

APPLICATIONS

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

- **FlexApp™** - This intelligent and flexible feature provides the tool for easy adjustment of 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 included two analog inputs can be freely configured (adaptable for each type of sensor) through the user alternatively as:

- VDO (0..180Ohm [0..5bar/0..10bar]; 0..380Ohm [40..120°C/50..150°C]; 0..180 Ohm [0..100% level]; bipolar senders only)
- Resistive input (Pt100 / linear 2point / freely 9point)
- 0/4..20 mA (freely configurable)

FlexCAN™ - Flexible isolated CAN bus (allows long distance networks) for multiple use. Selectable during configuration: CANopen, or CAN (CAL); coupling of 3rd party expansion cards supported (request detailed information at our sales department).

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 (Model "1500/1400")

DESCRIPTION

I/O's

- **FlexRange™** - true rms 3phase generator and mains voltage, measuring inputs:
 - Rated 120 Vac (max. 150 Vac) **and**
 - Rated 480 Vac (max. 600 Vac)
- True rms 3phase generator current/power
- True rms 1phase mains current/power
- 1 speed input (magnetic/switching)
- 8 configurable discrete alarm inputs
- **LogicsManager™** - 10 programmable relays
- **FlexIn™** - 2 configurable analog inputs
- **FlexCAN™** - CAN bus communication (32part., isolated, allows long distance networks)

Protection (ANSI #)

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

Features

- **FlexApp™** Technology (4 application modes)
- **DynamicsLCD™** - 128x64 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 (currently available, request status, configurable: English, German, French, Spanish, Portuguese, Russian, and Turkish ; mid'2004: Asian character sets supported: Chinese, Japanese)
- Event recorder (300 events, FIFO) with real time clock (battery backed; min. 6 years)

Differentiation

- Current input as ..5 A (standard) or ..1 A
- Mounting
 - Flush-mounting (Model "1500"; standard)
 - DIN-rail mounting (Model "1400")

- **FlexApp™** Technology
- Flexible, and multifunctional **DynamicsLCD™**
- AMF/loss of mains auto start/stop
- Complete engine, generator, and mains protection in one unit
- True rms sensing of voltage with **FlexRange™**
- True rms sensing of current/power
- 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
- **FlexCAN™** communication (32 participants, isolated, allows long distance networks)
- 6.5..40.0 Vdc power supply
- Flush-mounting (Model "1500"); DIN-rail version available (Model "1400")
- CE marked
- UL/cUL Listed
- Marine Approvals upon request

SPECIFICATIONS

Power supply	12/24 Vdc (6.5..40.0 Vdc)	
Intrinsic consumption	max. 15 W	
Ambient temperature (operation)	-20..70 °C / -4..158 °F	
Ambient temperature (storage)	-30..80 °C / -22..176 °F	
Ambient humidity	95 %, non-condensing	
Voltage	(both ranges within one unit on different terminals, Δ/Δ)	
120 Vac [1]	Rated (Vn)	69/120 Vac
and	max.	86/150 Vac
480 Vac [5]	Rated (Vn)	277/480 Vac
	max.	346/600 Vac
Accuracy	Class 1	
Measurable alternator windings	3p-3w, 3p-4w, 1p-2w, 1p-3w	
Setting range	Primary	0.050..650.000 kVAc
	secondary	50..480 Vac
Measuring frequency	50/60 Hz (40..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 (In)	[. /1] ..1 A or [/5] ..5 A
Linear measuring range up to	I _{gen} = 3.0×In, I _{mains} = 1.5×In	
Load	< 0.15 VA	
Rated short-time current (1 s)	[. /1] 50×In, [/5] 10×In	



Model "1500"
Design "BLUE"



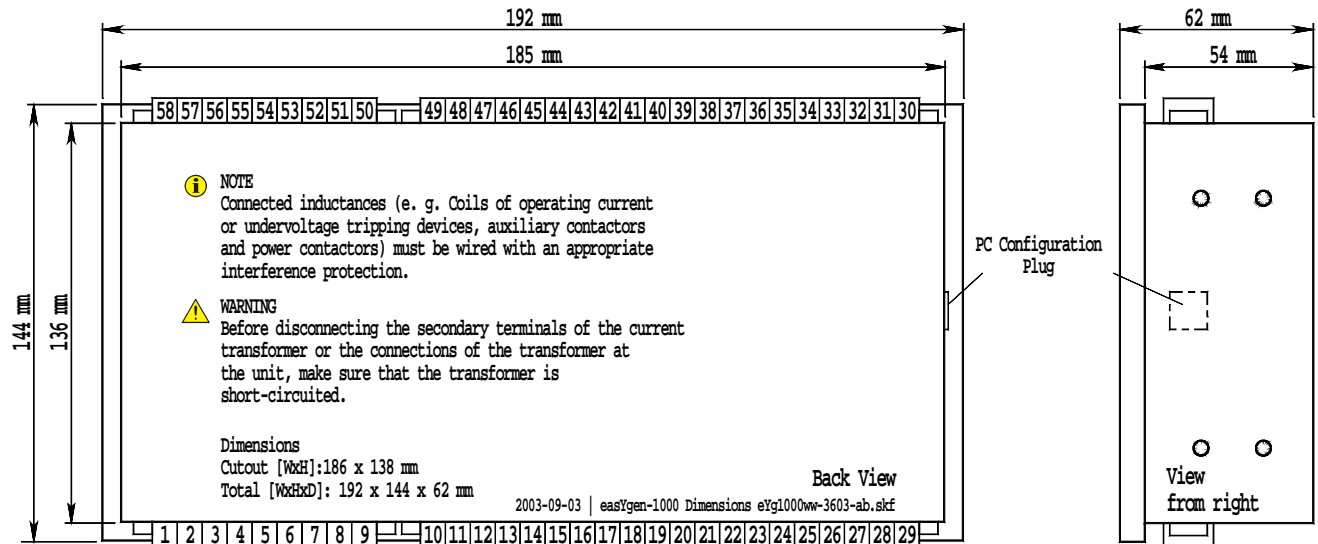
Model "1500"
Design "RED"



