

APPLICATIONS

The 2nd Generation of genset controls is designed with an intuitive design and a big user friendly 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 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 (allows long distance networks) 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 Scania ECU possible.

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/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) **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, 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), unbalanced load (46), definite time-overcur. (50/51), inverse time-overcurrent (IEC255), calculated + measured 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 (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

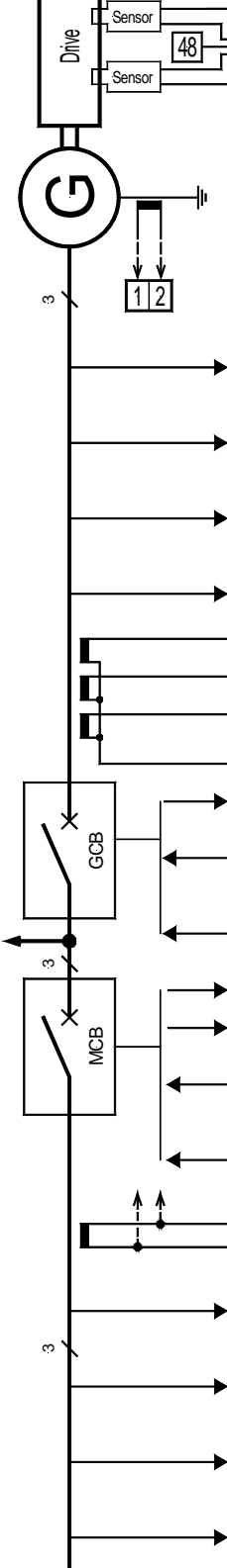
- Current input as ..5 A (standard) or ..1 A

- **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, allows long distance networks)
- Modbus RTU Slave
- 6.5 to 40.0 Vdc power supply
- Flush-mounting
- CE marked
- UL/cUL Listed
- GL, LR Marine Approvals pending

WIRING DIAGRAM



only connection for two-pole sensors is shown below:



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

Subject to technical modifications.



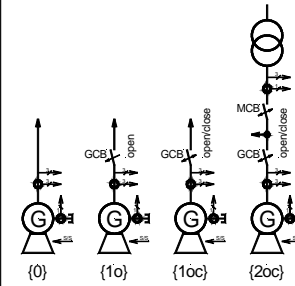
easYgen-1500 V2.0xxx (Genset Control)

FlexApp / DynamicsLCD

The Mode of the control can be configured alternatively as an:
 {0} - Measuring transducer/engine control [0CB]
 {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"	45
Relay [R9]	- <i>LogicsManager</i> or - "Command: open MCB"	42
Relay [R8]	- <i>LogicsManager</i> or - "Command: close MCB"	41
Relay [R7]	- <i>LogicsManager</i> or - "Command: open GCB"	39
Relay [R6] (<i>LogicsManager</i>)	- Auxiliary services	36
Common (terminals 30-34)		35
Relay [R5] (<i>LogicsManager</i>)	- Diesel: Preglow; Gas: Ignition ON	34
Relay [R4]	- Diesel: Fuel relay; Gas: Gas valve	33
Relay [R3]	- Crank	32
Relay [R2] (<i>LogicsManager</i>)	- Alarm class C/D/E/F active	31
Relay [R1] (<i>LogicsManager</i>)	- Centralized alarm	30
Discrete input [D8] - Alarm input (<i>LogMan</i>) or "Reply: GCB is open"		8
Discrete input [D7] - Alarm input (<i>LogMan</i>) or "Reply: MCB is open"		7
Discrete input [D6] - Alarm input (<i>LogMan</i>) or "Enable MCB"		6
Discrete input [D5] - Alarm input (<i>LogicsManager</i>)		5
Discrete input [D4] - Alarm input (<i>LogicsManager</i>)		4
Discrete input [D3] - Alarm input (<i>LogicsManager</i>)		3
Discrete input [D2] - Alarm input (<i>LogicsManager</i>)		2
Discrete input [D1] - Alarm input (<i>LogicsManager</i>)		1
Common (terminals 51 to 58)		50
12/24 Vdc		49
0 Vdc		48

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

© Woodward (Genset) (K/C)
 © Battery or another power supply, terminal 51 to 58, using signal

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 Governor Company
 Leonhard-Reglerbau GmbH
 Handwerkstrasse 29
 70565 Stuttgart, Germany
 Ph: +49 (0) 711-789 54-0
 Fax: +49 (0) 711-789 54-100

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.

Corporate Headquarters
 Rockford IL, USA
 Ph: +1 (815) 877-7441

www.woodward.com
 /smart-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

© Woodward Governor Company

All Rights Reserved

		easY™gen-1500			
		Configured as ...	{0}	{1o}	{1oc}
Measuring					
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 ../5 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 ../5 A	(✓)#2	(✓)#2	(✓)#2	✓
Control					
Breaker control logic	<i>FlexApp™</i>	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)	<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		✓	✓	✓	✓
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/O's					
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		✓	✓	✓	✓
Listings/Approvals					
UL/cUL Listed		✓	✓	✓	✓
LR, GL Marine Approval pending		✓	✓	✓	✓
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 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)
 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 information
- #9 external electrical isolation required (e.g. DPC cable P/N 5417-557)

Example of the *LogicsManager*

