

**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
- Dedicated 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 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

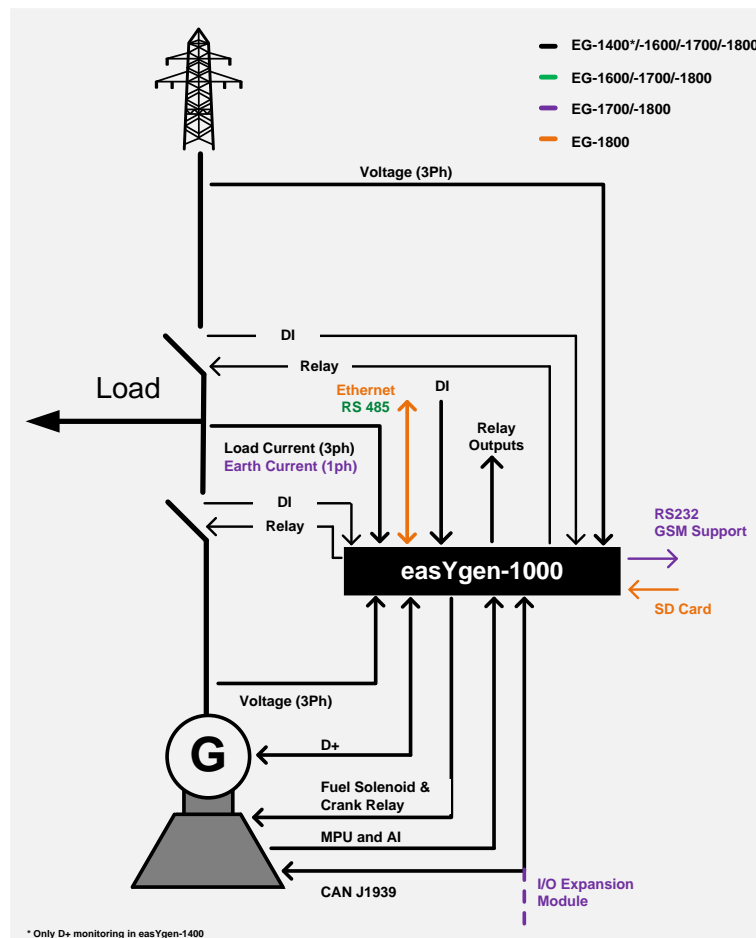
- ✓ Large LCD display for enhanced user experience
- ✓ Built-in Ethernet for remote control, browser based visualization, and service tool connectivity
- ✓ SD card slot for life long data log

- **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 relays for engine and breaker interface**
- **Switchable parameter sets for mobile genset applications**
- **Event log and event-triggered data log**

