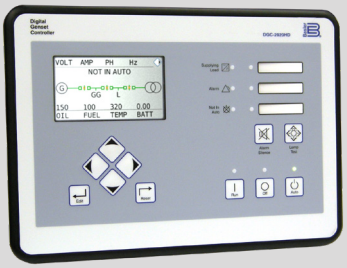
DGC-2020HD Digital Genset Controller



Overview

The DGC-2020HD Digital Genset Controller is a rugged, reliable, all-in-one genset control and load share system. It is designed to be a complete and adaptive controller that is well suited for mains fail, paralleled units, and systems with multiple buses. The DGC-2020HD has all of the necessary features for complete genset control, protection, and metering with an extensive, but easy-to-use programmable logic system.

Features

- Three-phase generator metering
- Up to two buses with three-phase voltage metering
- Three dedicated generator CTs with up to four auxiliary CTs
- Engine metering and genset control
- Standard generator protection includes 27, 59, 81O/U, 32, and 40Q
- Enhanced generator protection includes 46, 47, 51, 78, and 81ROCOF in addition to the standard generator protection elements
- Enhanced Plus Differential option includes neutral (87N) and generator phase (87G) differentials with the enhanced sensing option
- Resistive sender inputs for oil pressure and coolant temperature (analog senders are optional)
- Dual CAN bus ports: One for SAE J1939 engine ECUs and one for expansion modules
- Dual Ethernet ports (fiber Ethernet is optional)
- Load sharing of kW and kvars over Ethernet
- Soft loading/unloading with zero-power transfer capability
- Two analog inputs standard and up to four with analog sender option
- Governor and AVR bias outputs with the ability to be programmed as standard analog outputs
- Sixteen programmable contact inputs, 12 programmable contact outputs, three pre-programmed outputs (Prestart, Start, Run)
- Three programmable LEDs for customized annunciation
- Color touch screen LCD (optional)
- Connects to up to four AEM-2020 Analog Expansion Modules, six CEM-2020 Contact Expansion Modules, and one VRM-2020 Voltage Regulation Module
- Peak Shave and Import/Export power control modes maximize system efficiency during peak hours
- Load anticipation function improves speed recovery during large load application and rejection
- Various system breaker configurations provide the DGC-2020HD with the flexibility to control systems in a wide range of applications
- Automatic load shedding functionality ensures that a system will remain up, even if it's at a reduced capacity

Benefits

- Microprocessor-based controller with easy-to-use integrated programmable logic and load sharing capabilities reduces space and installation costs while providing increased flexibility and functionality.
- Rugged, potted design provides ultimate reliability in extreme environments.
- The Offline Simulator, provided in BESTlogic™*Plus*, helps test and troubleshoot logic without the need for expensive hardware.
- Fully programmable I/O, including an option for two analog inputs, provides exceptional flexibility in all applications.
- Feature-rich design provides exceptional control for advanced paralleling, load sharing, and protection.
- Capable of monitoring a generator and up to two buses with up to seven current transformers (CTs), the DGC-2020HD provides metering and protection for a wide array of applications.
- Built-in real-time monitor for analysis during commissioning and tuning eliminates the need for external monitoring and decreases commissioning time and costs.
- Capable of communicating with up to four AEM-2020 Analog Expansion Modules, six CEM-2020 Contact Expansion Modules, and one VRM-2020 Voltage Regulation Module, vastly increasing the I/O capabilities and overall flexibility of the DGC-2020HD and eliminating the need for external peripheral devices.
- Selectable breaker schemes in BESTlogic*Plus* make breaker control with the DGC-2020HD quick and simple.
- Contains an extensive number of communication options which allow for easy integration into a wide variety of control systems.
- Segmented system capabilities allow for system control and management, making the DGC-2020HD a fit for any system.
- Tie Breaker Control mode now widens the applications for the DGC-2020HD, allowing for wider applications such as Main-Tie-Main.

DGC-2020HD Digital Genset Controller

Specifications

Power Supply

Nominal:	12 or 24 Vdc
Range:	6 to 32 Vdc
Power Consumption:	
Sleep Mode:	12.7 W
Normal Operation:	18.1 W
Maximum Operation:	25 W
Battery Ride Through:	Starting at 10 Vdc, withstands cranking ride through down to 0 Vdc for 50 ms

Current Sensing

	5 Aac Units	1 Aac Units
Continuous Rating:	0.1 to 7.5 Aac	0.02 to 1.5 Aac
One-Second Rating:	50 Aac	10 Aac
Burden:	1 VA	
Metering Range:	0 to 5,000 Aac	
Metering Accuracy:	±1% of rated	

Voltage Sensing

Range:	12 to 576 Vac, L-L
Frequency:	50/60 Hz
Frequency Range:	10 to 90 Hz
One-Second Rating:	720 Vac
Burden:	1 VA
Metering Range:	0 to 576 Vac
Metering Accuracy:	±1% of rated

