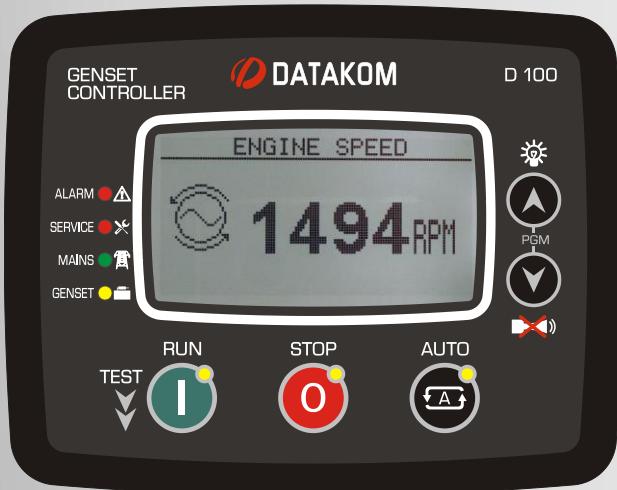


COST EFFECTIVE MODERN TECHNOLOGY



WEB BASED D-100-MK2

The D-100 is the lowest cost genset controller ready for internet monitoring through plug-in modules.

FEATURES

- Diesel and gas genset support
- 400 event logs, full snapshot
- All parameters front panel editable
- 3 level configuration password
- 128x64 graphical LCD display
- 4 configurable digital inputs
- 5 configurable digital outputs
- 3 configurable analog inputs
- CANBUS-J1939
- 3 configurable service alarms
- 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
- Reverse power protection
- Overload IDMT protection
- Load shedding, dummy load
- Multiple load management
- Current unbalance protection
- Voltage unbalance protection
- Fuel filling & fuel theft alarms
- 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 consumption counter
- Modem diagnostics display
- Configurable from USB & GPRS
- Free configuration program
- Allows SMS controls
- Ready for central monitoring
- Mobile genset support
- Automatic GSM geo-location
- Easy USB firmware upgrade
- IP65 rating with optional gasket

PLUG-IN MODULES

- *GSM Modem (2G-3G-4G)*
- *Ethernet 10/100Mbits*
- *Wi-Fi*
- *RS-485 (2400-38400baud)*
- *RS-232 (2400-38400baud)*

FUNCTIONALITIES

- *AMF unit*
- *ATS unit*
- *Remote start controller*
- *Manual start controller*
- *Engine controller*

TOPOLOGIES

- *3 ph 4 w, star & delta*
- *3 ph 3 w, 2 CTs*
- *2 ph 3 w*
- *1 phase 2 wires*

COMMUNICATION

- *USB Device*
- *J1939-CANBUS (optional)*
- *Geo-locating through GSM*
- *Internet Central Monitoring*
- *SMS message sending*
- *Free PC software: Rainbow Plus*
- *Modbus RTU*

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: 0-100 Hz.
Mains voltage: 0 to 300 V-AC (Ph-N)
Mains frequency: 0-100 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: 300 mA-DC max @ 12V-DC
Current Inputs: from current transformers. .../5A.
Digital inputs: input voltage 0 to 36 V-DC.
Analog input range: 0-5000 ohms.
Outputs: Protected mosfet semiconductor outputs, rated 1Amp@28V-DC
Cranking dropouts: survives 0V for 100ms.
Charge Alternator Excitation: 2W.
Display Screen: 2.9", 128x64 pixels
USB Device: USB 2.0 Full speed

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 (with gasket)
Dimensions: 133 x 107 x 46mm (WxHxD)
Panel Cut-out Dimensions: 117 x 87 mm minimum.
Weight: 250 g (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

- 2014/35/EC (low voltage)
- 2014/30/EC (electro-magnetic compatibility)

Norms of reference:

