

Weirgrove

Power Management Systems

Weirgrove Power Management Systems is a UEP Switchgear Ltd company, based on the south coast of England and specialises in LV and HV automatic switching solutions.



With over 30 years' experience in Industrial Automation and over 20 years of development invested in our switchgear automation products.



Weirgrove has established an excellent track record in the supply of equipment for critical power infrastructure, including "blue-chip" companies in industry sectors which include TV Broadcasting, Hospitals, Data Centres, Prisons, and Airports.



Weirgrove Power Management Systems is a Siemens "Power Solutions Partner".

Solution Partner

Power Distribution

SIEMENS



Weirgrove understands the problems faced by Facilities Managers on critical sites with extensive power networks, multiple power sources, switchgear redundancy and backup systems, and has a large portfolio of tried and tested solutions to meet your requirements. Through clear displays and unambiguous diagnostics, our interfaces give operators the best possible tools to help manage their plant through normal operation, test routines and fault conditions.



Our solutions use rugged PLC and HMI based technology with industrial communications networks, they use both hardwired and software based interlocking schemes, and provide status and diagnostic data to our LED mimic displays and Touch Screen HMIs for visualisation. Our engineering philosophy owes much to our background in Food, Pharmaceutical and Power Generation industries, and we apply rigorous standards to our system design and validation processes.

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Power Management Systems

AMCO (Automatic Mains Change Over Systems).

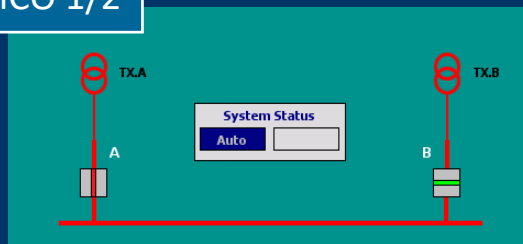
For automatically switching between two or more mains supplies.

Hardwired and software interlocks to prevent "crash paralleling" of supplies or connecting on to a "dead" supply.

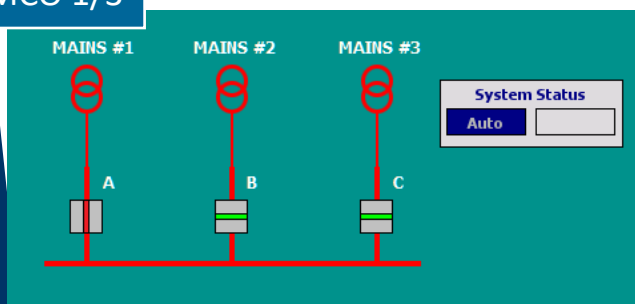
Can be configured for various applications including the incorporation of bus-couplers, which allow for...

- "Dual/Multiple Transformer operation" (Bus-couplers open)
- "Duty/Standby Transformer operation" (Bus-couplers closed)

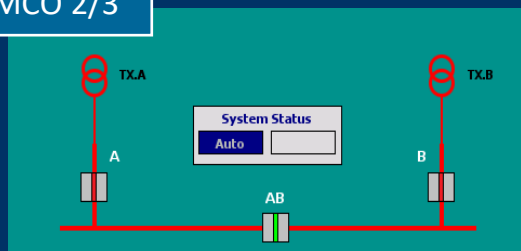
AMCO 1/2



AMCO 1/3

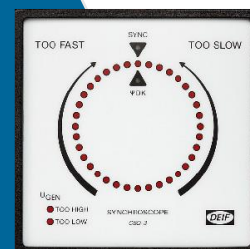


AMCO 2/3



STP ('Short Term Parallel' Option [Mains-/Mains])

- Compatible with Weirgrove ENMS and AMCO systems.
- STP function allows a fleeting "make before break" transfer of load between supplies.
- Software and hardware-based time limits on parallel condition to reduce period of elevated fault level on switchboard. (Fault level limitation of switchgear should be checked).
- Typical parallel condition lasts 200 milliseconds, allowing breaker operation and stability monitoring "in flight" to prevent accidental loss of load.
- Local (Authorised Person) selection.



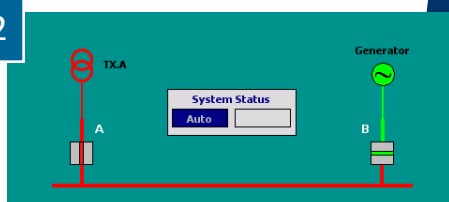
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Power Management Systems

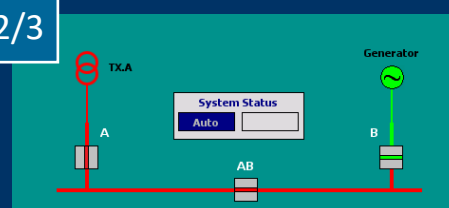
GMCO ('Generator Mains Change-Over' Systems)

- Compatible with Weirgrove ENMS or stand alone operation.
- Embedded in UEP switchgear or remote control panel.
- Hardwired and software interlocks to prevent "crash paralleling" of supplies, or connecting on to a "dead" supply.
- Volt-free interface with the generator controller(s).
- Can be configured for various applications including the incorporation of bus-couplers, which allow for...
 - Busbar segregation.
 - Essential / Non-Essential loads.