Frequency

Metering Range:	10 to 90 Hz
Metering Accuracy:	±0.25%

Engine Speed Sensing

Magnetic Pickup:	
Voltage Range:	6 to 70 Vpp
Frequency Range:	32 to 10,000 Hz
Generator Voltage Range:	12 to 576 Vac

Resistive Senders

Fuel Level:	0 to 250 Ω
Coolant Temp Sensing:	10 to 2,750 Ω
Oil Pressure Sensing:	0 to 250 Ω

Inputs and Outputs

Analog Input Ratings:	4 to 20 mA, ±10 Vdc
AVR Bias Output:	4 to 20 mA, ±10 Vdc
Governor Bias Output:	4 to 20 mA, ±10 Vdc, or PWM
Load Share Line:	0 to 10 Vdc
Contact Output Ratings:	
Start, Run, Prestart Relays:	30 Adc at 28 Vdc, 3 A pilot duty
Programmable (12):	2 Adc at 28 Vdc, 1.2 A pilot duty

Generator Protection

(27) Undervoltage, (32) Reverse/Forward Over/Under Power, (40Q) Loss of Excitation/Reverse vars, (46) Current Imbalance, (47) Phase Voltage Imbalance, (51) Timed Overcurrent, (59) Overvoltage, (78) Vector Shift, (81O/U) Overfrequency/Underfrequency, (81ROCOF) Rate of Change of Frequency, (87G) Phase Current Differential, and (87N) Neutral Current Differential

Environmental

Operating Temp*:	−40°C to 70°C (−40°F to 158°F)
Storage Temp:	−40°C to 85°C (−40°F to 185°F)

* The default screen maintains operation over the entire operating temperature range. The color touch screen maintains operation from −20°C to 70°C (−4°F to 158°F).

Humidity:	IEC 68-2-78
Salt Spray:	IEC 60068
Ingress Protection:	IEC IP56 for the front panel
Shock:	15 G in three perpendicular planes
Vibration:	Tested eight hours in three perpendicular planes, 3 to 25 Hz at 1.6 mm (.063") peak amplitude 25 to 2,000 Hz at 5 G

Agency/Certifications

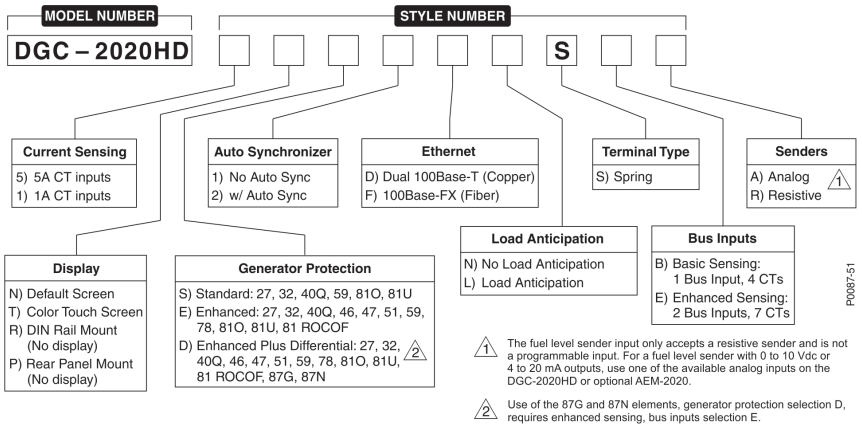
NFPA compliant, CE compliant (LVD and EMC), cULus, UL 6200:2019, ground fault protection circuit compliant with UL1053, UL listed as a protective relay, UKCA compliant, American Bureau of Shipping (ABS) recognized, China RoHS compliant, FCC 47 CFR Part 15 compliant

Physical

Weight:	5.70 lb (2.59 kg)
Dimensions (WxHxD):	12.29 x 8.79 x 3.32 inches (312 x 223 x 84 mm)

For complete specifications, download the instruction manual at www.basler.com.

Style Chart



1 The fuel level sender input only accepts a resistive sender and is not a programmable input. For a fuel level sender with 0 to 10 Vdc or 4 to 20 mA outputs, use one of the available analog inputs on the DGC-2020HD or optional AEM-2020.

2 Use of the 87G and 87N elements, generator protection selection D, requires enhanced sensing, bus inputs selection E.

Related Products

BE1-FLEX Protection, Automation and Control System
Designed to be configurable for nearly any Power System Application.

DECS-250 Digital Excitation Control System
Provides precise voltage, var and Power Factor regulation, and exceptional system response, plus generator and motor protection.

DECS-150 Digital Excitation Control System
Provides precise voltage regulation, exceptional system response, and valuable protection of the generator and excitation system.

BE2000E Digital Voltage Regulator
A high-powered, time-proven, feature-rich, design that is an exact field replacement for the Marathon® Electric DVR®2000E and DVR®2000EC.

Accessories

CEM-2020 Contact Expansion Module
Provides additional contact I/O for large or complex logic schemes.

AEM-2020 Analog Expansion Module
Provides additional metering and control with external peripherals through analog I/O.

VRM-2020 Voltage Regulation Module
Provides excitation to the field of a brushless exciter.

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