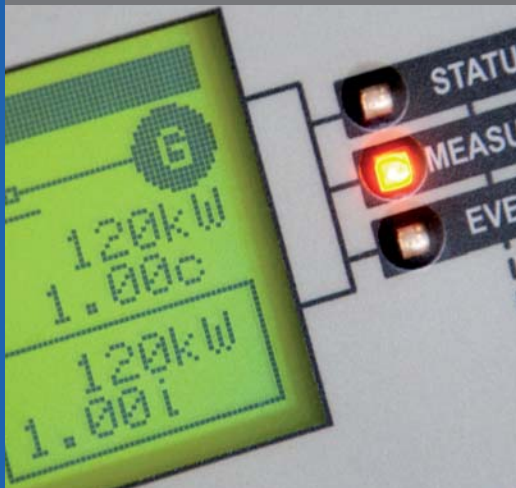# GENSET CONTROL

HUEGLI TECH
SWITZERLAND

HUEGLI TECH has a long and proud history in the electronic control of diesel, gas and dual-fuel engines. As the Manufacturers Representative for American Bosch products, initially in Switzerland and later expanding to represent the brand throughout Europe the Middle East and Asia, HUEGLI TECH introduced many well-known OEMs to electronic governing systems.

When GAC began manufacturing improved versions of the original Americam Bosch products, it was HUEGLI TECH that worked with virtually all diesel engine manufacturers in our territory to introduce integral actuator solutions for their engines.

In this age of electronic engines both HUEGLI TECH and GAC have taken the logical step of expanding into the supply of the next level of electronic control and management. Since 2000 we have worked exclusively to establish the ComAp brand throughout our territory. Today we are introducing controllers under our own name for the first time. These controllers offer a build-quality and operational flexibility that is second-to-none. In conjunction with Cuteline expansion series, we can now offer a comprehensive range of control solutions from simple remote start single sets to multiple CHP installations with or without multiple mains incomers.

Your engine manufacturer* trusts us you can too!

*MAN, Deutz, MTU, MWM, Scania, Volvo, Sisu, Cummins, Caterpillar, Doosan, Lombardini, Liebherr, Hatz, Faryman, Greaves, Tata, Bukh, Iveco, etc.

Typical Applications

- Power Generation
    - single gensets in standby
    - multiple gensets in parallel to the grid
    - rental sets
    - landfill gas installations
    - emergency gensets
- Oil & Gas
- Marine
- Transportation
- Mining
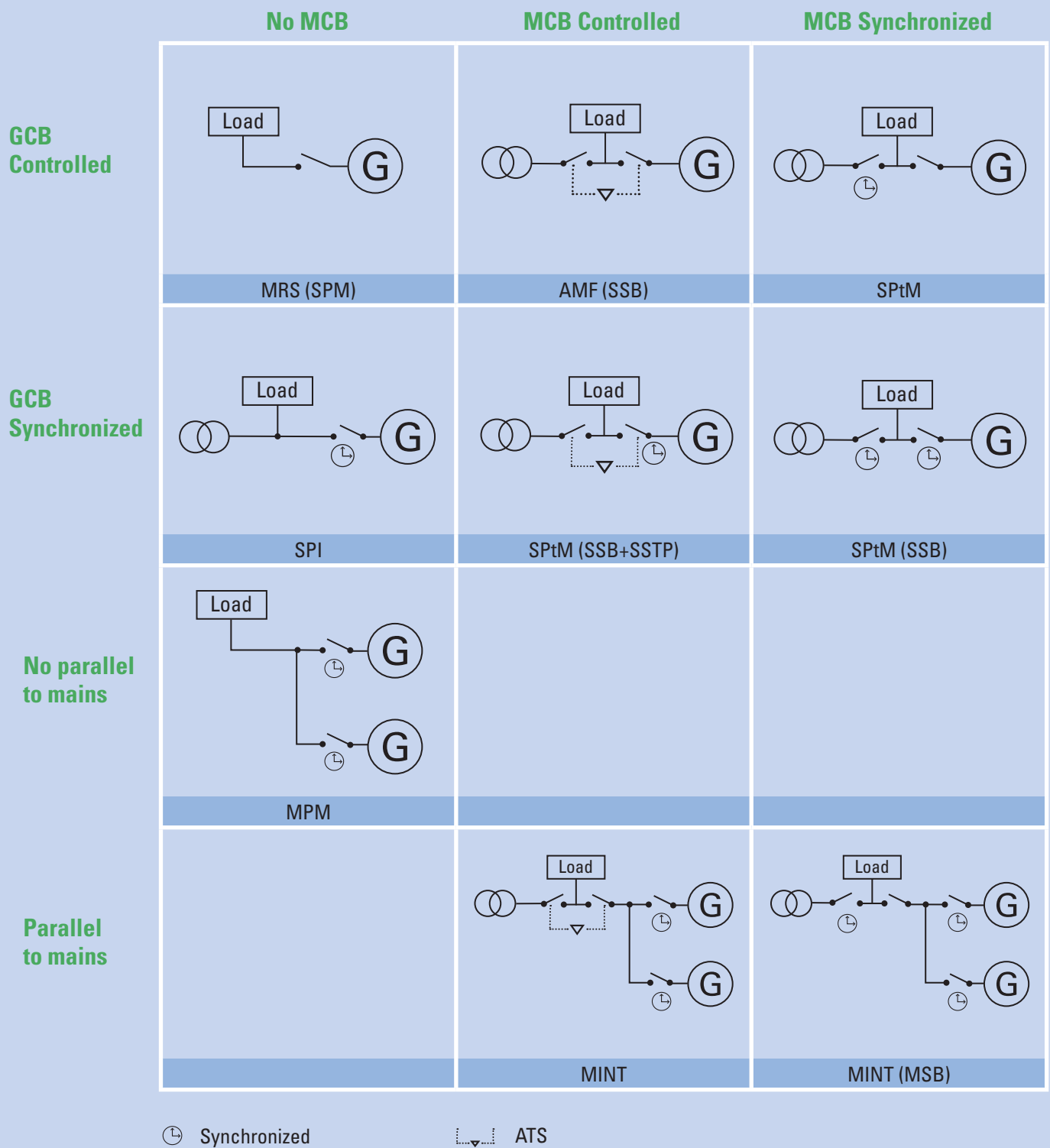- Industrial Refrigeration & Cooling

