

**easYgen-1400 / easYgen-1600 / easYgen-1700 | easYgen-1800**

**easYgen-1400**

**easYgen-1600**

**easYgen-1800**

## Automatic Mains Failure Control

Do you package gensets, build switchgears 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-1000 series is designed for a single-generator set used in critical stand-by or prime power applications with automatic changeover capability. The controllers include purpose-built algorithms and logic to start, stop, control, and protect the genset, open/close circuit breakers and mains supply monitoring with automatic changeover. Equipped with state-of-the-art communication interfaces, Woodward's easYgen-1000 Series of AMF genset controllers provides exceptional versatility and value for OEM genset packagers.

The easYgen-1000 Series is available in four versions:

- **easYgen-1800**, advanced AMF controller comes with a large liquid crystal display (LCD), I/O expansion capability, Ethernet and SD card connectivity
- **easYgen-1700**, based on easYgen-1800 platform, easYgen-1700 offers all the capabilities except Ethernet and SD card connectivity and a 240x128 pixels Monochrome LCD in same size.
- **easYgen-1600**, compact AMF controller offers a state of the art LCD, adequate on-board I/Os and common industrial connectivity
- **easYgen-1400**, small AMF controller contains a big liquid crystal display (LCD), configurable I/Os and electronic engine support.

**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 ECUs, 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 from 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-1800 Unique Features

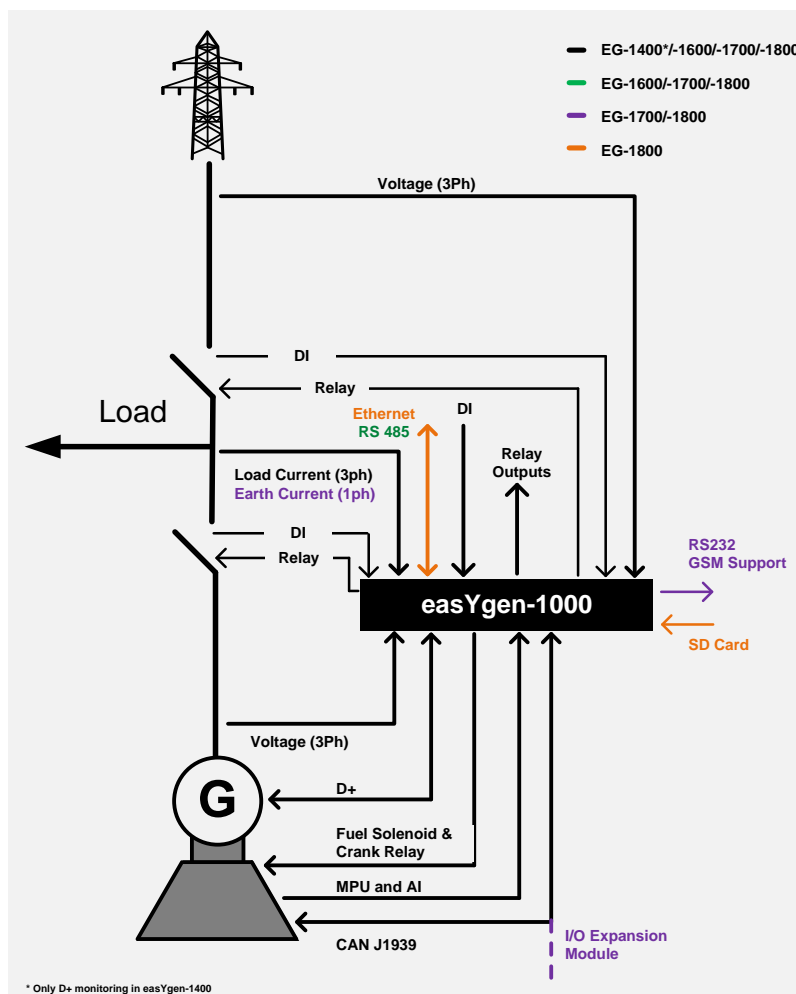
- ✓ Large LCD display for enhanced user experience
- ✓ Built-in Ethernet for remote control, browser based visualization, and service tool connectivity
- ✓ SD card slot for life long data log

