



## APPLICATIONS

The 2<sup>nd</sup> Generation of genset controls is designed to provide a maximum of flexibility in a user friendly and intuitive design with a large graphical display for various applications. This controller is one of a series of new and powerful genset controls (**easYgen**). This trend-setting technology offers a maximum of flexibility for each user. New technologies included are:

- FlexApp™** - This intelligent and flexible feature provides the tools to easily configure for multiple applications. The user can configure the easYgen-1000 Series for use as
  - Measuring transducer/engine control [0-CB-Mode {0}] for start/stop and measuring conversion
  - 1-breaker-control [GCB open, {1o}] above plus engine/generator protection
  - 1-breaker-control [GCB open/close, {1oc}] above plus stand-by power applications
  - 2-breaker-control [GCB/MCB open/close, {2oc}] above plus AMF, and open transition applications

**DynamicsLCD™** - The graphical LCD provides softkeys that vary depending on application and operation.

**FlexIn™** - The two analog inputs can be freely configured (adaptable for each type of sensor) by the user as:

- VDO (0 to 180Ohm [0 to 5bar/0 to 10bar]; 0 to 380Ohm [40 to 120°C/50 to 150°C]; 0 to 180 Ohm [0 to 100% level]; isolated (2-pole) and non-isolated (1-pole) ground senders only)
- Resistive input (Pt100 / linear 2point / user-defined 9point)
- 0/4 to 20 mA (linear 2point / user-defined 9point)

**FlexCAN™** - Flexible isolated CAN bus for multiple use. Selectable during configuration: CANopen, or CAN (CAL); coupling of easYlite remote annunciator; coupling of 3<sup>rd</sup> party expansion cards supported (request detailed information from our sales department). J1939 protocol for ECU coupling and alarm management, remote start/stop with ECU possible (Scania, Volvo, Deutz, mtu).

**LogicsManager™** - A large number of measuring values, inputs, internal states or constant values can be combined logically to operate a relay contact or an internal function.

## Genset Control for Single Unit Operation

### DESCRIPTION

#### I/Os

- **FlexRange™** - true RMS 3phase generator and mains voltage, measuring inputs:
  - Rated 120 Vac (max. 150 Vac) **and**
  - Rated 480 Vac (max. 600 Vac) **in 1 unit**
- True rms 3phase generator current/power
- True rms 1phase current input alternatively and freely configurable for
  - Mains current
  - Ground current (ground fault protection)
- 1 speed input (magnetic/switching)
- up to 8 configurable discrete alarm inputs
- **LogicsManager™** - up to 9 program. relays
- **FlexIn™** - 2 configurable analog inputs
- **FlexCAN™** - CAN bus communication (32 participants, isolated)

#### Protection (ANSI #)

**Generator / Engine:** Battery voltage, over-speed (12), over-/undervoltage (59/27), over-/underfrequency (81O/U), overload (32), reverse/reduced power (32R/F), unbalanced load (46), definite time-overcur. (50/51), inverse time-overcurrent (IEC255), calculated + measured ground fault

#### Features

- **FlexApp™** Technology (4 application modes)
- **DynamicsLCD™** - 128×64 pixel graphical interactive LC display with softkeys
- Start/stop logic for Diesel/Gas engines
- Engine pre-glow or purge control
- kWh meter, kvarh meter
- Operating hours/start/maintenance counters
- Configurable trip levels/delays/alarm classes
- Push-buttons (softkeys) for direct control
- PC and/or front panel configurable
- Multi-level password protection
- Multi-lingual capability (10 languages in 1 unit configurable: English, German, French, Italian, Spanish, Portuguese, Russian, Turkish, Chinese, Japanese)
- Event recorder (300 events, FIFO) with real time clock (battery backed; min. 6 years)
- Modem connectivity with DPC
- easYlite annunciator support via CAN bus
- Remote control via interface / digital signals