The Benefits

- We are a total solution provider

- You can benefit from our 80 years of experience

- Our experienced team can provide you professional support

- We provide theory and hands-on training on real engines and gensets
  (1 x diesel engine, 1 x bi-fuel engine, 1 x gas engine; island parallel or parallel to mains).

- HT controllers have many options included in the main unit
  (e.g. additional I/O , communication ports).

- HT Controllers are supplied with individual final test reports

- HT Controller configuration is straightforward and consistent

- Supervising PC software is available for standard and more complex applications

- ISO 14001 certified production demonstrates our responsibility for our environment

HUEGLI TECH
SWITZERLAND

	No MCB	**MCB Controlled**	**MCB Synchronized**
GCB Controlled	Load G MRS (SPM)	Load G AMF (SSB)	Load G SPtM
GCB Synchronized	Load G SPI	Load G SPtM (SSB+SSTP)	Load G SPtM (SSB)
No parallel to mains	Load G G MPM		
Parallel to mains		Load G G MINT	Load G G MINT (MSB)

🕐 Synchronized   ⌐▽⌐ ATS

THE RIGHT CONTROLLER FOR DIFFERENT NEEDS

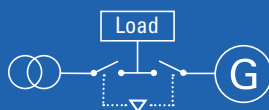**MRS (SPM)**

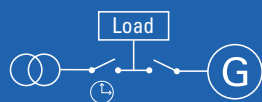Single Prime Mover

GCB controlled, no MCB

– HT-GC310 / HT-GC350

AMF (SSB)

Single Stand-By
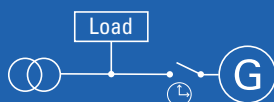
GCB controlled, MCB controlled

– HT-GC310 / HT-GC350

SPtM

Single set Parallel to Mains with AMF

GCB controlled, MCB synchronized

– (HT-GC500 + PWM module) or HT-DST4602 or HT-GC500plus

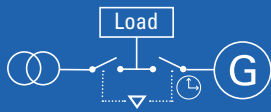**SPI**

Short or long time Parallel (no MCB)

GCB synchronized, no MCB

– (HT-GC500 + PWM) or HT-DST4602 or HT-GC500plus
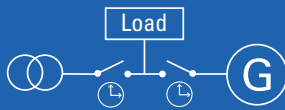
THE RIGHT CONTROLLER FOR DIFFERENT NEEDS

