



CESS DEVICE

Our Concrete solution for reducing Power Consumption and Power quality issues

Dr. Mark Shoukry, PE, LEED AP, M ASME, M ASCE

CTW INTERNATIONAL LLC

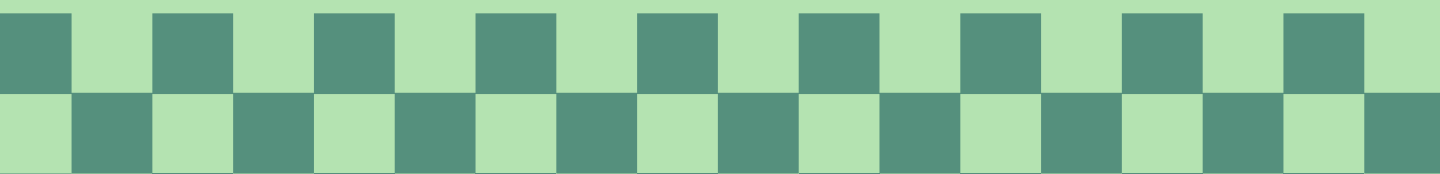
☎ (858) 592-0348

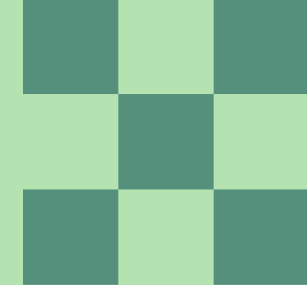
☎ (310) 634-9538

✉ marks@twaenggroup.com



**CONSERVE
TO PRESERVE**





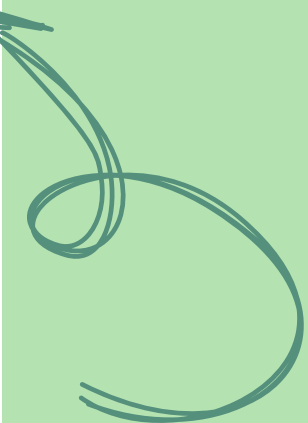
➔ Recorded Running Energy Savings From 20% Up To 40%

The only device that can guarantee saving 20% of electrical bill for any building.

➔ NOTE TO OUR CLIENTS:

CTW International LLC is selling GESS device. However, the know-how is the sole proprietary of CTW!







The GESS Device

GESS is a powerful and compact device which helps in the reduction of electrical energy consumption (KW) by a (20% to 40%), without affecting energy required by the load to perform its function.

CTW INTERNATIONAL LLC is the supplier of GESS (Global Energy Saving System). GESS is a technology for low voltage networks, that has the capability of saving KW consumed. The savings are directly impact electricity bills. In addition, GESS improves the overall network quality by reducing harmonic and improving power factor. GESS is a product of extensive research which took more than fifteen years of continuous work using ionization technique to create negative resistance for the electrical network.





The GESS Device



STATE-OF-THE-ART CAPACITOR TECHNOLOGY

Our capacitors have undergone ionic treatment process which allows to create negative resistance mode for the load. The negative resistance is a well-known electrical phenomenon which states that if you can enforce the capacitor to work under this condition, it would act as a current source along side the existing power source in the electrical network.



POWERFUL AND COMPACT

GESS panel has a wide range of capacities starting from residential units with its varying sizes till heavy industrial fields and can also work with networks served by generators. GESS unit can save 15% to 25%) of the generators' fuel.



GESS – A WORLD OF ENERGY EFFICIENT APPLICATIONS

Active power saving system device can help optimize power networks for energy efficient operation in a wide variety of applications including:

- Mining
- Heavy industry
- Chemical
- Pulp and paper
- Shipping
- Cement
- Plastics
- Petro-chemical
- Printing
- Food industry
- Iron & steel fabrication





The GESS Device

SOLUTIONS FOR COMMON PROBLEMS



THE AMOUNT OF MONTHLY ELECTRICAL INVOICES

GESS saves 20% to 40% over the consumed Active power without affecting the load.



THE INCREASE OF THE POWER CONSUMPTION IN THE PEAK INTERVALS

GESS minimizes the increase of power consumption in the peak intervals by achieving more saving proportional to another means.



THE NEED TO UPGRADE UTILITIES WHEN ADDING MORE LOADS

GESS allows the client to use the saved energy for load increase (20% to 40%) without upgrading utilities.



THE INSUFFICIENT EFFICIENCY OF THE POWER FACTOR CORRECTION PANELS

GESS increases power factor (close to one). If there is a power factor correction panel installed the two systems can work together and the GESS works only on the KW reduction.