#### Differentiation

- Current input as ..5 A (standard) or ..1 A

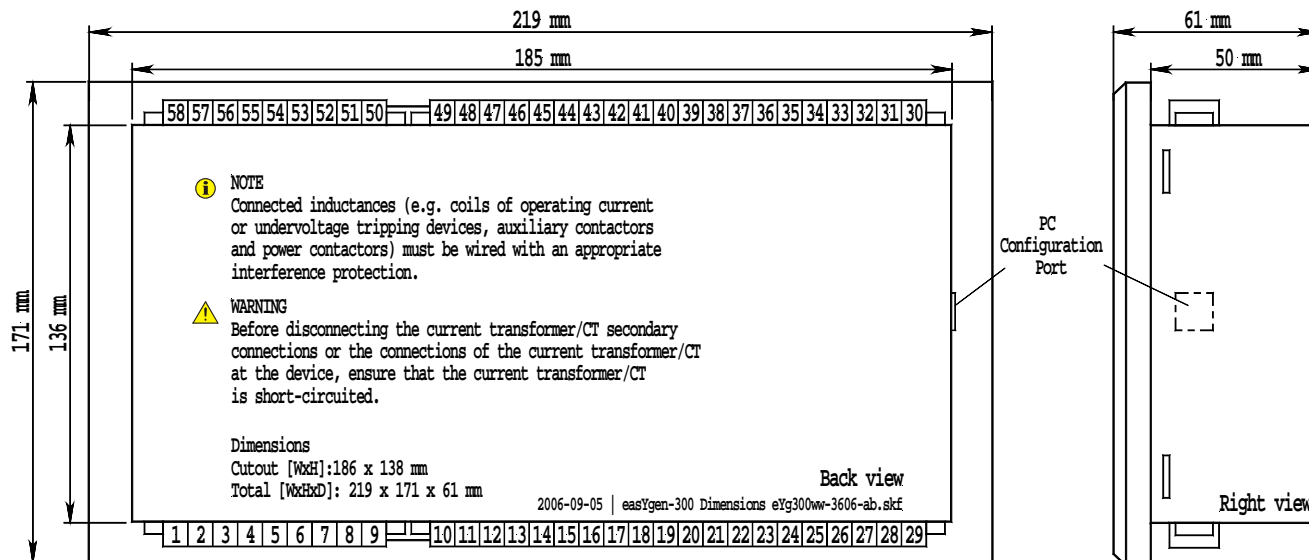
- **FlexApp™** Technology
- Flexible and multifunctional **DynamicsLCD™**
- AMF/loss of mains auto start/stop
- Complete engine, generator, and mains protection in one unit
- True rms voltage sensing with **FlexRange™**
- True rms current/power sensing
- kWh meter
- Counters for engine starts, operating hours, maintenance call
- Freely configurable discrete inputs
- Freely configurable analog **FlexIn™** inputs
- Freely programmable relay outputs with **LogicsManager™**
- PC and/or front panel configurable
- Multi-lingual capability 10 languages in 1 unit
- **FlexCAN™** communication (32 participants, isolated)
- Modbus RTU Slave
- 6.5 to 40.0 Vdc power supply
- Flush-mounting
- CE marked
- UL/cUL Listed
- GL, LR Marine Approval

