easYgen-400 / easYgen-600 / easYgen-800

Genset Start/Stop Control

Do you package gensets, build switchgear or integrate systems? With several decades of experience in genset control technology, Woodward's easYgen family offers a one-stop-shop solution for all of your genset control needs. easYgen family genset controls cover the full range of generator system applications, ranging from simple functions, such as start/stop of a genset to complex ones, like synchronizing and power management of large fleet of gensets.

DESCRIPTION

The Woodward easYgen-100 series is designed for a single-generator set used in isolated stand-by or prime power applications. The controllers include purpose-built algorithms and logic to start, stop, control, and protect the genset, and open/close circuit breakers. Equipped with state-of-the-art communication interfaces, Woodward's easYgen-100 Series of genset controllers provides exceptional versatility and value for OEM genset packagers.

The easYgen-100 Series is available in three versions:

- easYgen-400 small start/stop controller contains a big liquid crystal display (LCD), configurable I/Os and electronic engine support.
- easYgen-600 compact start/stop controller offers a state of the art LCD, adequate on-board I/Os and common industrial connectivity
- easYgen-800 advanced start/stop controller comes with a large LCD, I/O expansion capability, Ethernet and SD card connectivity

ToolKit-SC is a single service tool for configuring easYgen-100 and −1000 series controllers. The module's password-protected integral front panel lets you adjust various parameters on-site.

FEATURES

- Three-phase true RMS power sensing
- Operation modes: AUTO, STOP, and MANUAL modes accessible through front panel, discrete inputs or via interfaces
- Remote control via multiple interfaces and discrete inputs
- Direct support of several ECU such as Bosch, Cummins, John Deere, MTU, Perkins, Scania, Volvo, Woodward
- Two heavy duty relay outputs for cranking and fuel solenoid
- Event and data logging capabilities with real time clock
- Maintenance scheduler with multipurpose flexible timers
- Operating hours, start, maintenance counters and monitoring
- Three switchable parameter sets of AC system winding, Rated Voltage, Rated Frequency, Rated Current, Rated Power, Rated Speed
- Can be applied on pumping units as an indicating instrument (relays are inhibited)
- Can be configured from computer via USB or front panel with password protection
- Manual breaker operation with tactile buttons on front panel
- Custom boot-up logo with adjustable screen display time
- Multilingual customizable user interface

easYgen-600 Unique Features

- Compact design – optimize footprint of your control panel
- CAN J1939 – direct communication with electronic engines
- Crank disconnect function - an additional layer of engine safety

- Manual and Remote Start/Stop application in
- Single-unit isolated operation
- Stand-by operation
- Prime power operation
- Rental power operation
- Easy to set up and commission
- Comprehensive engine, and generator protection
- Engine ECU interface to electronic engines
- Programmable I/Os
- Power metering
- Communication ports: CAN J1939, RS-485, USB
- Dedicated heavy duty relays for engine and breaker interface
- Switchable parameter sets for mobile genset applications
- Can be configured from computer or front panel
- Event log and event-triggered data log
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>Overload Measurement</th>
<th>Max.: 10 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Voltage</td>
<td>Current Accuracy</td>
<td>1 %</td>
</tr>
<tr>
<td>(Reverse polarity protected)</td>
<td>Excitation current D+</td>
<td>110 mA (12 V); 230 mA (24 V)</td>
</tr>
<tr>
<td>Maximum supply voltage</td>
<td>Start Relay and Fuel Relay</td>
<td>16 A DC28V supply output in EG-600/-800</td>
</tr>
<tr>
<td>Minimum supply voltage</td>
<td>Outputs</td>
<td>5 A DC28V supply output in EG-400</td>
</tr>
<tr>
<td>Maximum operating current</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(easYgen-800)</td>
<td>Maximum standby current</td>
<td></td>
</tr>
<tr>
<td>(All relays closed, LCD bright)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum standby current</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(easYgen-800)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short Time 80 V (5-10 s); Long T. 50 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum supply voltage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;4 W (standby ≤ 2 W)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum operating current</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(easYgen-800)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>450 mA (12 V); 220 mA (24 V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum standby current</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(easYgen-800)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>420 mA (12 V); 200 mA (24 V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternator Input Range</td>
<td>Power Consumption</td>
<td>&lt;4 W (standby ≤ 2 W)</td>
</tr>
<tr>
<td>3-Phase 4-Wire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC15V - AC360V (ph-N)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Phase 3-Wire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC30V - AC620V (ph-ph)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Phase 2-Wire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC15V - AC360V (ph-N)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Phase 3-Wire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC15V - AC360V (ph-N)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage Accuracy</td>
<td>AC-Measurement</td>
<td></td>
</tr>
<tr>
<td>50 Hz/60 Hz</td>
<td>Phase-phase: 100 .. 624 V : 1%; 50 .. 100 V : 1.5 %</td>
<td></td>
</tr>
<tr>
<td>AC-Measurement</td>
<td>Phase-neutral: 100 .. 360 V : 1%</td>
<td></td>
</tr>
<tr>
<td>Voltage Accuracy</td>
<td>50 .. 100 V : 1.5 %</td>
<td></td>
</tr>
<tr>
<td>(400/480 V % rated)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generator: 10 Hz; Mains: 27 Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generator: 99.5 Hz; Mains: 99.5 Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency resolution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.1 Hz (10 .. 99 Hz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency accuracy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>±0.1 Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal CT secondary rating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### APPLICATION

