

Genset Control for Auto Start and Transfer Switch Operation (Model "320/350")

DESCRIPTION

I/O's

- 3 phase generator and mains true rms voltage, measuring inputs: rated 480 Vac (max. 600 Vac)
- Maximum 2 configurable discrete inputs
- Maximum 2 programmable relays
- D+ input (charge alternator input/output)

Protection (ANSI #)

Generator / Engine: Battery voltage, overspeed (12), over-/undervoltage (59/27), over-/underfrequency (810/U), charge alternator failure

Features

- Start/stop sequence for Diesel engines
- Pre-glow control
- Operating hours, service hours, and start counters
- Configurable trip levels/delays/alarm classes
- 6digit 7segment LED for
 - display of measuring values (V, f, speed)
 - display of counters (see above)
 - display of alarms
 - display of ECU messages
- PC and/or front panel configurable (selection of parameters for front panel configuration)
- Password protected front panel configuration
- 15 entry event logger
- Customized display using paper-strips

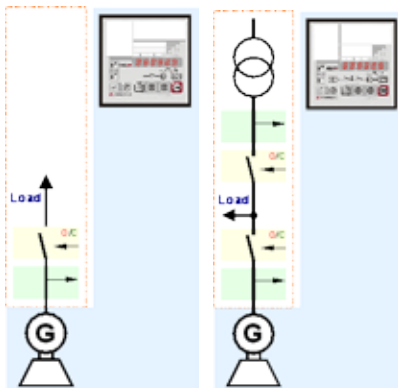
Differentiation

- Model "320x": GCB (generator circuit breaker) operation only
- Model "350x": GCB and MCB (mains circuit breaker) operation
- Generator voltage measurement
 - 3phase-4wire, 3phase-3wire, 1phase-3wire, and 1phase-2wire
- Mains voltage measurement
 - Model "350X": 3phase-4wire, 3phase-3wire, 1phase-3wire, and 1phase-2wire
- Visualization of J1939 messages
- MPU input (magnetic/switching)

APPLICATIONS

The easY™gen-320x offers automatic engine starting, stopping, metering, and generator protection (the easY™gen-350x adds AMF and transfer switching). The easY™gen-300 series is designed for single unit isolated operation applications.

The multi purpose 6 digit 7 segment LED offers the ability to display measured values and alarm messages. The CAN bus operation adds the ability to display J1939 messages from an engine ECU.



320x & 350x breaker applications

The isolated J1939 CAN bus permits long distance networks for selected ECU manufacturers. Our sales department can provide information regarding the selected ECU manufacturers.

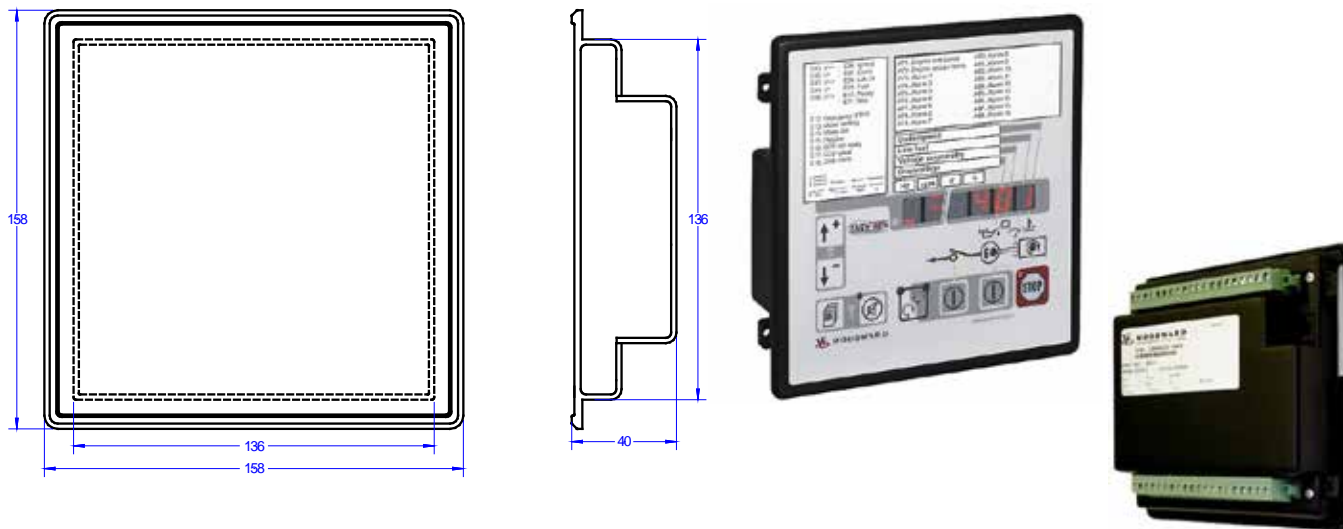
- AMF/loss of mains auto start/stop
- Complete engine and generator protection in one unit
- True RMS sensing of voltage
- Counters for operating hours, service hours, and starts
- Freely configurable discrete inputs
- Freely programmable relay outputs
- PC and/or front panel configurable
- Password protected front panel configuration
- Event logger
- Customized display using paper-strips
- 6.5 to 32.0 Vdc power supply
- Front panel-mounting
- Display of J1939 data
- Visualization of J1939 DM1 / DM2 SPN-FMI error messages
- D+ charge alternator input/output
- CE marked
- Shock and vibration test approved
- UL/cUL listed