SPtM (SSB + SSTP)
Single set Parallel to Mains with AMF
GCB synchronized, MCB controlled
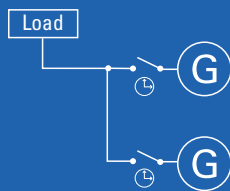– (HT-GC500 + PWM) or HT-DST4602 or HT-GC500plus

SPtM + SSB
Single set Parallel to Mains with AMF
GCB synchronized, MCB synchronized
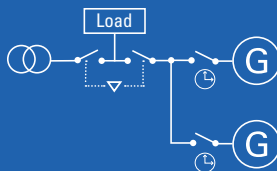– (HT-GC500 + PWM) or HT-DST4602 or HT-GC500plus

MPM
Multiple Prime Mover
Parallel island, no Mains
– (HT-GC500 + PWM module) or HT-DST4602

Mint
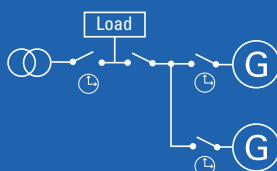Multiple parallel to mains, standby, no MCB synchronized
Parallel gensets, with mains, MCB controlled
– (HT-GC500 + PWM module) + HT-MC100 or (HT-DST4602 + HT-MC100) or (HT-GC500plus +HT-MC100)

Mint (MSB)
Multiple parallel to mais, standby, MCB + GCB synchronized
Parallel gen-sets, with mains, MCB +GCB synchronized
– (HT-GC500 + PWM module) + HT-MC100 or (HT-DST4602 + HT-MC100) or (HT-GC500plus +HT-MC100)

CONTROLLER RANGE

HT-GC315

HT-GC350

GENSET CONTROLLER

AMF genset controller

The HT-GC315 is the high quality, reliable controller for the most common single generator applications, offering a lot of features; for electronic engines with CAN J1939 and for conventional engines with sensors. Available in 3 different versions.

Advanced AMF genset controller

This is an advanced controller for generator sets operating in single stand-by mode, offering high performance benefits.
In addition to the features of the HT-GC310 controller the HT-GC350 is equipped with additional I/Os and communications possibilities, which allows its use in customized and non-standard applications.

Marine Classifications

HT-GC350 R

HT-GC500plus

Multiple Parallel genset controller

HT-GC500plus is an advanced and very flexible controller which is particularly suitable for groups of up to 16 gensets running in parallel, with or without Mains.

This controller has been designed to simplify installation and operation due to its internal Load Sharing (by CAN interface), Synchronizer (via CAN or PWM output) and VAr regulation.

**Marine Classifications**

HT-GC500 R

HT-DST4602

AMF and PARALLEL genset controller

HT-DST4602, the upgraded replacement for HT-DST4601/PX + DICHRON, is a highly configurable genset controller designed to handle a broad range of critical and complex parallel applications, including multiple Mains and CHP systems. It now includes an internal load sharing unit that allows simple implementation of Multiple Prime Mover applications. The unit also now includes a range of useful PLC functions (including PID blocks) to cover application-specific requirements.

Splitted Version

A split version is also available. This consists of two units: a display unit, to be mounted on the front panel and a Base Box to be mounted inside the panel. They are interconnected by differential transmission line in order to obtain great immunity and communication safety.

Display   Base Box

HT-DST4602 Evolution
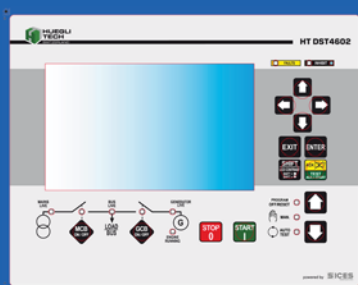
The outstanding DST4602 has become color and offers you now even more information in a great display.

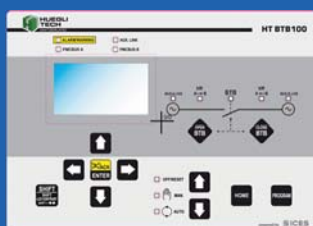BDEW certified for protection relay functions.

CONTROLLER RANGE

HT-ATS115

Automatic Transfer Switch Multifunctional controller
The HT-ATS115 is a controller for the automatic and manual switch between two supply sources. Supplied Power from both sources can be measured and the values are then displayed accordingly.