- **Standard break-before-make application in**
  - Stand-by operation
  - AMF (Automatic Mains Failure) operation
  - ATS (Automatic Transfer Switch) operation
  - Rental power operation
  - Peak shaving operation
- **Easy to set up and commission**
- **Best in class large liquid crystal display**
- **Comprehensive engine, generator and utility protection**
- **Engine ECU interface to electronic engines**
- **Programmable I/Os**
- **Six communication ports: Ethernet TCP/IP, CAN J1939, RS-485, RS232, USB, SD card slot**
- **Dedicated heavy-duty relays for engine and breaker interface**
- **Switchable parameter sets for mobile genset applications**
- **Event log and event-triggered data log**

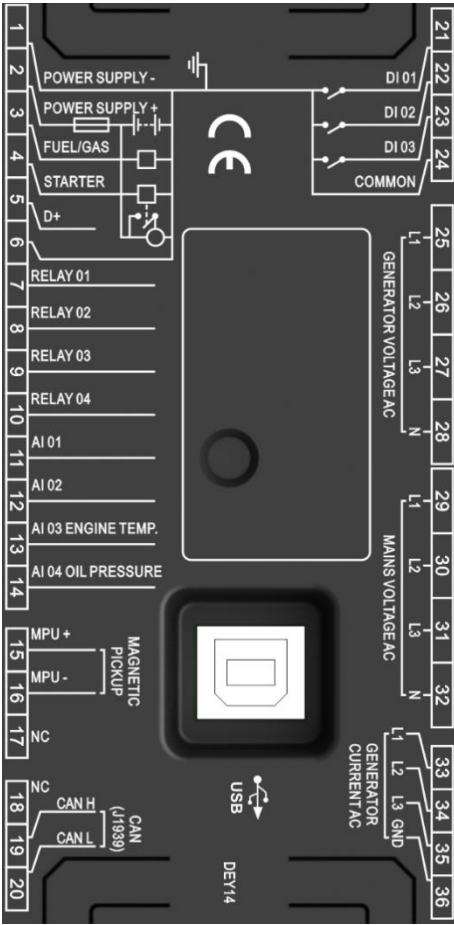
## SPECIFICATIONS

<b>Power Supply</b>		Overload Measurement	Max.: 10 A
Operating Voltage (Reverse polarity protected)	8.0 V <sub>DC</sub> to 35.0 V <sub>DC</sub> , Continuous Power Supply.	Current Accuracy	1 %
Maximum supply voltage	Short Time 80 V (5-10 s); Long T. 50 V	Excitation current D+ (easYgen-1600, 1700 and 1800)	110 mA (12 V); 230 mA (24 V)
Minimum supply voltage	6.5 V	Start Relay and Fuel Relay Outputs	16 A DC28V supply output in easYgen-1600/-1700/-1800 5 A DC28V supply output in easYgen-1400
Maximum operating current (easYgen-1800)	(All relays closed, LCD bright) 450 mA (12 V); 220 mA (24 V)	<b>Housing</b>	
Maximum standby current (easYgen-1800)	(All relays closed, LCD dimmed) 420 mA (12 V); 200 mA (24 V)	Case Dimensions	easYgen-1700/1800: 237 x 172 x 45 mm easYgen-1600: 209 x 166 x 45 mm easYgen-1400: 135 x 110 x 44 mm
Power Consumption	<4 W (standby ≤ 2 W)	Panel Cutout	easYgen-1700/1800: 214 x 160 mm easYgen-1600: 186 x 141 mm easYgen-1400: 114 x 88 mm
<b>Alternator Input Range</b>	50 Hz/60 Hz	Operating Conditions	Temperature: (-25 to +70) °C; Humidity: (20 to 93) %RH
3-Phase 4-Wire	AC15V - AC360V (ph-N)	Storage Condition	Temperature: (-25 to +70) °C
3-Phase 3-Wire	AC30V - AC620V (ph-ph)	Protection Level	IP65 in the front, mounted with kit IP20 on rear side
Single-Phase 2-Wire	AC15V - AC360V (ph-N)	Net Weight	easYgen-1400: 0.3 kg easYgen-1600: 0.56 kg easYgen-1700/-1800: 0.85 kg
2-Phase 3-Wire	AC15V - AC360V (ph-N)		
<b>AC-Measurement</b>	Phase-phase: 100...624 V : 1%;		
Voltage Accuracy (400/480 V % rated)	50...100 V : 1.5 % Phase-neutral: 100...360 V : 1%; 50...100 V : 1.5 %		
Minimum frequency	Generator: 10 Hz; Mains: 27 Hz		
Maximum frequency	Generator: 99.5 Hz; Mains: 99.5 Hz		
Frequency resolution	0.1 Hz (10...99 Hz)		
Frequency accuracy	±0.1 Hz		
Nominal CT secondary rating	5 A		