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

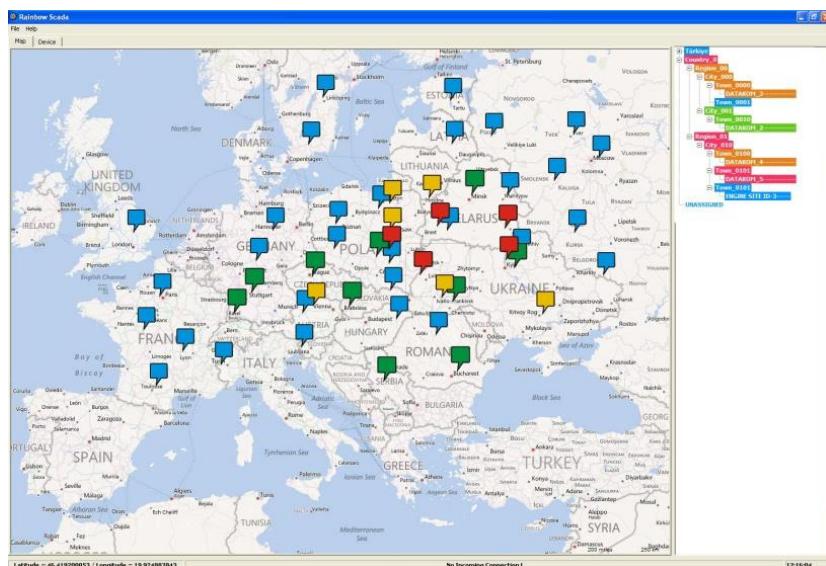
RAINBOW PLUS PROGRAM

The screenshot displays two windows of the Rainbow Plus software. The left window, titled 'Rainbow D700', shows real-time monitoring data for power systems, including Phase-to-Neutral Voltages (204.1V, 204.5V, 204.3V), Active Power (2.2 kW, 38.7 kW, 0.0 kW, Total 36.5 kW), Phase-to-Phase Voltages (0.9 V, 0.8 V, 0.9 V), Reactive Power (0.0 kVar, 0.1 kVar, 0.0 kVar, Total 0.1 kVar), Currents (10.9 A, 18.6 A, 0.0 A), Apparent Power (2.2 kVA, 38.1 kVA, 0.0 kVA, Total 40.3 kVA), Frequency (50.0 Hz), Neutral Current (166.9 A), and Power Factor (1.000). The right window, titled 'Rainbow Plus (Version 1.8)', is a configuration tool for 'Timers' and 'Delays'. It lists various events with their corresponding time intervals: Voltage Fall (1 sec), Frequency Fall (1 sec), Contactor Transfer (0.5 sec), Contactor Close Pulse (0.5 sec), Contactor Open Pulse (0.5 sec), Cont. Und. Volt. Col. Duration (0.5 sec), Contactor Open/Close Fall (2.0 sec), Reverse Power (5 sec), Over Load (3 sec), Line Volt (30 sec), Load Add (0 sec), and Load Add Subtract (0.0 min).

Scada

Parameter Adjustment

RAINBOW SCADA CENTRAL MONITORING



Fleet Display on Map, online monitoring



Smartphone Support

Summary Information Genset Mains Engine Alarms Control Outputs

Mains L1 : 224.8 V	Genset L1 : 224.6 V	Battery Voltage : 13.50 Vdc
Mains L2 : 224.2 V	Genset L2 : 224.3 V	Engine RPM : 1500 RPM
Mains L3 : 226.1 V	Genset L3 : 226.0 V	Oil Pressure : N/A Bar
Mains L1-L2 : 389.0 V	Genset L1-L2 : 388.8 V	Coolant Temp : N/A °C / °F
Mains L2-L3 : 389.8 V	Genset L2-L3 : 389.8 V	Oil Temp : 69.3 °C / 156.7 °F
Mains L3-L1 : 390.3 V	Genset L3-L1 : 390.1 V	Fuel Level : 51.1 %
Mains I1 : 0.0 A	Genset I1 : 160.9 A	Engine Run Hours : 802.17 Hrs
Mains I2 : 0.0 A	Genset I2 : 275.4 A	Total kWh : 332311.1 kWh
Mains I3 : 0.0 A	Genset I3 : 118.7 A	Total kVArh (Ind) : 0.1 kVArh
Mains Freq : 50.02 Hz	Genset Freq : 50.01 Hz	Total kVArh (Cap) : 46245.2 kVArh
Mains P Total : 0.0 kW	Genset P Total : 124.2 kW	Hours to SrV1 : 9512003.35 Hrs
Mains Q Total : 0.0 kVar	Genset Q Total : -8.0 kVar	Days to SrV1 : -2684277.95 Day
Mains S Total : 0.0 kVA	Genset S Total : 124.5 kVA	
Mains Pwr Factor : 1.000	Genset Pwr Factor : 0.997	

Real time monitoring

TYPICAL CONNECTIONS