# SPECIFICATIONS

Power supply	12/24 Vdc (6.5 to 40.0 Vdc)
Intrinsic consumption	max. 15 W
Ambient temperature (operation)	-20 to 70 °C / -4 to 158 °F
Ambient temperature (storage)	-30 to 80 °C / -22 to 176 °F
Ambient humidity	95 % , non-condensing
Voltage	(both ranges within one unit on different terminals, $\Delta/\Delta$ )
100 Vac [1]	Rated ( $V_{rated}$ )..... 69/120 Vac
	Max. value ( $V_{max}$ )..... 86/150 Vac
	Rated ( $V_{phase-ground}$ )..... 150 Vac
	Rated surge volt. ( $V_{surge}$ )..... 2.5 kV
and 400 Vac [4]	Rated ( $V_{rated}$ )..... 277/480 Vac
	Max. value ( $V_{max}$ )..... 346/600 Vac
	Rated ( $V_{phase-ground}$ )..... 300 Vac
	Rated surge volt. ( $V_{surge}$ )..... 4.0 kV
Accuracy	Class 1
Measurable alternator windings	3p-3w, 3p-4w, 1p-2w, 1p-3w
Setting range	primary..... 50 to 650,000 Vac
Linear measuring range	..... $1.25 \times V_{rated}$
Measuring frequency	..... 50/60 Hz (40 to 70 Hz)
Input resistance per path	..... [1] 0.498 M $\Omega$ , [5] 2.0 M $\Omega$
Max. power consumption per path	..... < 0.15 W
Current	Rated ( $I_{rated}$ )..... [1] ..1 A or [5] ..5 A
Linear measuring range	..... $I_{gen} = 3.0 \times I_{rated}$ , $I_{mains} = 1.5 \times I_{rated}$
Burden	..... < 0.15 VA
Rated short-time current (1 s)	..... [1] $50 \times I_{rated}$ , [5] $10 \times I_{rated}$

Discrete inputs	..... isolated
Input range	..... 12/24 Vdc (6.5 to 40.0 Vdc)
Input resistance	..... approx. 6.7 k $\Omega$
Relay outputs	..... isolated
Contact material	..... AgCdO
Load (GP)	..... 2.00 Aac@250 Vac
	..... 2.00 Aac@24 Vdc / 0.36 Aac@125 Vdc / 0.18 Aac@250 Vdc
Pilot duty (PD)	.....
	..... 1.00 Aac@24 Vdc / 0.22 Aac@125 Vdc / 0.10 Aac@250 Vdc
Analog input	..... freely scaleable
Type	..... variable
Resolution	..... 10 Bit
Housing	Flush ..... Type easYpack
Dimensions	Flush ..... 219×171×61 mm
Front cutout	Flush ..... 186 [+1.1]×138 [+1.0] mm
Connection	..... screw/plug terminals 2.5 mm <sup>2</sup>
Front	..... insulating surface
Protection system	..... with professional installation
	Front ..... IP54 (with clamp fastening)
	Front ..... IP65 (with screw fastening)
	Back ..... IP20
Weight	..... approx. 800 g
Disturbance test (CE)	..... tested according to applicable EN guidelines
Listings	..... UL/cUL listed
Marine Approvals	..... GL, LR , others upon request

# DIMENSIONS



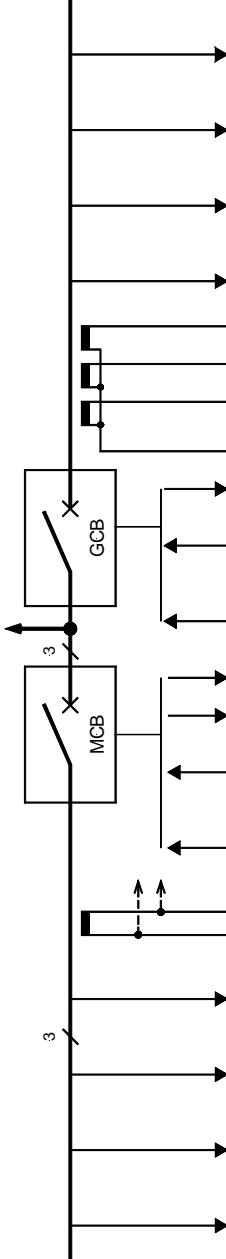
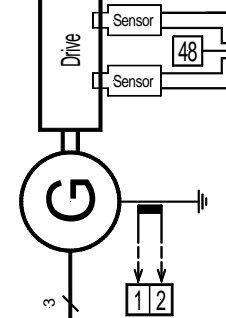
# PART NUMBERS AND ORDER CODES

