

ONE SOLUTION FOR ALL GENSET APPLICATIONS

D-700

AUTO LEARNING SYNCHRONIZATION CONTROLLER

- Tailored for the most demanding applications, the D-700 provides synchronization, load share, mains synchronization, soft transfer, AMF, ATS, Remote Start, Engine control and remote display panel functionalities in a single unit,
- Easy commissioning is achieved with the automatic learning feature, a first in the industry.
- Unequalled communication capabilities allow integration to virtually any management system.

FEATURES

- 4.3" 480x272pixels color LCD
- Diesel and gas genset support
- Supports up to 48 gensets
- Automatic learning/self adjust
- Direct governor & AVR control
- Voltage and phase matching
- kW & kVAr load sharing
- Multiple topologies
- 6xCT, true mains metering
- True soft transfer in both ways
- Peak Lopping / peak shaving (mains or genset priority)
- Mains de-coupling protection
- R.O.C.O.F protection
- Vector shift protection
- Reverse power protection
- Over/under freq. Protection
- Over/under voltage protection
- Smart load management
- Smart genset sequencing
- Run/stop priority support
- Equal aging of gensets
- Base load (power export)
- Unmanaged distributed power export support
- AVR & GOV droop support
- Dead bus sensing
- 400Hz operation support
- 400 event logs, full snapshot
- All parameters front panel editable
- 3 level configuration password
- 128x64 graphical LCD display
- Downloadable languages
- Waveform display of V & I
- Harmonic analysis of V & I
- Synchroscope & check synch
- 12 configurable digital inputs
- Inputs expandable to 44
- 8 configurable digital outputs
- Outputs expandable to 40
- 7 configurable analog inputs
- Both CANBUS-J1939 & MPU
- 3 configurable service alarms
- Multiple automatic exerciser
- Weekly operation schedule
- Dual mutual standby with equal aging of gensets
- Manual "speed fine adjust" on selected ECUs
- Automatic fuel pump control
- Disable protections feature
- Excess power protection
- Overload IDMT protection
- Load shedding, dummy load
- Multiple load management
- Current unbalance protection
- Voltage unbalance protection
- Fuel filling & fuel theft alarms
- Battery back-up real time clock
- Idle speed control
- Battery charge run enabled
- Combat mode support
- Multiple nominal conditions
- Contactor & MCB drive
- 4 quadrant genset power counters
- Mains power counters
- Fuel filling counter
- Fuel consumption counter
- Modem & ethernet diagnostics
- Configurable through USB, RS-485, Ethernet and GPRS
- Free configuration program
- Allows SMS controls
- Ready for central monitoring ethernet & GPRS
- Mobile genset support
- Automatic GSM geo-location
- GPS connectivity (USB&RS232)
- Dynamic DNS support
- Easy USB firmware upgrade
- IP65 rating with standard gasket

COMMUNICATION

- Ethernet (10/100Mb)
- 4-band GPRS modem (optional)
- USB Host & USB Device
- RS-485 (2400-115200baud)
- RS-232 (2400-115200baud)
- Micro SD card slot
- J1939-CANBUS
- Geo-locating through GSM
- GPS support (USB & RS-232)
- Embedded web server
- Web monitoring & programming
- Internet Central Monitoring
- SMS message sending
- E-mail sending
- Free PC software: Rainbow Plus
- Modbus RTU & Modbus TCP/IP
- SNMP (with TRAP messages)
- SNTP