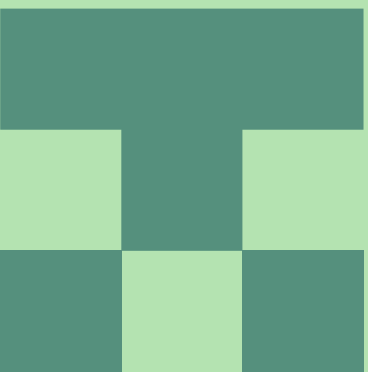
THE PRESENCE OF HARMONICS AND VOLTAGE DROPS

GESS decreases the amount of the consumed current from the source without any effect on the load current. It acts as a voltage stabilizer and GESS has an active filter board which eliminates the harmonics and improve the overall network quality.



EASY TO INSTALL

As the device is installed in parallel to the MDB of the circuit, installation time ranges from 1.5 to 2 hrs .





The GESS Device

SOLUTIONS FOR COMMON PROBLEMS

Single line diagram of GESS

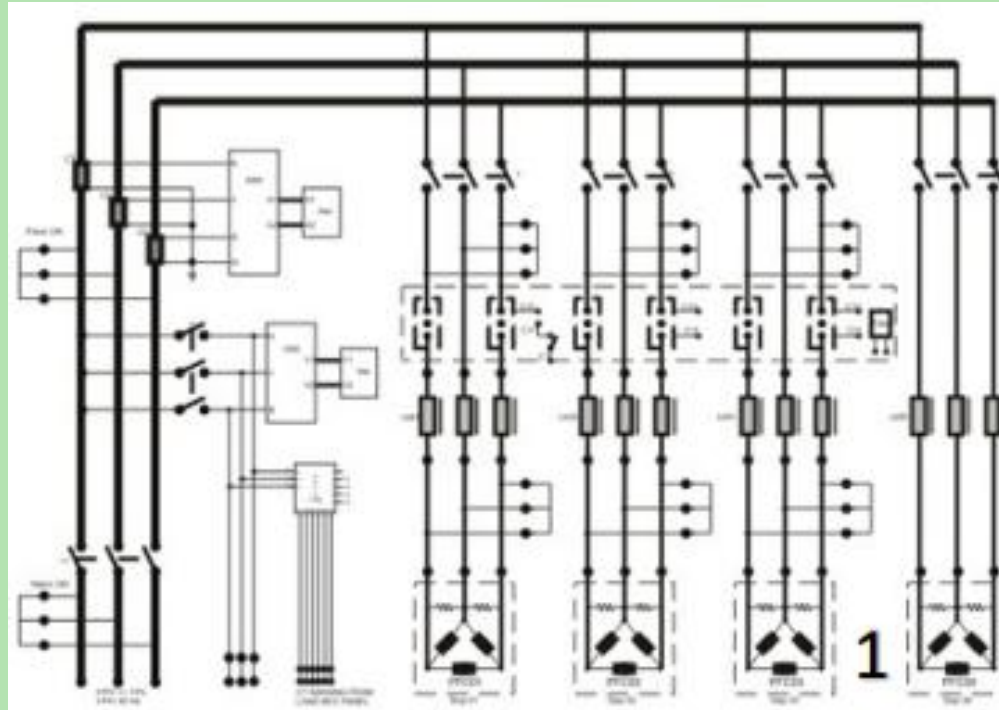


Figure 2 shows measurements of Active Power Consumption (in Watts) versus time (in 24 hour clock) on the 17th October 2012:

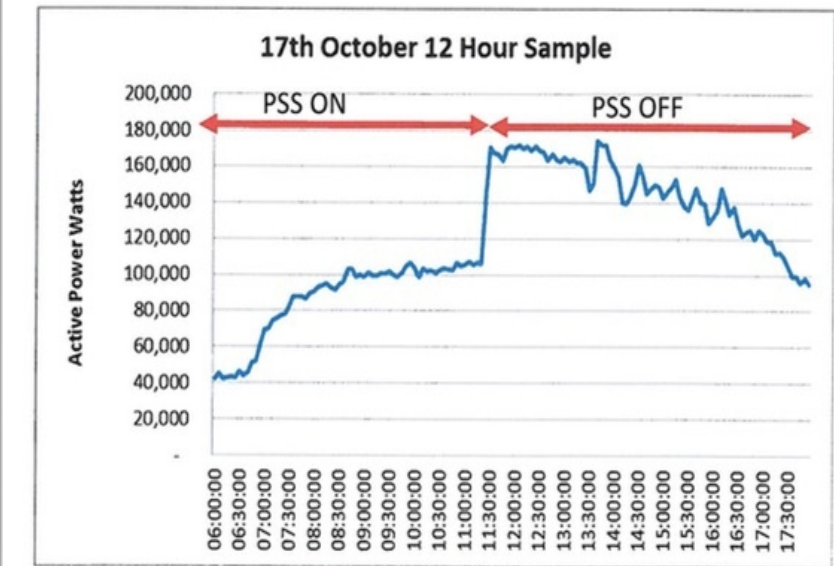


Figure 2





The GESS Device

COMPONENTS

CTW uses components (contactors, fuses, CB, Regulator) provided by well known brands in the Market such as ABB , Siemens and schneider..