Model Mounting	Rated PT secondary <i>FlexRange™</i>	Rated CT secondary	Part Number (P/N)	Description
1500	69/120 Vac	..5 A	8440-1809	EASYGEN-1500-55B
	and 277/480 Vac	..1 A	8440-1810	EASYGEN-1500-51B

# WIRING DIAGRAM



only connection for two-pole sensors is shown below:



4	CAN-H	<i>FlexCAN</i>	CAN bus	
3	CAN-L	<i>FlexCAN</i>	CAN bus	
10	—		Pickup	
9	switching/inductive			
13		<i>FlexIn</i>	Analog input 1 [T1] VDO & resistive & 0/4 to 20 mA Battery ground/common or genset chassis ground	
12			Analog input 2 [T2] VDO & resistive & 0/4 to 20 mA	
11				
29	480 Vac	<i>FlexRange</i>	Generator voltage L1	
28	120 Vac		Generator voltage L1	
27	480 Vac		Generator voltage L2	
26	120 Vac		Generator voltage L2	
25	480 Vac	<i>FlexRange</i>	Generator voltage L3	
24	120 Vac		Generator voltage L3	
23	480 Vac		Generator voltage N	
22	120 Vac		Generator voltage N	
8	..1 A or ..5 A	<i>FlexApp</i>	Generator current L1	
7	..1 A or ..5 A		Generator current L2	
6	..1 A or ..5 A		Generator current L3	
5	GND	<i>FlexApp</i>	Common	
			Reply: GCB is open => use discrete input [D8]	
			Command: close GCB => use relay [R10]	
		<i>FlexApp</i>	Command: open GCB => use relay [R7]	
			Reply: MCB is open => use discrete input [D7] Enable MCB => use discrete input [D6]	
			Command: open MCB => use relay [R9]	
		<i>FlexApp</i>	Command: close MCB => use relay [R8]	
2	..1 A or ..5 A		<i>FlexRange</i>	Mains current L1 or Ground current
21	480 Vac			{2oc} Mains voltage L1
20	120 Vac	{2oc}		
19	480 Vac	<i>FlexRange</i>	Mains voltage L2	
18	120 Vac		{2oc}	
17	480 Vac	<i>FlexRange</i>	Mains voltage L3	
16	120 Vac		{2oc}	
15	480 Vac	<i>FlexRange</i>	Mains voltage N	
14	120 Vac		{2oc}	

Subject to technical modifications.



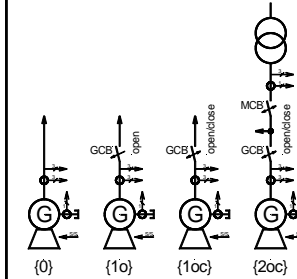
## easYgen-1500 V2.1xxx (Genset Control)

### FlexApp / DynamicsLCD

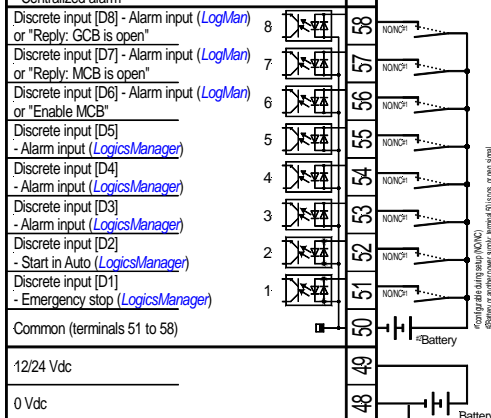
The Mode of the control can be configured alternatively as an:  
 {0} - Measuring transducer/engine control [OCB]  
 {1o} - 1-CB-control [GCB open]  
 {1oc} - 1-CB-control [GCB open/close]  
 {2oc} - 2-CB-control [GCB/MCB open/close]

Depending on the setting you have different I/O's available, respectively the control can operate the breakers for protection/closing or not.