FUNCTIONALITIES

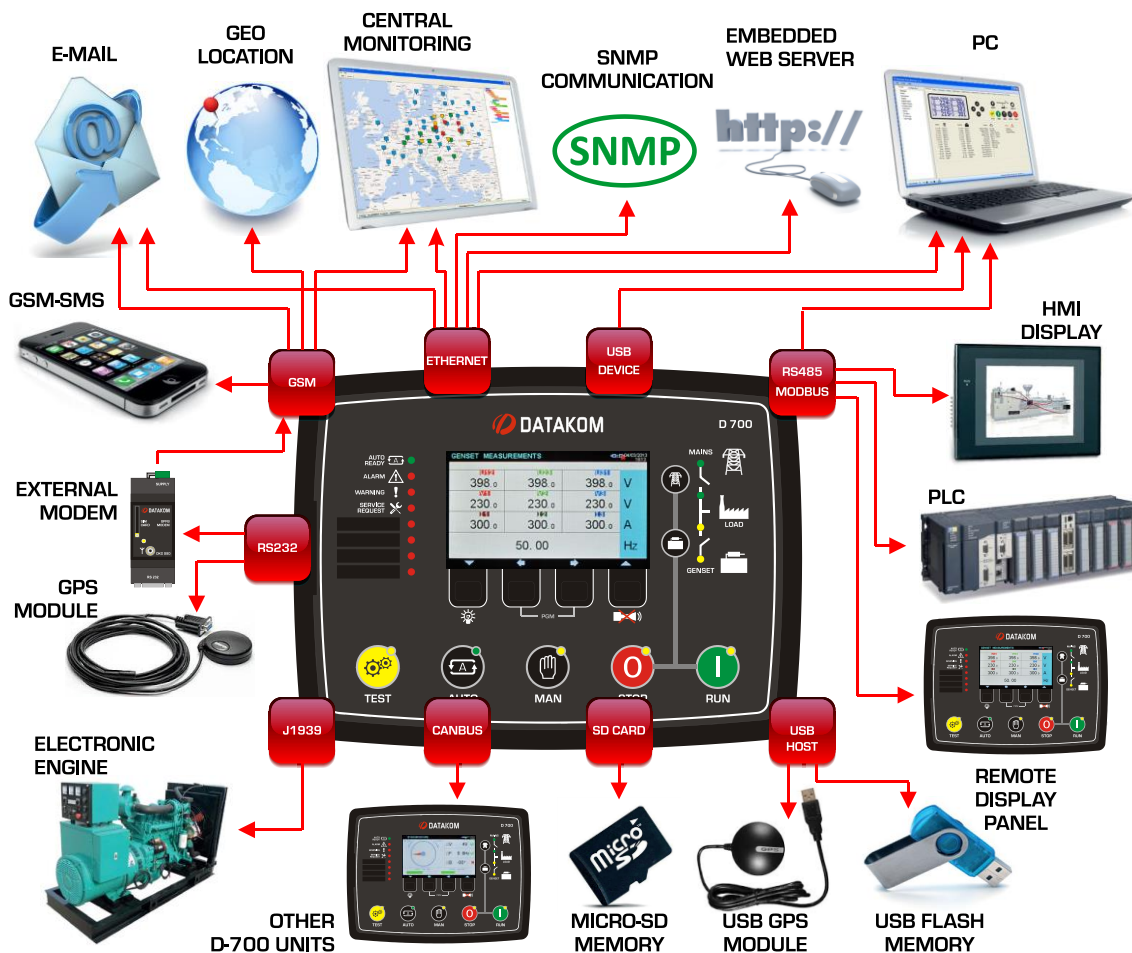
- Multi genset synch & load share
- Mains synchronization
- Single genset parallel with mains
- AMF unit (uninterrupted transfer)
- ATS unit (uninterrupted transfer)
- Remote start controller
- Manual start controller
- Engine controller
- Remote display panel
- Long term data record on flash
- On-board Input&output extension

MEASUREMENTS

- Mains & genset PN/PP voltages
- Mains & genset frequency
- Mains & genset phase currents
- Mains & genset neutral currents
- Mains & genset, phase & total, kW, kVA, kVAr, pf
- Engine speed
- Battery voltage



COMMUNICATIONS



TECHNICAL SPECIFICATIONS

Alternator voltage: 0 to 300 V-AC (Ph-N)
Alternator frequency: 0-600 Hz.
Mains (Busbar) voltage: 0 to 300 V-AC (Ph-N)
Mains (Busbar) frequency: 0-600 Hz.
Topology: 1-2-3 phases, with or without neutral
DC Supply Range: 8.0 to 36.0 V-DC.
V-A-cos Accuracy: 0.5% + 1 digit
kW-kVA-kVAR Accuracy: 1.0% + 1 digit
Current consumption: 500 mA-DC max.
Current Inputs: from current transformers. .../5A.
Digital inputs: input voltage 0 to 36 V-DC.
Analog input range: 0-5000 ohms.
Digital Outputs: Protected mosfet semiconductor outputs, rated 1Amp@28V-DC
Cranking dropouts: survives 0V for 100ms.
Magnetic pickup voltage: 0.5 to 50Vpk.
Magnetic pickup frequency: 0 to 20000 Hz.
GOV Control Output: 0-10V-DC
AVR Control Output: $\pm 5V$ -DC, fully isolated
Charge Alternator Excitation: 2W.
Display Screen:
 B/W versions: 2.9", 128x64 pixels
 TFT versions: 4.3", 480x272 pixels
Ethernet Port: 10/100 Mbits
USB Device: USB 2.0 Full speed
USB Host: USB 2.0 Full speed
RS-485 Port: selectable baud rate
RS-232 Port: selectable baud rate

Data Link Port: Fully Isolated CANBUS
Operating temperature: -20°C to 70°C (-4 to +158 °F)
Storage temperature: -40°C to 80°C (-40 to +176°F)
Maximum humidity: 95% non-condensing.
IP Protection: IP65 from front panel, IP30 from the rear.
Dimensions: 243 x 183 x 47mm (WxHxD)
Panel Cut-out Dimensions: 216 x 156 mm minimum.
Weight: 700 g /1.55lb (approx.)
Case Material: High Temperature, non-flammable ABS/PC
Installation: Flat surface mounting on a Type 1 enclosure. Rear retaining plastic brackets.