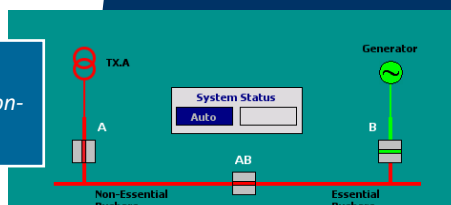
GMCO 1/2



GMCO 2/3



GMCO 2/3
(Essential/Non-Essential)



G99/G59-3.7 ('Short-Term or Long-Term Paralleling' Option [Mains/Generators])

- Generator to Mains paralleling functionality for no-break transfer of load or onload operations, HV or LV systems.
- Short term or Long Term paralleling for export, load lopping or onload testing into the grid supply.
- Remote generator mains paralleling controller, or embedded into GMCO controller.
- Check synchronising and G59/G99 protection incorporated into design.
- Onsite G59/G99 calibrations, validation and DNO witnessed testing service.



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Power Management Systems



PV Protection Panels

A single panel for the connection of Photovoltaic arrays to an electrical infrastructure, which as standard incorporates the MCCB breaker, the G99 Protection relay and Surge Protection.

- Usually specified with metering and surge protection options.
- Volt-free signal to inhibit connection when the electrical system is running on generators.
- Volt-free contact available for status/alarm conditions.

ALSS ('Automatic Load Shedding Systems')

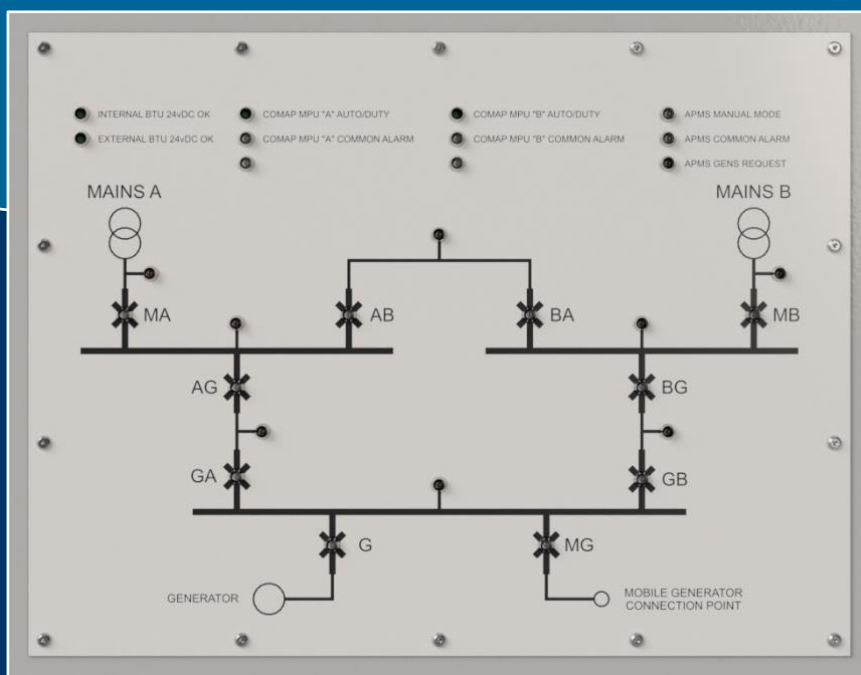
- A flexible load management system compatible with Weirgrove AMCO, GCMCO and ENMS panels.
- Embedded into UEP switchboards or as field mounted modules to control discrete loads in distributed networks.
- Fast acting operating mode to react to sudden changes in power budget.
- ALSS Adaptive load shedding function to maximise supported load within a power budget.
- ALSS Load "stepping" function to reduce inrush when black starting HV or LV systems.
- ALSS Load Mapping and editing screens provide user configurable operation without need for re-programming.
- ALSS works with motorised ACBs, MCCBs and contactors, or volt free to BMS systems.