HT-BTB100

Bus Tie Breaker controller
The HT-BTB100 is the right choice for the bus tie breaker management. For simple setup of complex applications with multiple mains and / or multiple bus tie breakers.

MAINS CONTROLLER

Parallel system supervisor

The HT-MC100 controller is designed to manage multiple parallel systems. The unit is able to control the global circuit breaker and generator functions operating as a Master unit. Its automatic control functions are well suited for many different types of power plants with and without MCB and MGCB management.

The HT-MC100 can be combined with the HUEGLI TECH controllers for paralleling / synchronizing, e.g. HT-GC500plus and HT-DST4602 and communicates via PMC-Bus over CAN.

HT-MC100

HUEGLI TECH SWITZERLAND

CAN BRIDGE
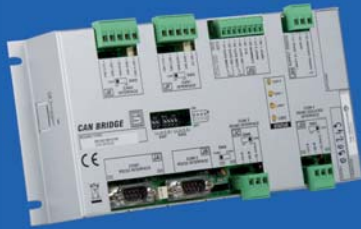
allows extension of the bus, both in generator numbers and bus length. It filters all not needed messages, separating the internal communication from the external. It can acquire measurements from auxiliary devices by 2 additional Modbus lines.

ROUTER GSM

allows using a single GSM modem for systems that use more than one controller. It also allows local communication to a supervisor system, SMS communications and alert support.

MODBUS TCP/RTU GATEWAY

is used to connect one or more Modbus RTU devices to an Ethernet network. It can manage up to 32 RTU server (slave) devices. Various types of RTU devices can be freely mixed on the gateway output line. 3rd party Modbus data exchange for each TCP connection is supported. The Web Server feature allows data monitoring via Web browser.

Rewind & Dance

Two interfacing modules for the communication with Si.Mo.Ne and Supervisor PC based software.
By using the GSM/GPRS technology Rewind is the perfect electronic device connecting your genset, light tower, mobile tank etc to your network. Rewind is using GPS technology for giving the detailed information about the exact location of your machine.
Dance is your choice when you connect your genset, stationary tank, car shredder, or whatever machine to the Internet via Ethernet TCP/IP. A broad variety of communication options are built in, like RJ45 port for 10/100 Mbps, RS232 – RS485 Modbus RTU, USB.
With the additional analogue and digital I/O you expand the possibilities of your complete system.

Si.Mo.Ne: Rewind & Dance

The innovative and centralized control system that allows to know any time from any location the status and the main measures and information of your generating sets, light towers, vehicles etc.

- Permanent communication for effective and reliable control
- Tracking of the device via GPS with immediate notice in case of momement
- Historical events for reports and analysis
- Easy to use PC application with available App for Android and iOS

CuteLine

The multifunctional I/O modules from HUEGLI TECH
Cost saving expansion for complex application where you need additional I/O for your Gen-Set controller. Offered in a very durable space saving size, simple connection to the main unit via CAN or Modbus.

|	
HT-CL-AIN8	8 analogue inputs for voltage and current
HT-CL-AIN8Temp	8 analogue inputs for temperature sensors
HT-CL-BIN8	8 binary inputs
HT-CL-BOUT8	8 binary outputs
HT-CL-AOUT4	4 galvanically separated outputs 0 – 20 mA / 0 – 10V
	4 analogue inputs for voltage and current

HUEGLI TECH
SWITZERLAND

CONTROLLERS FUNCTION OVERVIEW

	HT-ATS115	HT-GC315	HT-GC 315plus	HT-GC 315link	HT-GC350	HT-GC 350plus	HT-DST4602	HT-MC100
MRS Functions		x	x	x	x			
AMF Functions (single stand-by)		x	x	x	x			
ATS Functions	x	x	x	x	x			
SYNCHRO/PARALLEL applications (in island and/or with the mains, soft return)								
Internal Load Sharing and Synchronizer								
Load shedding		x (up to 1 threshold)	x (up to 1 threshold)	x (up to 1 threshold)	x (up to 1 threshold)			
Load management						x	x	x
Mains circuit breaker (MCB) management, Master circuit breaker management (MGCB)						x	x	x
Reverse synchronizing of the gen-set group operating in multi-island mode to the mains						x	x	x
PLC Functions with PID Block							x	
Gen set changeover switch or MCB management	x	x	x	x	x	x	x	x
Management of multiple mains incomers								x
True RMS readings on generator and mains voltages and currents	x	x	x	x	x	x	x	x
Active, Reactive and apparent power measurement	x	x	x	x	x	x	x	x
Frequency and power measurement on Mains input	x	x	x	x	x	x	x	x
Mains protections Rate of Change of Frequency (81R ROCOF) Vector shift, 27, 59, 81<, 81>							x	
Additional mains protections: 27Q, 27T								x
J1939 and MTU CAN interface	o		x	x	x	x	x	x
Serial port RS232 Modbus RTU	o		x	x	x	x	x	x
Serial port RS485 Modbus RTU	o		x	x	x	x	x	x