# SPECIFICATIONS

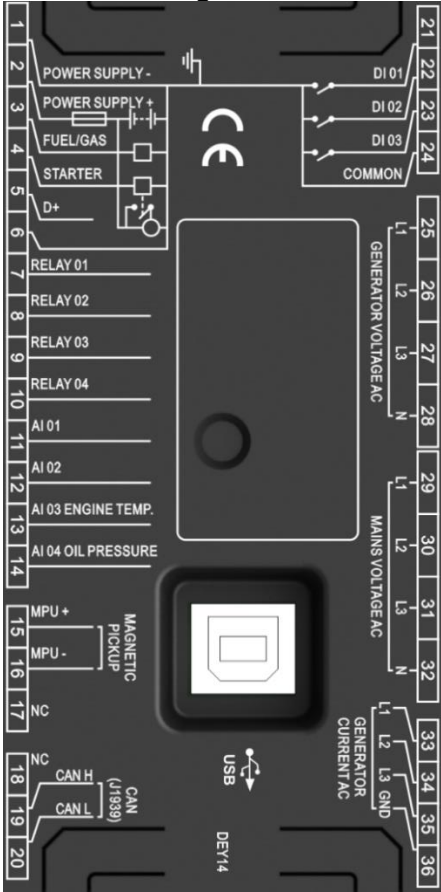
<b>Power Supply</b>		Excitation current D+ (easYgen-1600, -1700 and -1800)	110 mA (12 V); 230 mA (24 V)
Operating Voltage (Reverse polarity protected)	8.0 V <sub>DC</sub> to 35.0 V <sub>DC</sub> , Continuous Power Supply.	Start Relay and Fuel Relay Outputs	Rated 10Adc, 24Vdc running stand-alone. Rated 5Adc, 24Vdc when running together. (easYgen-1600/1700/1800 only) Rated 2Adc at 24Vdc (acc. to UL 6200)
Maximum supply voltage	Short Time 80 V (5-10 s); Long T. 50 V	<b>Housing</b>	
Minimum supply voltage	6.5 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
Maximum operating current (easYgen-1800)	(All relays closed, LCD bright) 450 mA (12 V); 220 mA (24 V)	Panel Cutout	easYgen-1700/1800: 214.5 x 160.5 mm easYgen-1600: 187.5 x 142.5 mm easYgen-1400: 116.5 x 90.5 mm
Maximum standby current (easYgen-1800)	(All relays closed, LCD dimmed) 420 mA (12 V); 200 mA (24 V)	Operating Conditions	Temperature: (-25 to +70) °C; Humidity: max. 93%, noncondensing
Power Consumption	<4 W (standby ≤ 2 W)	Storage Condition	Temperature: (-25 to +70) °C Humidity: max. 93%, noncondensing
<b>Alternator Input Range</b>		Protection Level	IP65 in the front, mounted with kit IP20 on rear side
3-Phase 4-Wire	50 Hz/60 Hz	Net Weight	easYgen-1400: 0.3 kg easYgen-1600: 0.56 kg easYgen-1700/-1800: 0.85 kg
3-Phase 3-Wire	AC15V – AC173V (ph-N) (according to UL6200)		
Single-Phase 2-Wire	AC15V - AC360V (ph-N) (according to EN61010)		
2-Phase 3-Wire			
<b>AC-Measurement</b>			
Voltage Accuracy	1% when V > AC100V		
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		
Overload Measurement	Max.: 10 A		
Current Accuracy	1 %		