LOAD-SHEDDING SETUP							
Channel	Priority	ALWAYS ON	ALWAYS OFF	Channel	Priority	ALWAYS ON	ALWAYS OFF
PFC	7	NO	NO	Admin	3	NO	NO
Plantroom LP2	2	NO	NO	Laundry	4	NO	NO
Riser LP1	1	NO	NO	CCTV rack	1	YES	NO
LP0	1	NO	NO	Generator	6	NO	NO
Platform Lift	5	NO	NO	Data Rack	2	NO	NO
M2 Mech. Services	6	NO	NO	Passenger Lift	3	NO	NO
EXT LTG	7	NO	NO	Plant Area	4	NO	NO
MO	5	NO	NO				
09	8	NO	YES				
Staff & Visits	2	NO	NO				

Typical Load Shedding Graphic Page

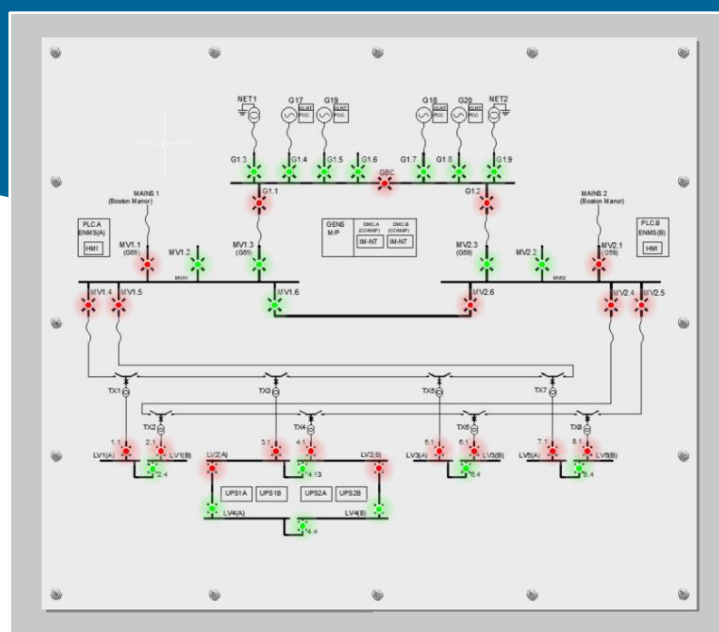
APMS (Automatic Power Management Systems' [LV])

- Localised LV network controller, compatible with Weirgrove ENMS.
- For 'Tier 3' and 'Tier 4' infrastructures where redundancy and/or concurrent maintainability is required
- Typically, a "circular" system with two main busbars, each fed from three sources of supply including the mains, generators and bus-coupler.
- Hardwired and software interlocks to prevent "crash paralleling" of supplies, or connecting on to a "dead" supply.
- Volt-free interface with the generator controller(s).
- Can be configured for various applications including...
 - Dual Mains (bus-coupler open) or Duty/Standby Mains (bus-coupler closed).
 - Bus-Coupler first Generators second, or Generators first Bus-coupler second priority.
 - Automatic or Manual Return-to-Mains Options.
- As standard the APMS includes...
 - Large graphical displays, with alarm/event logging and extensive diagnostics.
 - Animated LED mimic displays.
 - Manual controls for generator start/stop, mains failure testing and ACB open/close.
- Options include...
 - ALSS systems.
 - G99 / G59-3.7 functionality.
 - Dual redundant PLC and I/O configurations.
 - Segregated Path A and Path B controllers (N+N).



ENMS ('Energy Network Management Systems' [HV])

- For 11KV primary power switchboards and subordinate 11KV distribution networks which may be spread over considerable distances.
- The ENMS can control primary 11KV switchgear and interfaces with standby power generation and CHP installations.
- Segregated busbars are normal, and these are usually linked by a bus-tie, and can be operated in one of three modes...
 - Normally open (independent)
 - Normally closed ("flip – flop")
 - Normally closed ("solid bus").
- The ENMS can manage the 11KV distribution network which can be customised to suit a combination of ring or radial topologies.
- The ENMS can manage "ring operations" including HV cable fault detection, isolation and ring reconfiguration without operator intervention.
- The ENMS will also control transformer "load-stepping" functionality (to automatically isolate the transformers on generator start and step them back in to prevent a large surge).
- As standard the ENMS includes...
 - Large graphical displays, with alarm/event logging and extensive diagnostics.
 - Animated LED mimic displays.
 - Manual controls for generator start/stop, mains failure testing and ACB open/close.
- Options include...
 - ALSS systems.
 - G99 / G59-3.7 functionality.
 - Dual redundant PLC and I/O configurations.
 - Segregated Duty/Standby controllers (N+N).