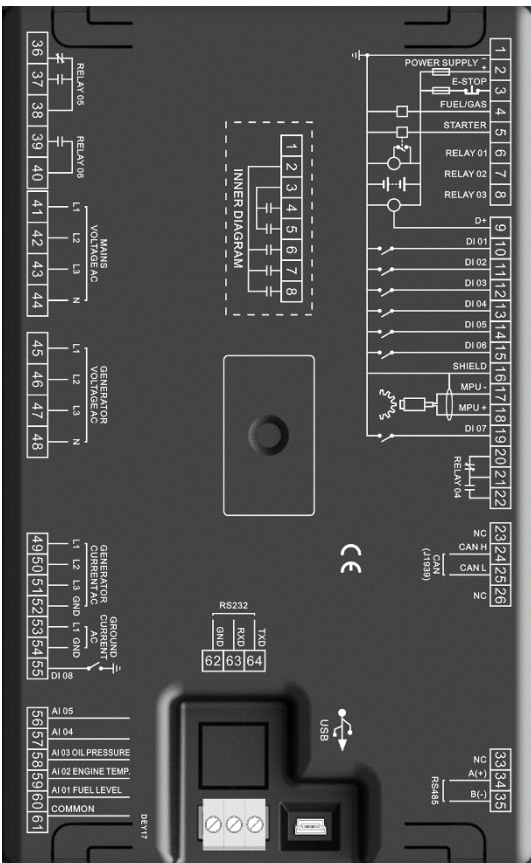
## APPLICATION



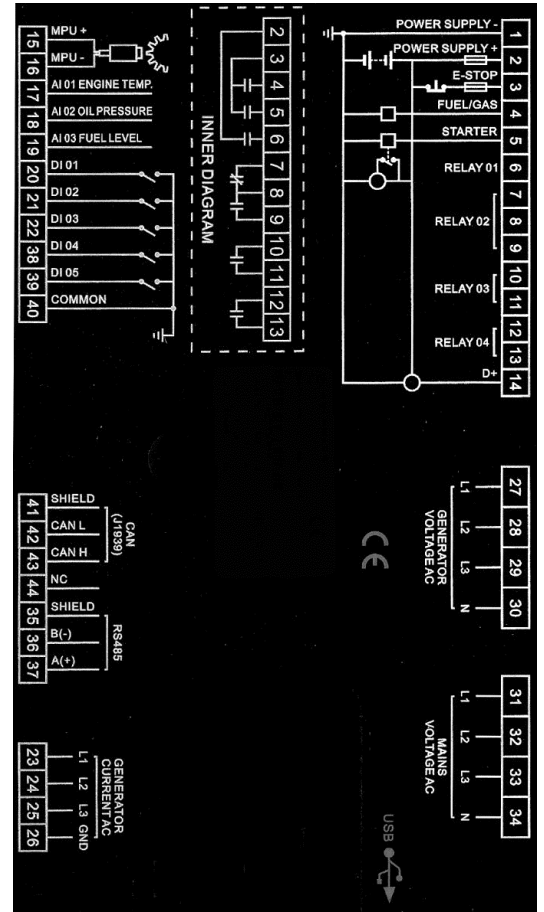
# TERMINAL DIAGRAM



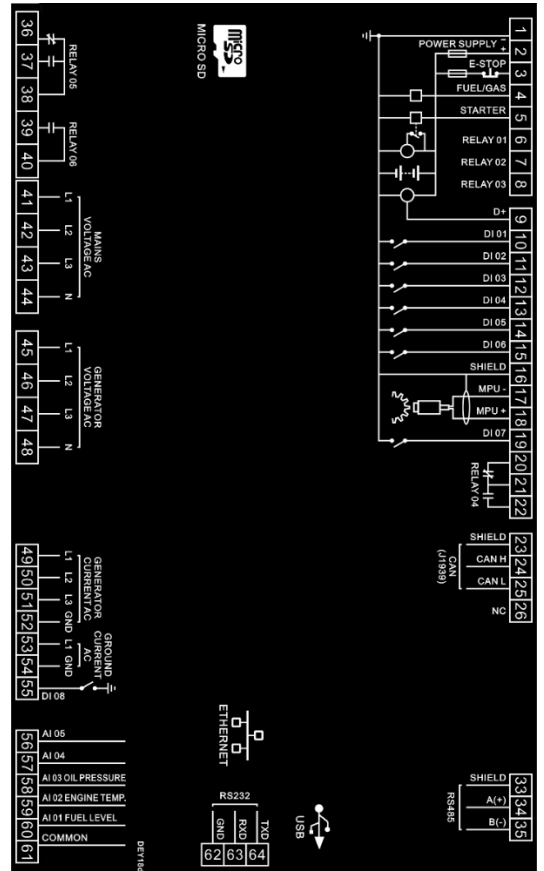
easYgen-1400



easYgen-1700



easYgen-1600



easYgen-1800

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## FEATURES OVERVIEW

	Model	easYgen-1000 Series			
		easYgen-1400	easYgen-1600	easYgen-1700	easYgen-1800
<b>Measuring</b>					
Generator voltage (3-phase/4-wire)					
Load current (3x true r.m.s.)			✓		
Mains voltage (3-phase/4-wire)					
Earth current (1x true r.m.s.)	-	-	✓	✓	
<b>Control</b>					
Mains supply monitoring and automatic changeover			✓		
GCB and MCB control					
Start/stop sequence for diesel and gas engines	Diesel	Diesel	Diesel/Gas	Diesel/Gas	
Isolated single unit operation					
AMF (Automatic Mains Failure operation)					
Stand-by operation			✓		
Open transition (break-before-make)					
ATS (Automatic Transfer Switching)					
<b>Protection</b>					
Generator	Voltage				
	Frequency				
	Loss of phase				
	Phase sequence			✓	
	Current				
	Reverse Power				
	Overload				
Earth fault	-	-	✓	✓	
Mains	Voltage				
	Frequency			✓	
	Loss of phase				
	Phase sequence				
Engine	Over speed			✓	
	Under speed				
	Loss of speed				
	Crank disconnect				
Battery voltage			✓		
