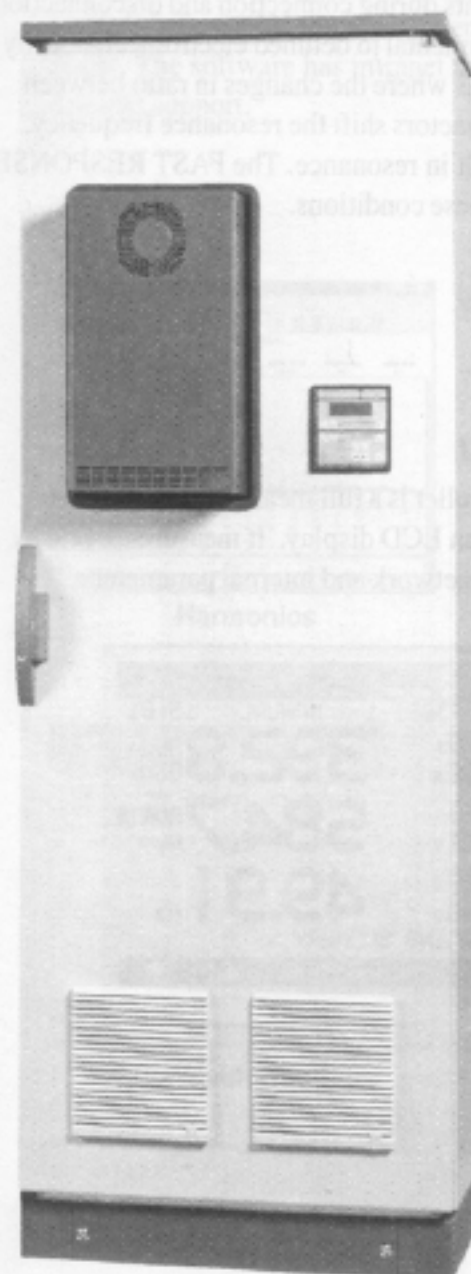
A real-time, transient-free system used to compensate extremely rapid loads within one cycle (typically 5-20 mSec).

FAST RESPONSE (FR):

A fast, transient-free system, used to compensate any load within 3-4 seconds.

TYPES AVAILABLE:

- **Basic Systems:** Include iron core reactors to limit the inrush current
- **Detuned Systems:** Include Iron core reactors that detune the network to prevent resonance and absorb up to 50% of the 5th harmonic
- **Tuned Systems:** Individually designed to absorb the 5th and 7th harmonics.



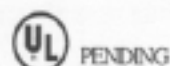
ADVANTAGES:

ULTRA FAST RESPONSE (UFR) & FAST RESPONSE (FR):

- Transient-free capacitor group switching, using electronic switching elements
- Prevents damage to sensitive electronic equipment
- Saves energy
- Harmonic filtration
- Accurate power factor control, even in the presence of harmonics
- Dramatically increases the life expectancy of switching elements and capacitors
- Considerably lower temperature rise of capacitors and inductors due to unique scan feature
- Built-in three phase network analyzer, measuring all network parameters including harmonics
- Unique self-testing and comprehensive reporting feature.

ULTRA FAST RESPONSE (UFR) (in addition to the above):

- Cycle by cycle reactive power compensation (total acquisition time of 5-20 mSec)
- Prevents voltage drop and flickering
- Used for Real Time applications, such as spot welding and motor start-up
- Enhances capacity of local generator systems, such as diesel and windmill generators.



Times

CHRYSLER CORPORATION

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Мнение заказчика

- VMtec PFC-FT1 в корпорации Крайслер- США
- Статья внутреннего журнала завода
- Вторая партия VMtec PFC-FT1 после успеха первых установок
- 26 систем в Толедо, Огайо и 37 систем в Варен, Мичиган – США
- Генеральный подрядчик – Шнайдер Электрик

Cloning the RUBICON



Toledo (Ohio) Machining Plant Engineer Ken Reeves says the new energy management system has improved efficiency at the plant.



Toledo Machining transforms energy use

Chrysler's Toledo (Ohio) Machining Plant has implemented a new energy management system that will save an estimated \$400,000 a year.

Called AV9000 Real Time Reactive Compensation, the system was installed in January.

Plant Engineer Ken Reeves said the system, which had a 95 percent power factor, had improved the plant's power factor to 99 percent.

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only did power increase in the plant after installation, but AV9000 also allowed for additional loads without purchasing new transformers.

Of the plant's 28 electric substations, three AV9000s were installed. Reeves said that after installation, the power factor on the three substations was 95 percent or better. The average cost of the system is \$55,000.

"The expected savings are fantastic," said Toledo Machining Plant Manager Joe Huber.

"All of the plants have a goal of reaching a 10-percent savings. With AV9000, that savings comes very quickly."

Warren (Mich.) Stamping Plant engineers reviewed the results in Toledo shortly after installation and have since ordered similar equipment for their facility.

AV9000 was developed by Schneider North America, an electrical distribution and control company headquartered in Chicago.

work/life resources

are for the new Resource and Referral Program, contracted through Work/

energy management system that will save an estimated \$400,000 a year.

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Warren (Mich.) Stamping Plant