|	HT-ATS115	HT-GC315	HT-GC 315plus	HT-GC-315link	HT-GC350	HT-GC 350plus	HT-DST4602	HT-MC100
MODEM GSM/PSTN management	o		x	x	x	x	x	x
RJ45 Ethernet port	o		x		o (external device)	o (external device)	x	o (external device)
SMS Management	o		x	x	x	x	x	x
GPRS/GSM/GPS communications	o (external device REWIND)		o (external device REWIND)	x	o (external device REWIND)	o (external device)	o (external device)	o (external device)
USB Port	x	x	x	x			x	
DIGITAL INPUT	8+3	8+3	8+3	8+3	18+3	18+3	20	18+3
DIGITAL OUTPUT	8 (6 programmable)	8 (6 programmable)	8 (6 programmable)	8 (6 programmable)	16	15	16	18
Additional DIGITAL INPUT/OUTPUT	16/16 DITEL	16/16 DITEL	16/16 DITEL	16/16 DITEL	16/16 DITEL			
Additional ANALOGICAL INPUT/OUTPUT		10 PROGR. INPUT 10 INPUT CANBUS LIST 4 PROGT. OUTPUT	10 PROGR. INPUT 10 INPUT CANBUS LIST 4 PROGT. OUTPUT	10 PROGR. INPUT 10 INPUT CANBUS LIST 4 PROGT. OUTPUT	10 PROGR. INPUT 10 INPUT CANBUS LIST 4 PROGT. OUTPUT			
Periodical test	x	x	x	x	x	x	x	x
Auto starting with timer	x	x	x	x	x	x	x	x
Auto starting inhibition	x	x	x	x	x	x	x	x
Events and data logging	x	x	x	x	x	x	x	x
Fuel management		x	x	x	x	x	x	
Four alternative configurations	x	x	x	x	x	x	x	
SPLIT Version available (box + separated display)							x	
Dimensions								
Display (pixel)	128 x 64	128 x 64	128 x 64	128 x 64	128 x 64	128 x 64	240 x128	128 x 64
Marine Certication (RI.NA)					x (HT-GC350R)	x (HT-GC500R)		
Display languages	UK, FR, ITA, RU,PT	UK, FR, ITA, RU,PT	UK, FR, ITA, RU,PT	UK, FR, ITA, RU,PT	UK, FR, ITA, RU,PT			