<b>HMI, Counters, and Event Log</b>					
Integral display with tactile buttons	Monochrome LCD (132 x 64)	Monochrome LCD (132 x 64)	Monochrome LCD (240 x 128)	TFT LCD ( 480 x 272)	
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	50	50	99	99 internal; extended data log using SD card	
kWh, kvarh	✓/-	✓/-	✓/✓	✓/✓	
Switchable parameter sets	-	-	✓	✓	
<b>I/Os and Interfaces</b>					
Discrete inputs	3 (+2 switchable as AI/DI)	1x E-Stop, 5x configurable	1x E-Stop, 8x 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 (16A), 1x Start (16A), 6x configurable	1x Fuel (16 A), 1x Start (16 A), 6x configurable	
Analog inputs	4x resistive (2 switchable as AI/DI)	3x resistive	4x resistive, 1x resistive/current/volt	5x (VDO, RTD, mA)	
Speed input (MPU)	1	1	1	1	
Aux. excitation (D+)	1	1	1	1	
Ethernet (TCP/IP)	-	-	-	1	
CAN (J1939)	1	1	1	1	
External DI/DO via CAN bus	-/-	-/-	16 / 16	16 / 16	
USB service port	1	1	1	1	
RS485	-	1	1	1	
RS232	-	-	1	1	
Micro SD card slot	-	-	-	1	
<b>Listings/Approvals</b>					
CE Marked	✓				
UL / cUL Listing, EAC	Pending				
<b>Part Numbers</b>					
Control with connectors and fastening kit	8440-2232	8440-3004	8440-2233	8440-3005	
Spare connector kit	10-009-352	10-004-674	10-004-675	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)