WOODWARD

EASYGEN 1000

Product Specification
37180J

Genset Control for Single Unit Operation

APPLICATIONS

The 2nd 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 3rd 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.

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, overspeed (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

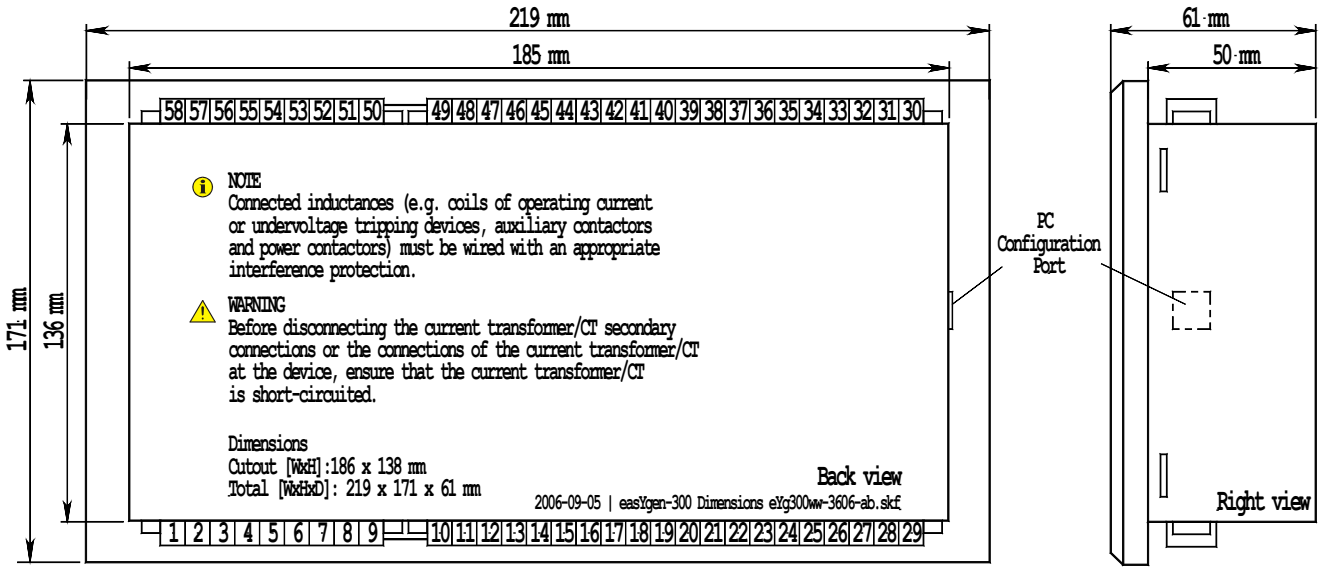
- ***FlexApp***™ Technology
- Flexible and multifunctional ***DynamicsLCD***™
- AMF/loss of mains auto start/stop
- Complete engine, generator, and mains protection in one unit
- True rms voltage sensing with ***FlexRange***™
- True rms current/power sensing
- kWh meter
- Counters for engine starts, 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, ⅄/Δ)
100 Vac [1] Rated (V_{rated}) ..... 69/120 Vac
Max. value (V_{max}) ..... 86/150 Vac
Rated ($V_{phase\text{-}ground}$) ..... 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 ($V_{phase\text{-}ground}$) ..... 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 MΩ, [5] 2.0 MΩ
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 kΩ
Relay outputs ..... isolated
Contact material ..... AgCdO
Load (GP) ..... 2.00 Aac@250 Vac
2.00 Adc@24 Vdc / 0.36 Adc@125 Vdc / 0.18 Adc@250 Vdc
Pilot duty (PD) .....
1.00 Adc@24 Vdc / 0.22 Adc@125 Vdc / 0.10 Adc@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 mm²
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