*Only D+ monitoring in easYgen-400
## FEATURES OVERVIEW

### easYgen-100 Series

<table>
<thead>
<tr>
<th>Measuring</th>
<th>easYgen-400</th>
<th>easYgen-600</th>
<th>easYgen-800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator voltage (3-phase/4-wire)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Generator current (3x true r.m.s.)</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Earth current (1x true r.m.s.)</td>
<td>-</td>
<td>-</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Control
- Isolated single unit operation
- Stand-by operation
- GCB control
- Start/stop sequence for diesel and gas engines
- Tactile buttons to start/stop the genset and open/close the breaker
- Remote monitoring and control over SMS (modem support)

### Protection
- Generator
  - Voltage
  - Frequency
  - Loss of phase
  - Phase sequence
  - Current
  - Reverse Power
  - Overload
  - Earth fault
- Engine
  - Over speed
  - Under speed
  - Loss of speed
  - Crank disconnect

### Battery voltage

### HMI, Counters, and Event Log
- Integral display with tactile buttons
- Customizable power-up text and image
- Front panel configuration with PIN protection
- Flush mounting
- Operating hours/start/maintenance counters
- Event recorder with real time clock
- kWh, kvarh
- Swtichable parameter sets

### I/Os and Interfaces
- Discrete inputs
  - 3 (+2 switchable as AI/DO)
  - 1x E-Stop, 5x configurable
  - 1x E-Stop, 8x configurable
- Relay outputs
  - 1x Fuel (5A), 1x Start (5A), 4x configurable
  - 1x Fuel (16 A), 1x Start (16 A), 4x configurable
  - 1x Fuel (16 A), 1x Start (16 A), 6x configurable
- Analog inputs
  - 4x resistive (2 switchable as AI/DO)
  - 3x resistive
  - 5x (VDO, RTD, mA)
- Speed input (MPU)
  - 1
  - 1
  - 1
- Aux. excitation (D+)
  - 1
  - 1
  - 1
- Ethernet (TCP/IP)
  - -
  - -
  - -
- CAN (J1939)
  - 1
  - 1
  - 1
- USB service port
  - 1
  - 1
  - 1
- RS485
  - -
  - 1
  - 1
- RS232
  - -
  - -
  - -
- External DI/DO via CAN bus
  - -
  - -
  - 16 / 16
- Micro SD card slot
  - -
  - -
  - 1

### Listings/Approvals
- CE Marked
- UL / cUL Listing
- EAC
  - Pending

### Part Numbers
- Control with connectors and fastening kit
  - 8440-2231
  - 8440-2229
  - 8440-3003
- Spare connector kit
  - 10-009-352
  - 10-004-674
  - 10-004-675

### RELATED PRODUCTS
- Configuration tool ToolKit-SC (Product Specification # 37695)
- I/O Expansion Board IKD1 (Product Specification # 37171): P/N 8440-2116
- Small Engine Control Module SECM-70 (Product Specification # 36363)