Model easYgen-1500  
 - P/N 8440-1750 = ..5 A  
 - P/N 8440-1751 = ..1 A



Relay [R11]	- <i>LogicsManager</i> or - Ready for operation	47
Relay [R10]	- <i>LogicsManager</i> or - "Command: close GCB"	46
Relay [R9]	- <i>LogicsManager</i> or - "Command: open MCB"	45
Relay [R8]	- <i>LogicsManager</i> or - "Command: close MCB"	44
Relay [R7]	- <i>LogicsManager</i> or - "Command: open GCB"	43
Relay [R6] ( <i>LogicsManager</i> )	- Auxiliary services	42
Common (terminals 30-34)		41
Relay [R5] ( <i>LogicsManager</i> )	- Diesel: Preglow; Gas: Ignition ON	40
Relay [R4]	- Diesel: Fuel relay; Gas: Gas valve	39
Relay [R3]	- Crank	38
Relay [R2] ( <i>LogicsManager</i> )	- Alarm class C/D/E/F active	37
Relay [R1] ( <i>LogicsManager</i> )	- Centralized alarm	36
Discrete input [D8] - Alarm input ( <i>LogMan</i> ) or "Reply: GCB is open"		35
Discrete input [D7] - Alarm input ( <i>LogMan</i> ) or "Reply: MCB is open"		34
Discrete input [D6] - Alarm input ( <i>LogMan</i> ) or "Enable MCB"		33
Discrete input [D5]	- Alarm input ( <i>LogicsManager</i> )	32
Discrete input [D4]	- Alarm input ( <i>LogicsManager</i> )	31
Discrete input [D3]	- Alarm input ( <i>LogicsManager</i> )	30
Discrete input [D2]	- Start in Auto ( <i>LogicsManager</i> )	29
Discrete input [D1]	- Emergency stop ( <i>LogicsManager</i> )	28
Common (terminals 51 to 58)		27
12/24 Vdc		26
0 Vdc		25



The socket for the PC configuration is situated on the back of the item. This is where the DFC has to be plugged in.

# FEATURES OVERVIEW

**International**  
 Woodward  
 PO Box 1519  
 Fort Collins CO, USA  
 80522-1519  
 1000 East Drake Road  
 Fort Collins CO 80525  
 Ph: +1 (970) 482-5811  
 Fax: +1 (970) 498-3058

**Europe**  
 Woodward GmbH  
 Handwerkstrasse 29  
 70565 Stuttgart, Germany  
 Ph: +49 (0) 711 789 54-0  
 Fax: +49 (0) 711 789 54-100  
 email: stgt-info@woodward.com

**Distributors & Service**  
 Woodward has an international network of distributors and service facilities. For your nearest representative, call the Fort Collins plant or see the World-wide Directory on our website.

[www.woodward.com/power](http://www.woodward.com/power)

For more information contact:

Subject to technical modifications.


This document is distributed for informational purposes only. It is not to be construed as creating or becoming part of any Woodward Governor Company contractual or warranty obligation unless expressly stated in a written sales contract.

We appreciate your comments about the content of our publications. Please send comments including the document number below to [stgt-doc@woodward.com](mailto:stgt-doc@woodward.com)