Component	Brand
Contactors Capacitor	ABB, Siemens, Schneider, Hyundai
Fuses	ABB
Regulator	Mikre, schneider, ABB, seimens,KRK
Circuit breaker	ABB , Siemens, Smart, Schneider, Hyundai



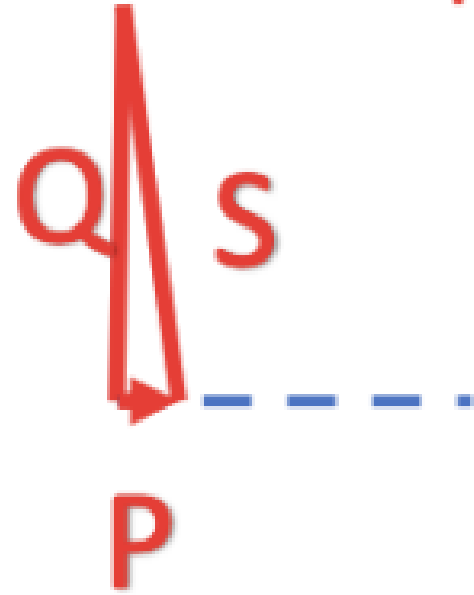
The GESS Device

COMPONENTS

The capacitors which is serving the GESS are specially treated to achieve reduction in consumed power (20% to 40% of electrical bill).

TRADITIONAL POWER FACTOR CORRECTION PANEL CAPACITOR:

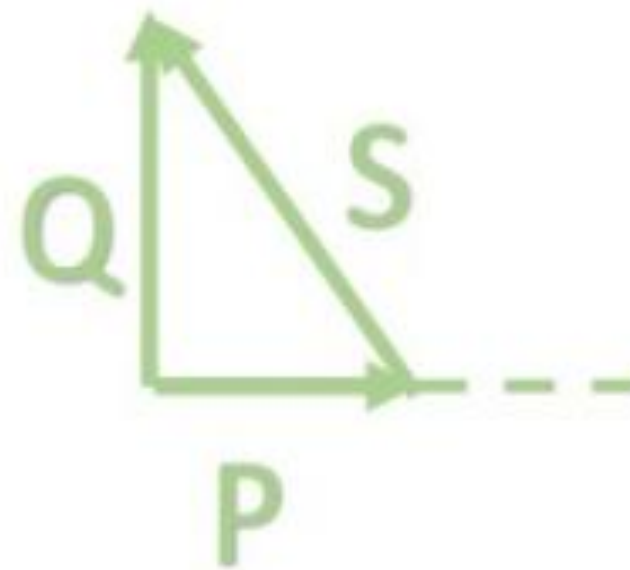
PF correction Capacitor



Normal capacitors consume approximately 10 W for each 1 KVAR. The energy (10 W) is dissipated in the form of heat. This results in limiting the capacitors' service life time to 11000 to 13000 Hrs.

GESS DEVICE CAPACITOR:

GESS Capacitor



The GESS capacitors work in the negative resistance mode (which has been created by the ionic treatment doesn't consume any power).





The GESS Device

COMPONENTS

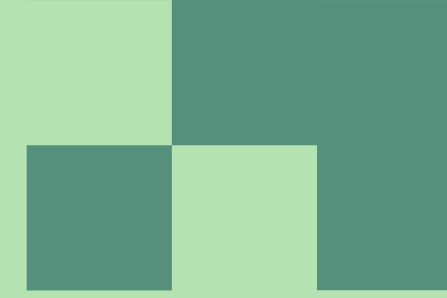
GESS smart electronic control board has been custom designed for each unit size. The control board improves the network quality and eliminates the harmonics in the network. It allows GESS unit to meet load requirements.