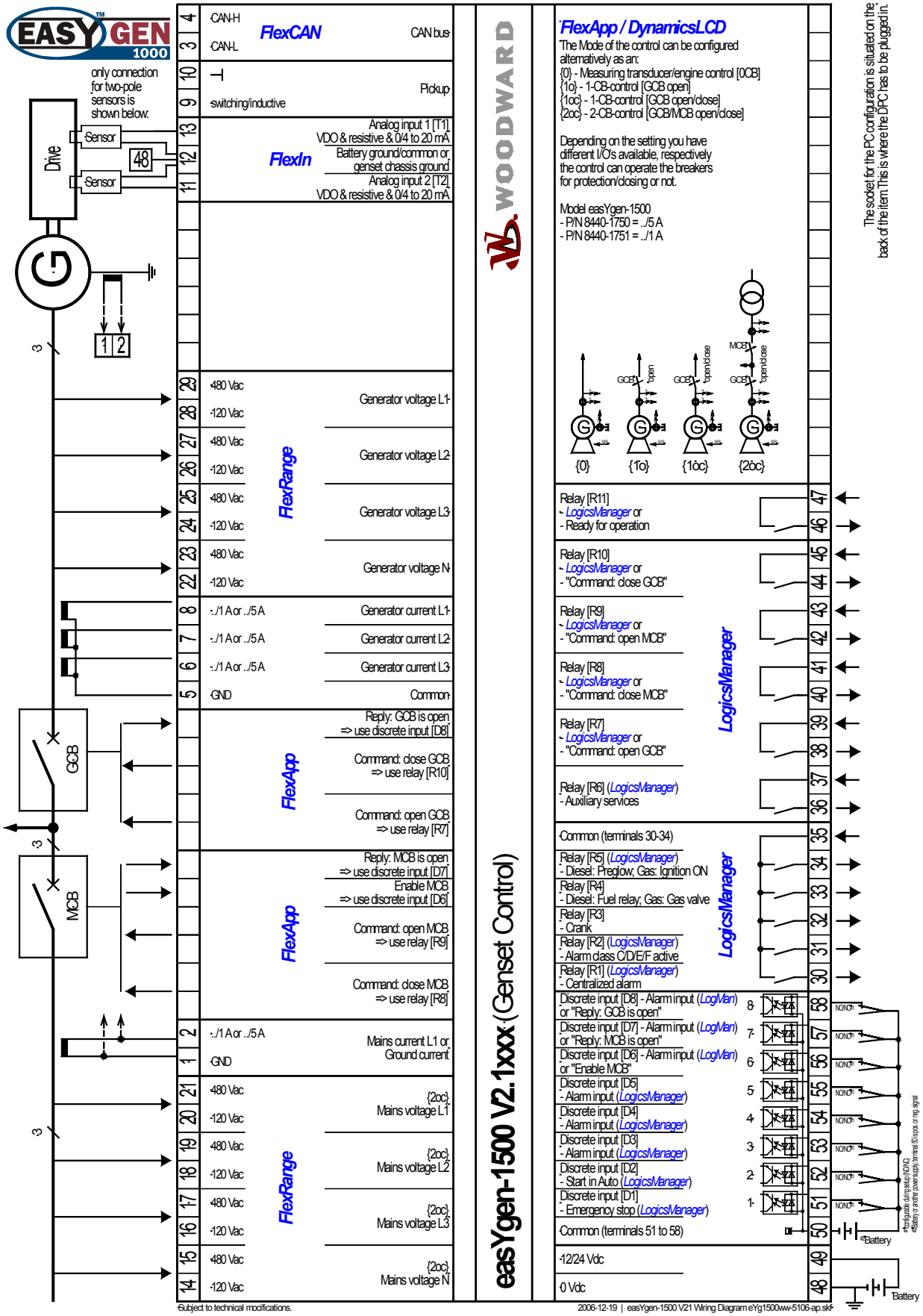
DIMENSIONS



PART NUMBERS AND ORDER CODES

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

WIRING DIAGRAM



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FEATURES OVERVIEW

EASYGEN 1000	Configured as ...	easYgen-1500 {0} No CB control	{1o} 1 CB control (GCB open)	{1oc} 1 CB control (GCB open / close)	{2oc} 2 CB control (GCB / MCB open / close)
Measuring					
Generator voltage (3phase/4-wire)	rated 69/120 Vac	✓	✓	✓	✓
- true rms	max. 86/150 Vac	✓	✓	✓	✓
- *FlexRange™*	rated 277/480 Vac	✓	✓	✓	✓
	max. 346/600 Vac	✓	✓	✓	✓
Generator current #1 (3phase/4-wire, true RMS)	../1 A or ../5 A	✓	✓	✓	✓
Mains voltage (3phase/4-wire)	rated 69/120 Vac	(✓)#2	(✓)#2	(✓)#2	✓
- true rms	max. 86/150 Vac	(✓)#2	(✓)#2	(✓)#2	✓
- *FlexRange™*	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 ../5 A	(✓)#2	(✓)#2	(✓)#2	✓
Control					
Breaker control logic	*FlexApp™*	0	0	1	2
Number of controlled power circuit breakers can be user configured depending on application needs out of 4 Modes	GCB open#3		✓	✓	✓
	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)					✓
Accessories					
Softkeys (advanced LC display)	*DynamicsLCD™*	✓	✓	✓	✓
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		✓	✓	✓	✓
Protection	ANSI#				
Generator: voltage/frequency	59/27/81O/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	✓	✓	✓
I/Os					
Speed input (magnetic/switching; Pickup)		✓	✓	✓	✓
Discrete alarm inputs (configurable)		8	8	7	5
Relay outputs (configurable)	*LogicsManager™*	8	7	6	4
Analog inputs #7 (configurable)	*FlexIn™*	2	2	2	2
CAN bus communication #8	*FlexCAN™*	✓	✓	✓	✓
RS-232 Modbus RTU Slave #9		✓	✓	✓	✓
Listings/Approvals #10					
UL/cUL Listed		✓	✓	✓	✓
LR, GL Marine Approval		✓	✓	✓	✓
CE Marked		✓	✓	✓	✓

#1 Selection during order; both ../5 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 external Woodward DPC cable required.
USB connector: P/N 5417-1251 / RS-232 connector: P/N 5417-557 or CAN connection by LeoPC1 software
#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)
Pt100
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
#9 external electrical isolation required (e.g. DPC cable P/N 5417-557)
#10 contact your sales rep to find out whether your desired unit has the required approval

Example of the *LogicsManager*