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EGCP ('Engine-Generator Control Panel' Upgrades)

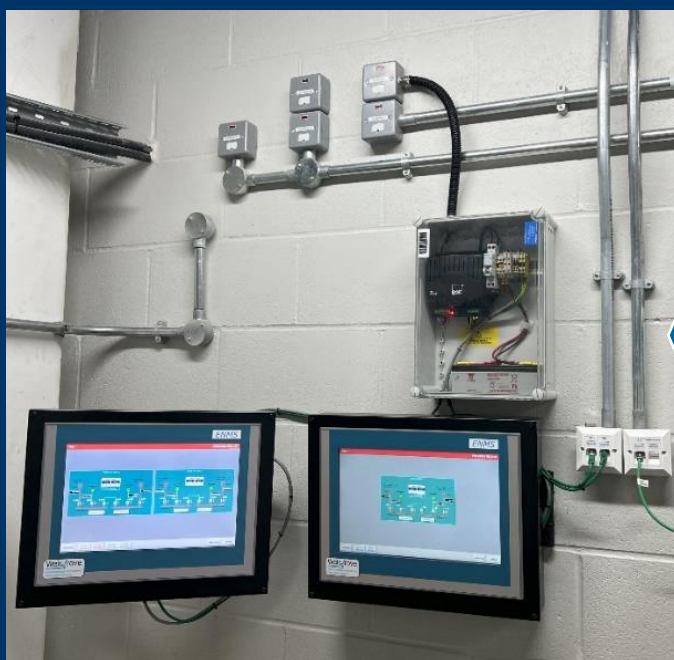
- Retrofit or upgrade of legacy generator control systems using either DeepSea or ComAp control.
- Retrofit of G99 functionality when required as part of a new APMS or ENMS system.



Mains Paralleling Units



SCADA ('Supervisory Monitoring Systems')



- Centralised overview of multiple Weirgrove control systems.
- Peer-to-Peer communications between all controllers using Profinet and Industrial Ethernet protocols.
- Remote graphical displays.
- Secure Logon Access from the site Local Area Network (LAN).

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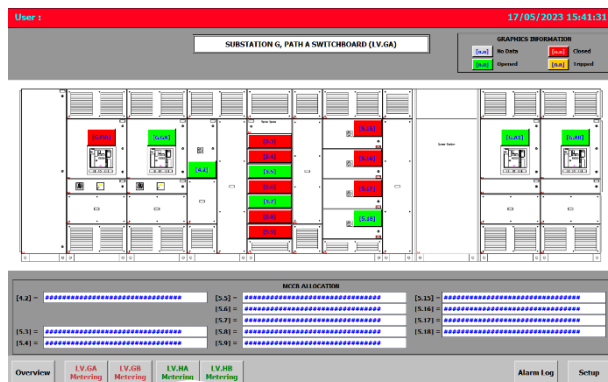
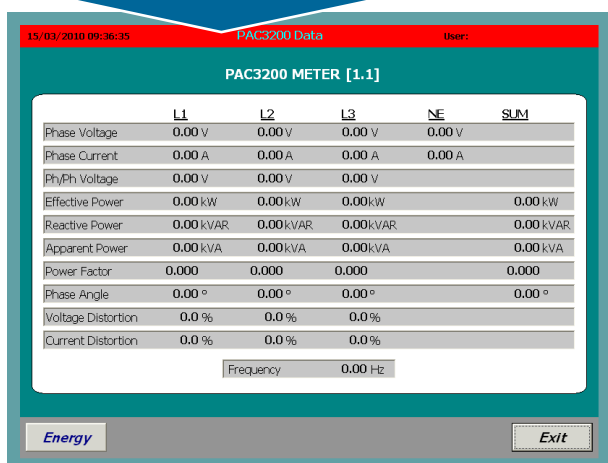
Power Management Systems

Bolt-On Extras

GSM – Text messaging of alarms to multiple recipients.
GPS time stamping and synchronising.

Metering / Power Quality

Monitoring – Display screens for a variety of meter types, where the data is collected via ProfiNet or Modbus protocols.



Smart Switchboard Monitoring

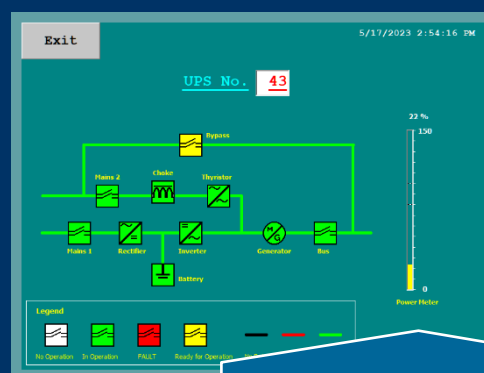
– Display screens showing switchboard status and alarm diagnostics, where data is collected via Modbus-TCP protocol.

GSM Setup

Telephone Number 1: Telephone Number 9: Telephone Number 10: Telephone Number 11: Telephone Number 12: Telephone Number 13: Telephone Number 14: Telephone Number 15: Telephone Number 16:

Number of Recipients: 11 Test Mode: Test Acknowledge Mode: OFF

Exit Manual Reset



UPS monitoring – Display screens for a variety of UPS types, where the data is collected via ProfiNet or Modbus protocols.

Generator Monitoring – Display screens for a variety of Generator controller types, where the data is collected via ProfiNet or Modbus protocols.