Model "1400"

Discrete inputs	isolated	
Input range	12/24 Vdc (6.5..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 Aac@24 Vdc / 0.36 Aac@125 Vdc / 0.18 Aac@250 Vdc	
Pilot duty (PD)	B300	
	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	Model "1500" Flush	Type APRANORM DIN 43 700
	Model "1400" DIN-rail	Phoenix, Um122
Dimensions	Model "1500" Flush	192×144×62 mm
	Model "1400" DIN-rail	194×128×50 mm
Front cutout	Model "1500" Flush	186 [+1.1]×138 [+1.0] mm
Connection	screw/plug terminals 2.5 mm ²	
Front	insulating surface	
Protection system	at professional installation	
	Model "1500" Front	IP42
		(sealed IP54; gasket kit = P/N 8923-1043)
	Back	IP21
	Model "1400"	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	

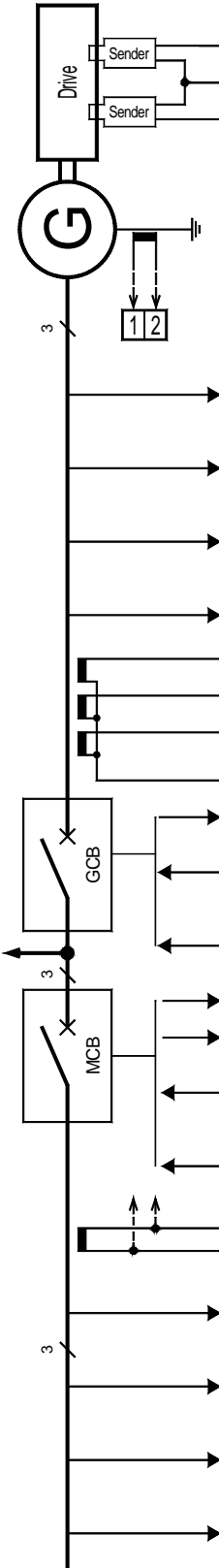
DIMENSIONS



PART NUMBERS AND ORDER CODE

Model Mounting	Rated PT secondary <i>FlexRange™</i>	Rated CT secondary	Design	Part Number (P/N)	Description
Model "1500" Flush-mounting	69/120 Vac and 277/480 Vac	..5 A	RED	P/N 8440-1330	EASYGEN-1500-55B
			BLUE	P/N 8440-1544	EASYGEN-1500-55B/BLUE
		..1 A	RED	P/N 8440-1331	EASYGEN-1500-51B
			BLUE	P/N 8440-1545	EASYGEN-1500-51B/BLUE
Model "1400" DIN-rail mounting		..5 A		P/N 8440-1389	EASYGEN-1400-55M
		..1 A		P/N 8440-1390	EASYGEN-1400-51M

WIRING DIAGRAM



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



easYgen-1500/1400 (Genset Control)

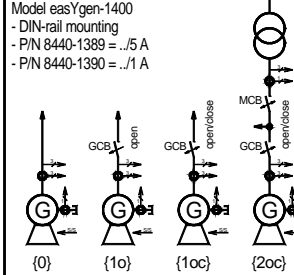
FlexApp / DynamicsLCD

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
 - Flush-mounting
 - P/N 8440-1330 & 8440-1544 = ..1/5 A
 - P/N 8440-1331 & 8440-1545 = ..1/1 A

Model easYgen-1400
 - DIN-rail mounting
 - P/N 8440-1389 = ..1/5 A
 - P/N 8440-1390 = ..1/1 A