© Woodward

**All Rights Reserved**

37180G - 2007/5/Stuttgart

		easYgen-1500			
		Configured as ...	{0}	{10}	{10c}
		No CB control	1 CB control (GCB open)	1 CB control (GCB open / close)	2 CB control (GCB / MCB open / close)
<b>Measuring</b>					
Generator voltage (3phase/4-wire)	rated 69/120 Vac	✓	✓	✓	✓
- true rms	max. 86/150 Vac	✓	✓	✓	✓
- <i>FlexRange™</i>	rated 277/480 Vac	✓	✓	✓	✓
	max. 346/600 Vac	✓	✓	✓	✓
Generator current #1 (3phase/4-wire, true RMS)	..1 A or ..15 A	✓	✓	✓	✓
Mains voltage (3phase/4-wire)	rated 69/120 Vac	(✓)#2	(✓)#2	(✓)#2	✓
- true rms	max. 86/150 Vac	(✓)#2	(✓)#2	(✓)#2	✓
- <i>FlexRange™</i>	rated 277/480 Vac	(✓)#2	(✓)#2	(✓)#2	✓
	max. 346/600 Vac	(✓)#2	(✓)#2	(✓)#2	✓
Mains current #1 (1phase/2-wire, true RMS)	..1 A or ..15 A	(✓)#2	(✓)#2	(✓)#2	✓
<b>Control</b>					
Breaker control logic	<i>FlexApp™</i>	0	0	1	2
Number of controlled power circuit breakers	GCB open#3		✓	✓	✓
can be user configured depending on application needs out of 4 Modes	GCB open/close#3			✓	✓
	GCB/ MCB open/close#3				✓
Isolated single-unit operation				✓	✓
AMF (auto mains failure operation)					✓
Stand-by operation					✓
Open transition (break-before-make)					✓
ATS (automatic transfer switching)					✓
<b>Accessories</b>					
Softkeys (advanced LC display)	<i>DynamicsLCD™</i>	✓	✓	✓	✓
Start/stop logic for Diesel/Gas engines		✓	✓	✓	✓
kWh meter, kvarh meter		✓	✓	✓	✓
Operating hours/start/maintenance counter		✓	✓	✓	✓
Configuration via PC #4		✓	✓	✓	✓
Event recorder with real time clock (battery backup)		300	300	300	300
Flush-mounting		✓	✓	✓	✓
<b>Protection</b> ANSI#					
Generator: voltage/frequency	59/27/810/81U	(✓)#6	✓	✓	✓
Generator: overload, reverse/reduced power	32/32R/32F	(✓)#6	✓	✓	✓
Generator: unbalanced load	46	(✓)#6	✓	✓	✓
Generator: definite time-overcurrent	50/51	(✓)#6	✓	✓	✓
Generator: inverse time-overcurrent	IEC255	(✓)#6	✓	✓	✓
Generator: ground fault #5		(✓)#6	✓	✓	✓
<b>I/Os</b>					
Speed input (magnetic/switching; Pickup)		✓	✓	✓	✓
Discrete alarm inputs (configurable)		8	8	7	5
Relay outputs (configurable)	<i>LogicsManager™</i>	8	7	6	4
Analog inputs #7 (configurable)	<i>FlexIn™</i>	2	2	2	2
CAN bus communication #8	<i>FlexCAN™</i>	✓	✓	✓	✓
RS-232 Modbus RTU Slave #9		✓	✓	✓	✓
<b>Listings/Approvals #10</b>					
UL/cUL Listed		✓	✓	✓	✓
LR, GL Marine Approval		✓	✓	✓	✓
CE Marked		✓	✓	✓	✓

#1 Selection during order: both ..15 A (standard) or both ..1 A (alternatively):

#2 the mains are measured and may be displayed, but they will not be evaluated

#3 dedicated to a fixed relay

#4 Cable incl. software necessary (DPC = Part Number P/N 5417-557)

#5 calculated + measured ground current

#6 possible (not dedicated to a fixed relay)

#7 selectable during configuration

VDO (0 to 180 Ohm, 0 to 5 bar, 2-pole)  
 VDO (0 to 180 Ohm, 0 to 10 bar, 2-pole)  
 VDO (0 to 380 Ohm, 40 to 120°C, 2-pole)  
 VDO (0 to 380 Ohm, 50 to 150°C, 2-pole)  
 P1100

Resistive input (linear 2pt. or free chart 9pt.)

20 mA (0/4 to 20 mA, freely configurable)

#8 freely selectable during configuration

CANopen, CAN (CAL), or J1939; request info external electrical isolation required (e.g. DPC cable P/N 5417-557)

#9 #10 contact your sales rep to find out whether your desired unit has the required approval

Example of the *LogicsManager*