The GESS Device

COMPONENTS



- TOP CABLE ENTRY(OPTIONAL)
- TAILOR MADE PCB
- REGULATOR
- CONTACTOR
- FUSES
- BUSBAR
- CIRCUIT BREAKER
- BOTTOM CABLE ENTRY OPTIONAL

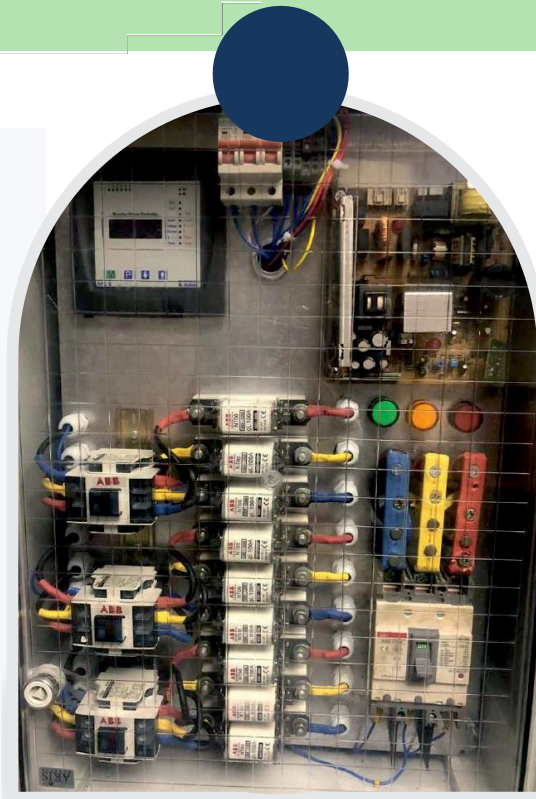




GESS PANELS

DIMENSIONS

- > 0- 63 AMP one and 3 phases
35 x 25 x 15 CM or 1'X 8"X6"
- > 63-100 AMP 3 phases
40 x 30 x 16 CM or 1' 3" X 2'X 6"
- > 100-200 AMP 3 phases
50 x 40 x 20 CM or 1' 7" X 1' 4" X 7"
- > 200-300 AMP 3 phases
60 x 40 x 20 CM or 2' X1' 3"X 7"
- > 300-400 AMP 3 phases
80 x 60 x 45 CM or 2' 6"X 2' X1' 6"
- > 800-1500 AMP 3 phases
150 x 60 x 45 CM or 4' 9"X2'X1' 6"
- > 1500-3000 AMP 3 phases
200 x 75 x 65 CM or 6' 6"X 2' 5"X 2' 2"
- > 400-800 AMP 3 phases 100 x 80 x 30 CM



GESS unit comes with two power meters one indicates the power delivered to the load and the other one shows the source power. The difference between the source and load shows the saving percentage achieved by the GESS panel.





TECHNICAL SPECIFICATIONS



Configuration

- Master unit only
- Master and slave units
- Slave units are not equipped with PF controller but are fitted with H/O/A stage selector switches



Operation

Automatic or manual setting of the controller with indication of:

- The number of active outputs
- The inductive or capacitive power factor
- Alarm conditions
- Overtemperature
- Demand for switching on/off capacitor step
- Voltage, current, THDV and THDI
- Threshold setting for protection against overvoltage, undervoltage and high THDV



Location

- Indoor
- Outdoor



Colour

- Light grey RAL 7035



Ventilation

- Forced



Connection

- Three phase.
 - Single phase.
- Tailored for each case.



Starting current setting (C/k)

- From 0.01 A to 3 A for the RVC controller
- From 0.01 A to 5 A for the RVT controller



Ambient temperature

- 25°C/75°C



Installation

- Box:
- Wall mounting (Vector 1 series)
- Top or bottom cable entry
- Cubicle
- Floor mounted
- Equipped with a plinth
- Lifting lugs provided
- Top or bottom cable entry





GESS Improves Not Only the Power Factor:

More About GESS

In order to achieve the required saving in the big networks, we can use several **GESS** panels.

- **GESS** panels are compact.
- **GESS** panels can be designed to work in any environment.
- With the use of the **GESS** panels, client can avoid utilities upgrade in case of load increase.
- **CTW INTERNATIONAL LLC** provides monthly check-up and preventive maintenance by a highly qualified technical teams.
- **GESS** panels can be easily installed by CTW INTERNATIONAL ONLY.
- The **GESS** panel is guaranteed for labour and spare parts by for 1 year.
- **GESS** is reducing the running energy cost by more than 20%.





GESS advantages:

1. Reducing the running energy cost by more than 20%.
2. Reducing carbon footprint (environmental decarbonize).
3. Reducing peak demands.
4. Reducing harmonics.
5. Stabilizing building operations.
6. Allowing adding more loads without upgrading utilities.
7. Saving national resources.

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**ELECTRICITY SAVED TODAY
IS AN ASSET FOR FUTURE**