HUEGLI TECH SWITZERLAND
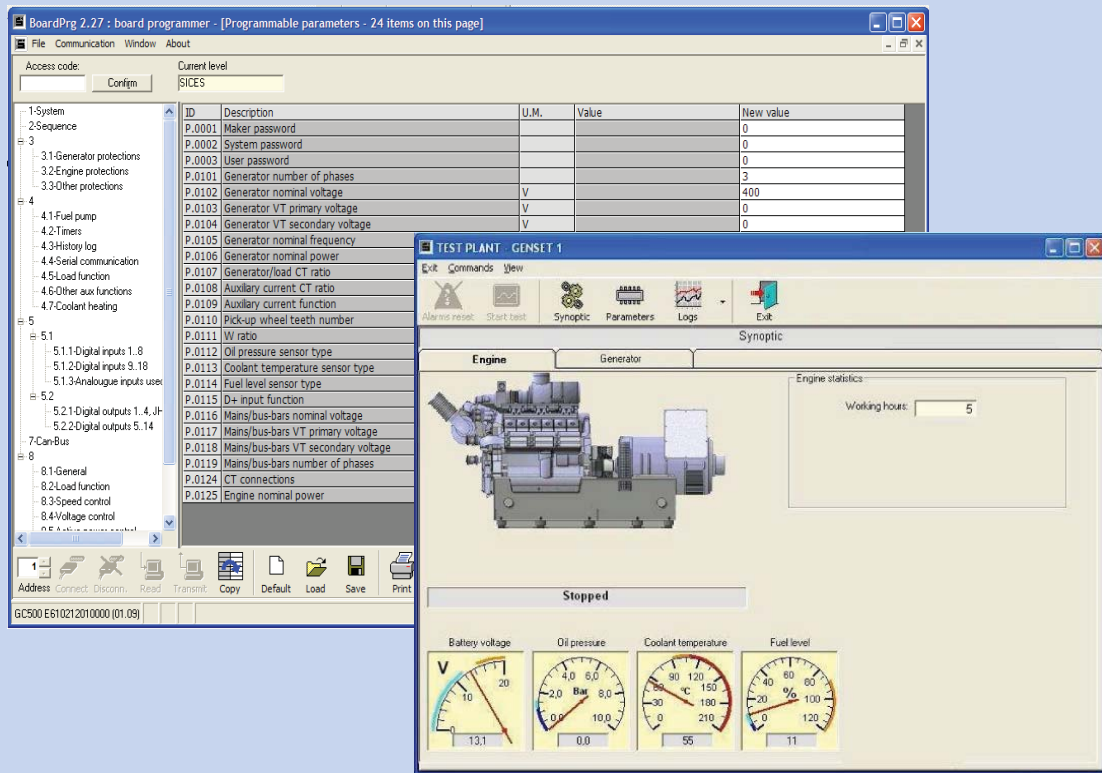
BoardPrg,

is a free software tool that allows full configuration of all HUEGLI TECH controllers. It is possible to save the parameters to a file and use it to clone other controllers for similar applications or spare parts. The parameter list can be printed for easy documentation. Updates of the BoardPrg can be easily done via internet. It is the recommended tool for the configuration of the controllers.

Supervisor,

is an easy to use PC software for panels and control systems equipped with HUEGLI TECH controllers. This software has been developed to provide customers with a simple and intuitive system of supervision; It allows to control all the parameters and the measurement features of single gensets or a complete the system. Supervisor is a completely configurable system and allows the customer to create and manage the configuration of many details of his plant. Each plant can be fully independent from the others.

REFERENCE APPLICATIONS
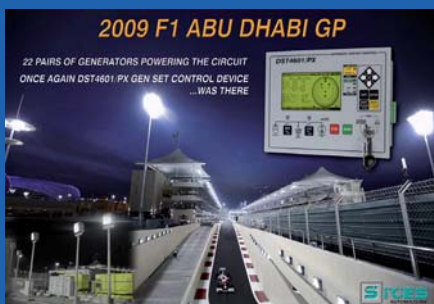
Location: F1 Abu Dhabi GP

The Abu Dhabi GP, added to the F1 calendar in 2009, runs through the desert sunset and finishes in complete darkness. Here the cars can exceed 300 kph three times on every lap. This circuit is lit by 22 pairs of gensets controlled by 44 x DST4601/PXs (the forerunner of DST4602).

DST4601/PX - When failure is not an option.

Location: Greek island

Many of us like spending vacations on a Greek Island. Sitting in the dark with a candle on the table might be romantic, but without electricity most of us wouldn't be happy at all. Several plants, producing the needed power, running in island parallel mode and also in parallel to the grid, are equipped with control panels containing DST4601/PX + DICHRON module, ensure that you will not sit in the dark (except when you want to).

(e.g. Gensets with Mitsubishi engines: 4 x 1285kW, 5 x 1285kW, 2 x 1285kW)

Location: Libanon

Alfa, formerly Cellis was the first mobile phone operator to be established in Lebanon. The Debahy building houses various generators, fitted over the years, mainly during the war. Since the power requirement for this site increased considerably, the following gensets are now on site:

• 1x Deutz 413 FRTC 150 kVA air cooled
• 1x Deutz 513 250 kVA air cooled
• 1x Deutz 1015 C 350 kVA water cooled
• 2x Deutz 1015 C 500 kVA air cooled

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REFERENCE APPLICATIONS

Location: Batam Indonesia

In the Government Building LAM are 2 Perkins Gensets each with 250 kVA running in parallel, controlled by 2 HT-GC500 controllers.