47	Relay [R11]	- Readiness for operation	
46	Relay [R10]	- <i>LogicsManager</i> or - "Command: close GCB"	
45	Relay [R9]	- <i>LogicsManager</i> or - "Command: open MCB"	
44	Relay [R8]	- <i>LogicsManager</i> or - "Command: close MCB"	
43	Relay [R7]	- <i>LogicsManager</i> or - "Command: open GCB"	
42	Relay [R6] (<i>LogicsManager</i>)	- Auxiliary services	
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]	- Alarm input (<i>LogicsManager</i>)	
29	Discrete input [D1]	- Alarm input (<i>LogicsManager</i>)	
28	Common (terminals 30-34)		
27	Relay [R5] (<i>LogicsManager</i>)	- Diesel: Preglow; Gas: Ignition ON	
26	Relay [R4]	- Diesel: Fuel relay; Gas: Gas valve	
25	Relay [R3]	- Crank	
24	Relay [R2] (<i>LogicsManager</i>)	- Alarm class C/D/E/F active	
23	Relay [R1] (<i>LogicsManager</i>)	- Centralized alarm	
22	Discrete input [D8]	- Alarm input (<i>LogMan</i>) or "Reply: GCB is open"	
21	Discrete input [D7]	- Alarm input (<i>LogMan</i>) or "Reply: MCB is open"	
20	Discrete input [D6]	- Alarm input (<i>LogMan</i>) or "Enable MCB"	
19	Discrete input [D5]	- Alarm input (<i>LogicsManager</i>)	
18	Discrete input [D4]	- Alarm input (<i>LogicsManager</i>)	
17	Discrete input [D3]	- Alarm input (<i>LogicsManager</i>)	
16	Discrete input [D2]	- Alarm input (<i>LogicsManager</i>)	
15	Discrete input [D1]	- Alarm input (<i>LogicsManager</i>)	
14	Common (terminals 51-58)		
13	12/24 Vdc		
12	0 Vdc		
11	Battery		

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

Subject to technical modifications.

FEATURES OVERVIEW

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37180C - 04/2/S

		easY™gen-1500 (-1400)			
		Model "1500" = flush Model "1400" = DIN-rail			
Configured as ...		{0}	{1o}	{1oc}	{2oc}
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		✓	✓	✓
- true rms	max. 86/150 Vac		✓	✓	✓
- FlexRange™	rated 277/480 Vac		✓	✓	✓
	max. 346/600 Vac		✓	✓	✓
Mains current #1 (1phase/2-wire, true rms)	..1 A or ..1/5 A				✓
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#2		✓	✓	✓
	GCB open/close#2			✓	✓
	GCB/ MCB open/close#2				✓
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™	✓#1500	✓#1500	✓#1500	✓#1500
Start/stop logic for Diesel/Gas engines		✓	✓	✓	✓
kWh meter, kvarh meter		✓	✓	✓	✓
Operating hours/start/maintenance counter		✓	✓	✓	✓
Configuration via PC #3		✓	✓	✓	✓
Event recorder with real time clock (battery backed)		300	300	300	300
Flush-mounting	Model ...	"1500"	"1500"	"1500"	"1500"
DIN-rail mounting	Model ...	"1400"	"1400"	"1400"	"1400"
Protection ANSI#					
Generator: voltage/frequency	59/27/810/81U	(✓)#5	✓	✓	✓
Generator: overload, reverse/reduced power	32/32R/32F	(✓)#5	✓	✓	✓
Generator: current imbalance	46	(✓)#5	✓	✓	✓
Generator: definite time-overcurrent	50/51	(✓)#5	✓	✓	✓
Generator: inverse time-overcurrent	IEC255	(✓)#5	✓	✓	✓
Generator: ground fault #4		(✓)#5	✓	✓	✓
I/O's					
Speed input (magnetic/switching; Pickup)		✓	✓	✓	✓
Discrete alarm inputs (configurable)		8	8	7	5
Relay outputs (configurable)	LogicsManager™	10	10	8	6
Analog inputs #6 (configurable)	FlexIn™	2	2	2	2
CAN bus communication #7	FlexCAN™	✓	✓	✓	✓
Listings/Approvals					
UL/cUL Listed		✓	✓	✓	✓
Marine Approval #8		✓	✓	✓	✓
CE Marked		✓	✓	✓	✓

#1 Selection during order: both ..1/5 A (standard) or both ..1 A (alternatively);
#2 dedicated to a fixed relay
#3 Cable incl. software necessary (DPC = Part Number P/N 5417-557)
#5 possible (not dedicated to a fixed relay)

#6 selectable during configuration
VDO (0..180 Ohm, 0..5 bar, bipolar#6)
VDO (0..180 Ohm, 0..10 bar, bipolar#6)
VDO (0..380 Ohm, 40..120°C, bipolar#6)
VDO (0..380 Ohm, 50..150°C, bipolar#6)
VDO (0..180 Ohm, 0..100%, level, bipolar#6)
Pt100
Resistive input (linear 2pt. or free chart 9pt.)
20 mA (0/4..20 mA, freely configurable)

#7 freely selectable during configuration
CANopen, or CAN (CAL); request information
#8 Please request status
#1500 Model "1500" only

Example of the *LogicsManager*

