



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.

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, 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

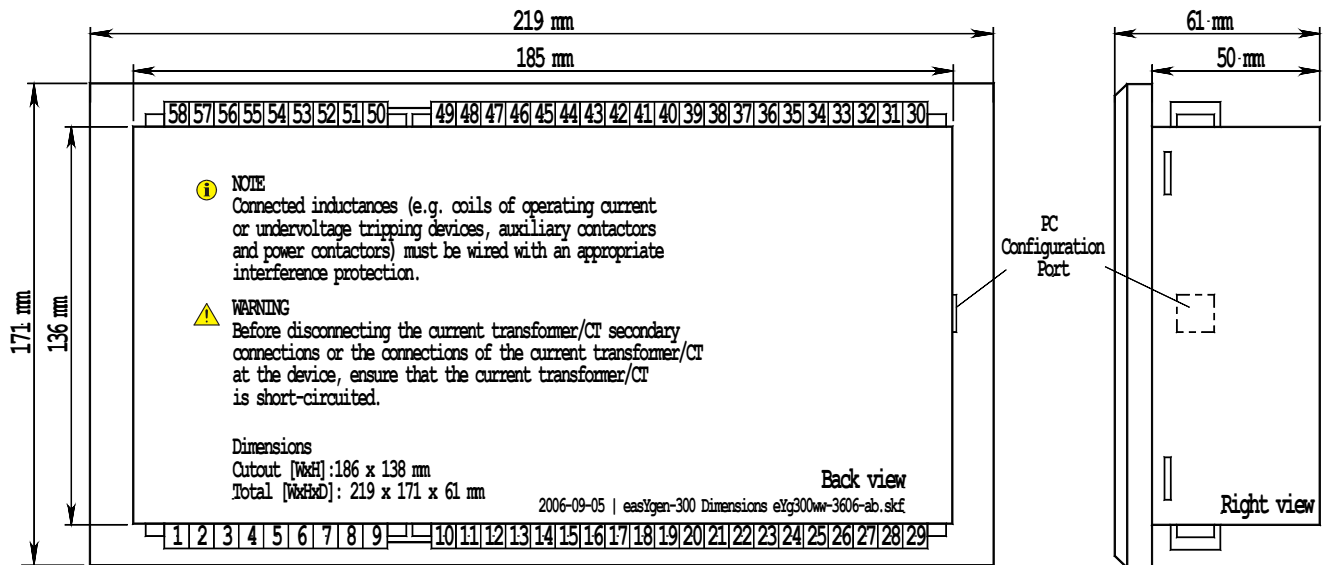
- **FlexApp™** Technology
- Flexible and multifunctional **DynamicsLCD™**
- AMF/loss of mains auto start/stop
- Complete engine, generator, and mains protection in one unit
- True rms voltage sensing with **FlexRange™**
- True rms current/power sensing
- kWh meter
- Counters for engine starts, operating 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/Δ)
 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 Ω , [5] 2.0 M Ω
 Max. power consumption per path < 0.15 W
Current Rated (I_{rated}) [1] ..1 A or [5] ..15 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 Ω
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 \times 171 \times 61 mm
 Front cutout Flush 186 [+1.1] \times 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