Location: University from Misurata, Libya

Professors and Students are happy being able to study not in dark rooms. The university building is supplied by 3 gensets running in parallel, controlled by DST4601/PX with DICHRON module.

Location: Bio oil refinery in Italy

7 bio fuel Mitshubishi engines, each with 1175 kVA, are running in parallel on a Combined Heat and Power plant. The control panels are quipped with DST4601/PX controller with DICHRON modul.

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Location: Singapore

In March 2011, Neste Oil celebrated the grand opening of its ISCC-certified renewable diesel plant in Singapore. The plant produces premium quality NExBTL renewable diesel, what is the most advanced fuel on the market today. For emergency power (with back synchronization to the mains) they use 2 Mitsubishi engines with each 1260 kVA. With the DST4601/PX with DICHRON modules they can run the gensets in island parallel and parallel to the mains.

HUEGLI TECH
SWITZERLAND

REFERENCE APPLICATIONS

Location: Marsa Alam, Egypt
Vacation on the Red Sea with uninterrupted power? The public mains not always stable and available in this region but you can enjoy your stay at the 3 resorts of Settemari and Floriana Hotel Group in Marsa Alam. A famous tourist destination where a plant of 11 generator sets are ready to feed the resort and guarantee uninterrupted energy. The Caterpillar engines (385 – 600 kVA) are controlled by DST4601/PX with DICHRON modules, giving the needed security of 24h power availability.

Location: Fréjus, France
On the Côte d'Azur uninterrupted power is needed to supply energy for a purification water plant for Fréjus. The two 1250kVA gensets can run in island mode or parallel to the grid. The control panel consists 2 DST4601/PX controllers with DICHRON modules and one MC100 unit for controlling the Mains Circuit Breaker for soft return and avoiding any interruption when mains returns.

Location: Petrobras construction site in Caraguatatuba, Brazil
Petrobras is one of the biggest energy companies in the world. For their production power plant they are using 6 MTU engines each with 1000kVA running in parallel. Petrobras chose to use control panels from SICES equipped with DST4601/PX and DICHRON modules.

18

SUPPORT & TRAINING

HUEGLI TECH Training Centre
for combustion engine controls & governing systems with helpful
theory - practical live demonstrations on our own test engines.

Product range
- HT-GC315
- HT-GC350
- HT-GC500
- HT-GC500plus
- HT-DST4602
- HT-MC100
- Accessoires

Application modes
- Theory and live – Comprehensive demonstrations
- Genset control only
- A.M.F. applications
- Single Stand-By application (SSB)
- Single Parallel Island application (SPI) – (island or with mains)
- Single Parallel to Mains (SPtM)
- Multiple sets in island operation (MINT)
- Multiple sets with mains
- Power Management with the MAINS (importing and exporting)

Accessories
Monitoring and Configuration
Remote monitoring
Special PC SW

Local Distributor / Partner:

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4900 Langenthal Switzerland
Phone: +41 62 916 50 30
Fax: +41 62 916 50 35

e-mail: sales@huegli-tech.com
www.huegli-tech.com

Solution Provider for:
• Gas Management Systems
• Dual Fuel Conversion Systems
• Governing Systems
• Automation Systems
• Engine Protection
• Starting Solutions
• Battery Care
• Oil Treatment and Recycling
• Thermostatic Control Valves

HUEGLI TECH are active directly or through agents in:

EUROPE
AUSTRIA, BALTIC STATES, BELGIUM, DENMARK, EIRE, FAEROE ISLAND, FINNLAND, FRANCE, GERMANY, GREECE, GREENLAND, ICELAND, ITALY, MOLDAVIA, NETHERLANDS, NORWAY, POLAND, RUMANIA, RUSSIA, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM, TURKEY.

FAR EAST AND AUSTRALIA
AUSTRALIA , BANGLADESH, CAMBODIA, CHINA, HONG KONG, INDIA, INDONESIA, JAPAN, KOREA, LAOS MIANMAR, MALAYSIA, NEW ZEALAND, PHILIPPINES, SINGAPORE, TAIWAN, THAILAND, VIETNAM.

MIDDLE EAST AND AFRICA
ALGERIA, EGYPT, IRAN, IRAQ, ISRAEL, LEBANON, SYRIA AND NIGERIA, PAKISTAN, SAUDI ARABIA, TUNESIA, UNITED ARAB EMIRATES.

NORTH AMERICA
USA, CANADA.