# APPLICATION

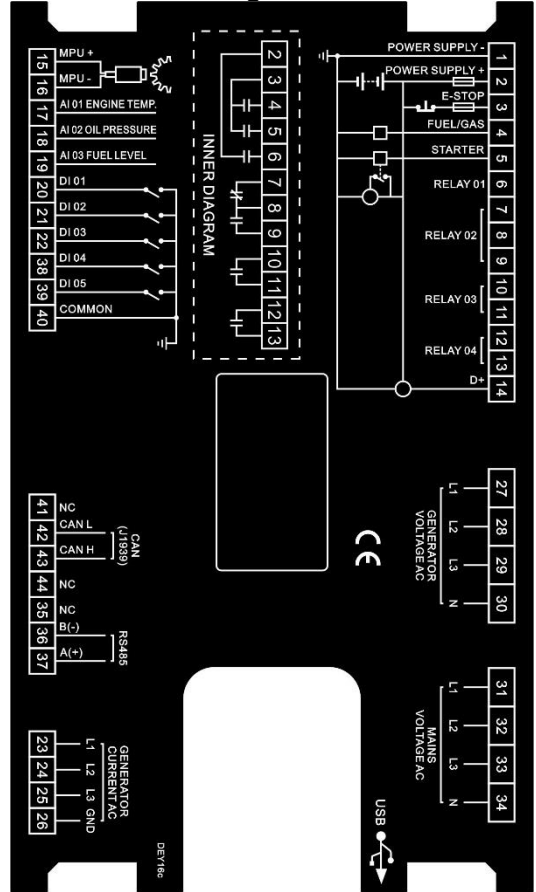


# TERMINAL DIAGRAM

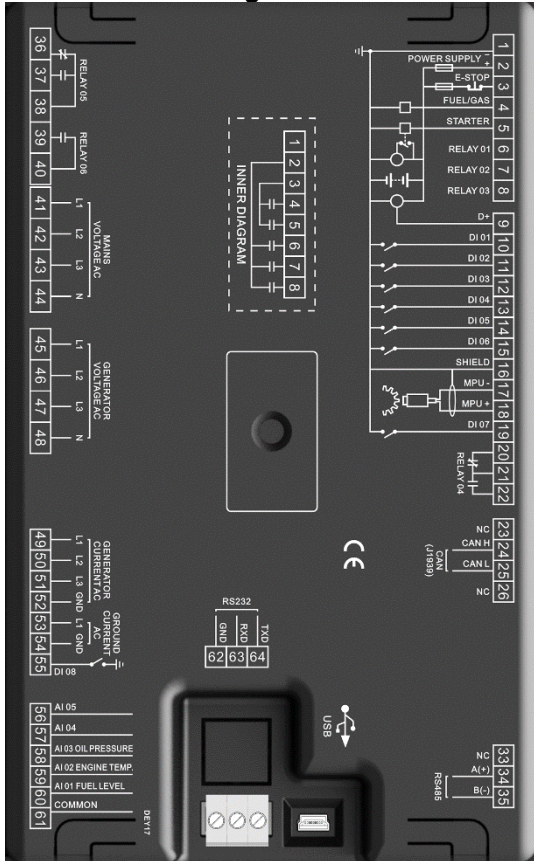
easYgen-1400



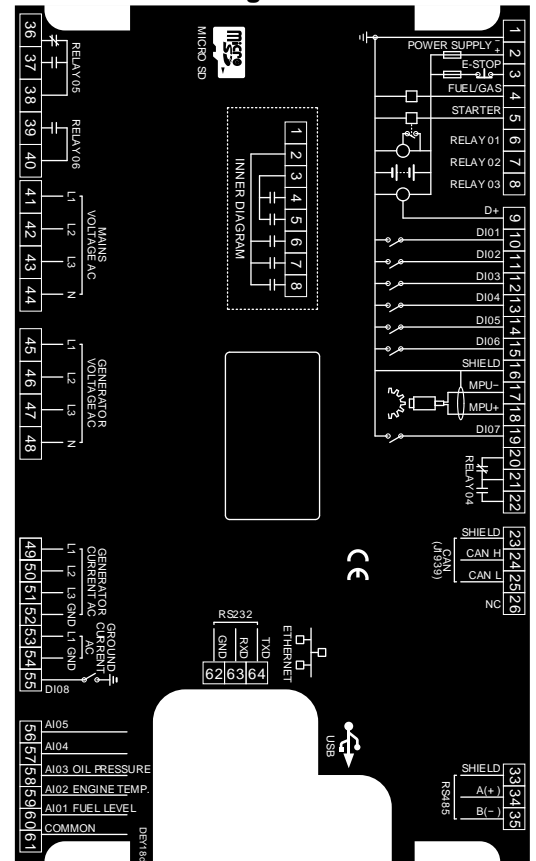
easYgen-1600



easYgen-1700



easYgen-1800



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# FEATURES OVERVIEW

		easYgen-1000 Series			
		Model	easYgen-1400	easYgen-1600	easYgen-1700
<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					
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 / # of level	✓ / 1		✓ / 2	
	Frequency / # of level				
	Voltage asymmetry	—		✓	
	Rotation field	—		✓	
	Current	✓	✓	✓	✓
	Overload	✓	✓	✓	✓
	Reverse Power	—	—	✓	✓
Mains	Earth fault (measured)	—	—	✓	✓
	Voltage	✓	✓	✓	✓
	Frequency	—	—	✓	✓
	Voltage asymmetry	—	—	✓	✓
Engine	Rotation field	—	—	✓	✓
	Over speed / # of level	✓ / 1		✓ / 2	
	Under speed / # of level				
	Speed signal	✓	✓	✓	✓
	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		6	6	8	8
Analog inputs		4x resistive (2 switchable as AI/DI)	3x resistive	4x resistive, 1x resistive/current/volt	5x resistive
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 support		—	—	—	1
<b>Listings/Approvals</b>					
CE Marked, EAC					
UL / cUL Listing					
<b>Part Numbers</b>					
Control with connectors and fastening kit		8440-2251	8440-2253	8440-2256	8440-2255
Spare connector kit		10-009-352	10-004-674	10-004-675	10-004-675

## RELATED PRODUCTS

- Configuration tool **ToolKit-SC** (Product Specification # 37695): P/N 9927-2684
- I/O Expansion Board **IKD1** (Product Specification # 37171): P/N 8440-2116
- Small Engine Control Module **SECM-70** (Product Specification # 36363)