CONFORMITY

EU Directives Conformity

- 2006/95/EC (low voltage)
- 2004/108/EC (electro-magnetic compatibility)

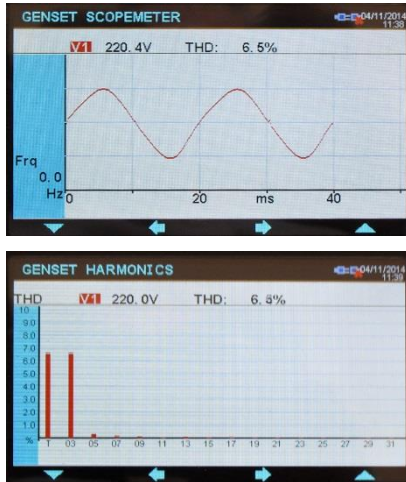
Norms of reference:

- EN 61010 (safety requirements)
- EN 61326 (EMC requirements)

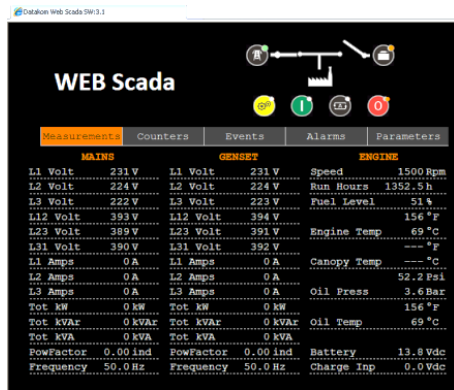
UL & CSA Compatibility:

- UL 6200, Controls for Stationary Engine Driven Assemblies (File# - 20140725-E314374)
- CAN/CSA C22.2 No. 14-13 – Industrial Control Equipment

WAVEFORM DISPLAY & HARMONIC ANALYSIS



EMBEDDED WEB SERVER



RAINBOW PLUS PROGRAM

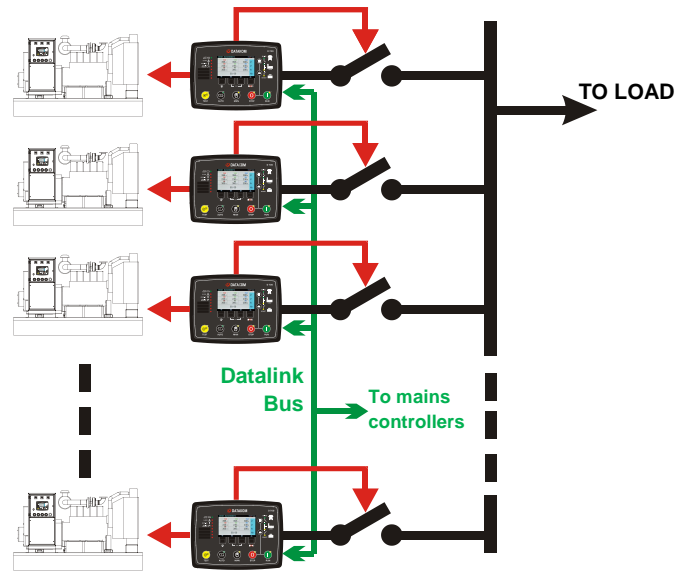


RAINBOW SCADA PROGRAM



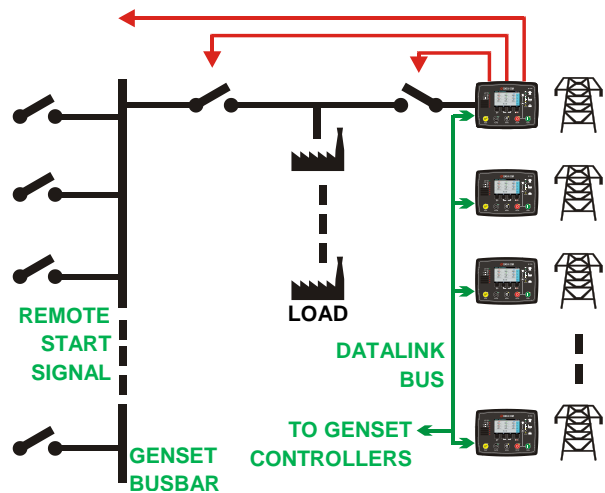
MULTI GENSET SYNCHRONIZATION

Up to 48 gensets may be paralleled on the same busbar. Smart load management is standard feature.



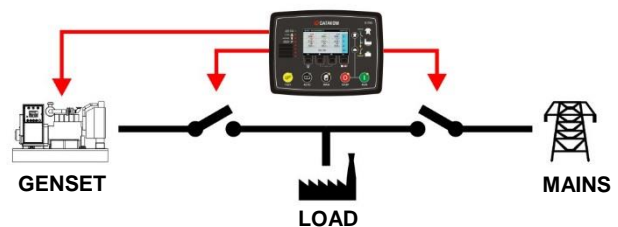
MAINS SYNCHRONIZATION

Up to 16 mains controller per system are supported. Mains controllers provide the REMOTE START signal and control synchronization with mains of the complete genset system.



SINGLE GENSET PARALLEL WITH MAINS

The controller supports synchronization and parallel operation with mains. Supported features include soft transfer, peak lopping, peak shaving and power export.



TYPICAL CONNECTIONS