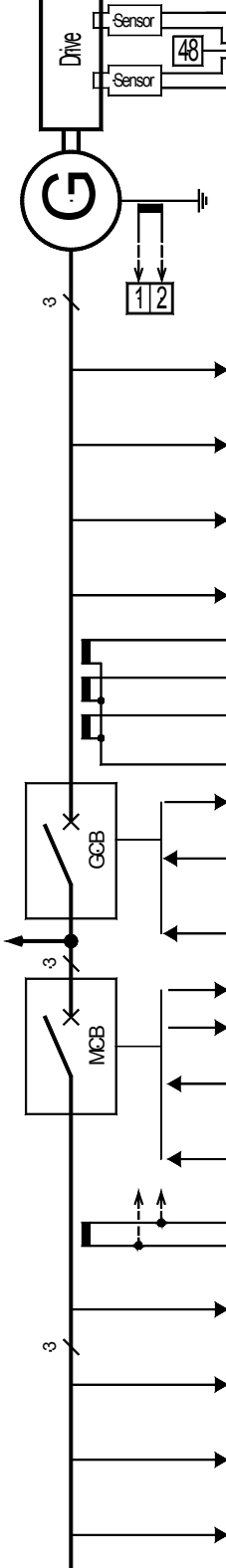
PART NUMBERS AND ORDER CODES

Model Mounting	Rated PT secondary <i>FlexRange™</i>	Rated CT secondary	Part Number (P/N)	Description
1500	69/120 Vac	..15 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	FlexCAN	CAN bus
3	CAN-L	FlexCAN	CAN bus
10	—		Pickup
9	—		switching/inductive
13	—		Analog input 1 [T1] VDO & resistive & 0.4 to 20 mA
12	—	FlexIn	Battery ground/common or genset chassis ground
11	—		Analog input 2 [T2] VDO & resistive & 0.4 to 20 mA
29	480 Vac	FlexRange	Generator voltage L1
28	120 Vac		Generator voltage L2
27	480 Vac		Generator voltage L3
26	120 Vac		Generator voltage N
25	480 Vac	FlexApp	Generator current L1 :1A or .5A
24	120 Vac		Generator current L2 :1A or .5A
23	480 Vac		Generator current L3 :1A or .5A
22	120 Vac		Common GND
8	—	FlexApp	Reply: GCB is open => use discrete input [D8]
7	—		Command: close GCB => use relay [R10]
6	—		Command: open GCB => use relay [R7]
5	—		Reply: MCB is open => use discrete input [D7] Enable MCB => use discrete input [D6]
2	—	FlexApp	Command: open MCB => use relay [R9]
1	—		Command: close MCB => use relay [R8]
21	480 Vac		Mains current L1 or Ground current :1A or .5A
20	120 Vac		Mains voltage L1 {2oc}
19	480 Vac	FlexRange	Mains voltage L2 {2oc}
18	120 Vac		Mains voltage L3 {2oc}
17	480 Vac		Mains voltage L1 {2oc}
16	120 Vac		Mains voltage L2 {2oc}
15	480 Vac	FlexRange	Mains voltage L3 {2oc}
14	120 Vac		Mains voltage L1 {2oc}
13	480 Vac		Mains voltage L2 {2oc}
12	120 Vac		Mains voltage L3 {2oc}

Subject to technical modifications.



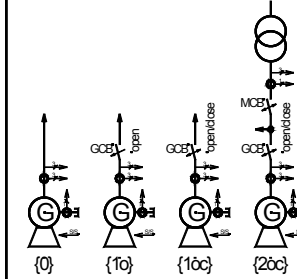
easYgen-1500 V2.1xxx (Genset Control)

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/OCB open/close]

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

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



47	Relay [R11]	LogicsManager	- LogicsManager or - Ready for operation
46	Relay [R10]		- LogicsManager or - "Command: close GCB"
45	Relay [R9]		- LogicsManager or - "Command: open MCB"
44	Relay [R8]		- LogicsManager or - "Command: close MCB"
43	Relay [R7]	LogicsManager	- LogicsManager or - "Command: open GCB"
42	Relay [R6] (LogicsManager)		- Auxiliary services
41	Common (terminals 30-34)		
40	Relay [R5] (LogicsManager)		- Diesel: Preglow; Gas: Ignition ON
39	Relay [R4]	LogicsManager	- Diesel: Fuel relay; Gas: Gas valve
38	Relay [R3]		- Crank
37	Relay [R2] (LogicsManager)		- Alarm class C/D/E/F active
36	Relay [R1] (LogicsManager)		- Centralized alarm
35	Discrete input [D8] - Alarm input (LogMan) or "Reply: GCB is open"	LogicsManager	8
34	Discrete input [D7] - Alarm input (LogMan) or "Reply: MCB is open"		7
33	Discrete input [D6] - Alarm input (LogMan) or "Enable MCB"		6
32	Discrete input [D5]		5
31	Discrete input [D4]		4
30	Discrete input [D3]		3
29	Discrete input [D2]		2
28	Discrete input [D1]		1
27	Common (terminals 51 to 58)		
26	-12/24 Vdc		
25	0 Vdc		

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

#Battery or another power supply terminal 51; stop or req. signal

FEATURES OVERVIEW

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Configured as ...		easYgen-1500			
		{0}	{1o}	{1oc}	{2oc}
		No CB control	1 CB control (GCB open)	1 CB control (GCB open / close)	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 ..1/5 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 ..1/5 A	(✓)#2	(✓)#2	(✓)#2	✓
Control					
Breaker control logic	FlexApp™	0	0	1	2
	GCB open#3		✓	✓	✓
Number of controlled power circuit breakers 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)					✓
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	59/27/810/81U	(✓)#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	✓	✓	✓
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 ..1/5 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 1939; 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**