SPECIFICATIONS

Power supply	12/24 Vdc (6.5 to 32.0 Vdc)
Intrinsic consumption	max. 10 W
Degree of pollution	2
Ambient temperature (operation)	-20 to 70 °C / -4 to 158 °F
Ambient temperature (storage)	-20 to 85 °C / -4 to 185 °F
Ambient humidity	95 %, non-condensing
Voltage	(A/D)
480 Vac	Rated (V_{rated})..... 277/480 Vac
	Maximum value (V_{max})..... 346/600 Vac
	Rated voltage phase-ground..... 300 Vac
	Rated surge voltage..... 4.0 kV
Linear measuring range	1.3 x V_{rated}
Measuring frequency	40 (mains) or 15 (generator) to 85 Hz
Accuracy	Class 1
Input resistance	2.0 MW
Max. power consumption per path	< 0.15 W
Speed input	capacitive isolated
Input impedance	min. approx. 17 kW
Input voltage	875 mV eff.
D+ input/output	
Max. exciter current	12 Vdc (terminal 4) 0.11 A
	24 Vdc (terminal 3) 0.11 A

Discrete inputs	isolated
Input range	12/24 Vdc (6.5 to 32.0 Vdc)
Input resistance	approx. 6.7 kW
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
Housing	Flush-mount..... Type Woodward
Dimensions	158×158×40 mm
Front cutout	138[+1.0]×138[+1.0] mm
Connection	screw/plug terminals 2.5 mm ²
Tightening torque	0.5 Nm
Housing	insulating surface
Protection system	with correct installation
	Front..... IP54 pending
Weight	approx. 450 g
Disturbance test (CE)	tested according to applicable EN guidelines
Sinusoidal Vibration	4G, 5 to 100 Hz
Endurance Vibration	4G, 30 Hz, 1.5 h
Random Vibration	1.04Grms, 10 to 500 Hz, 2 h
Shock	40G peak, 11 ms
Listings	UL/cUL

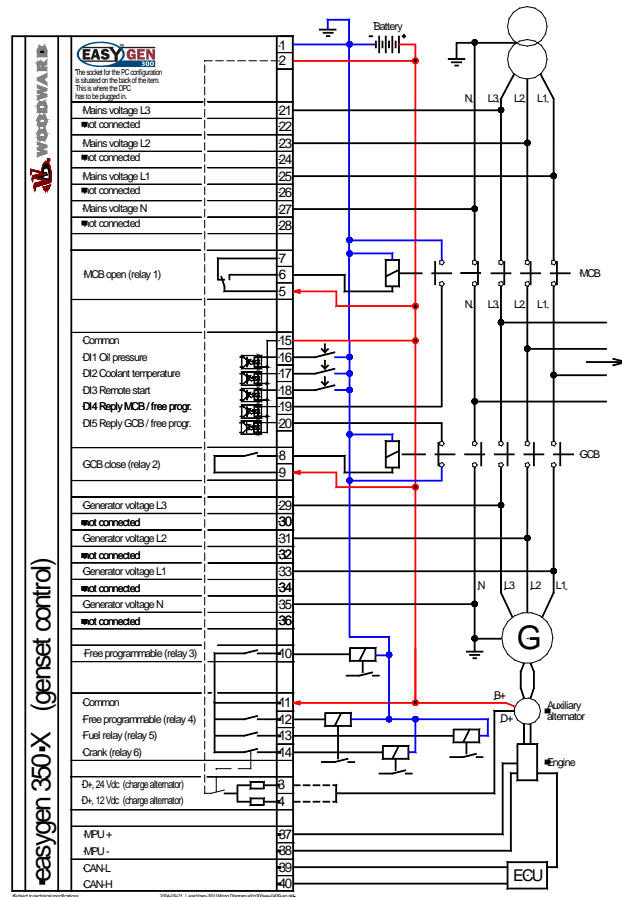
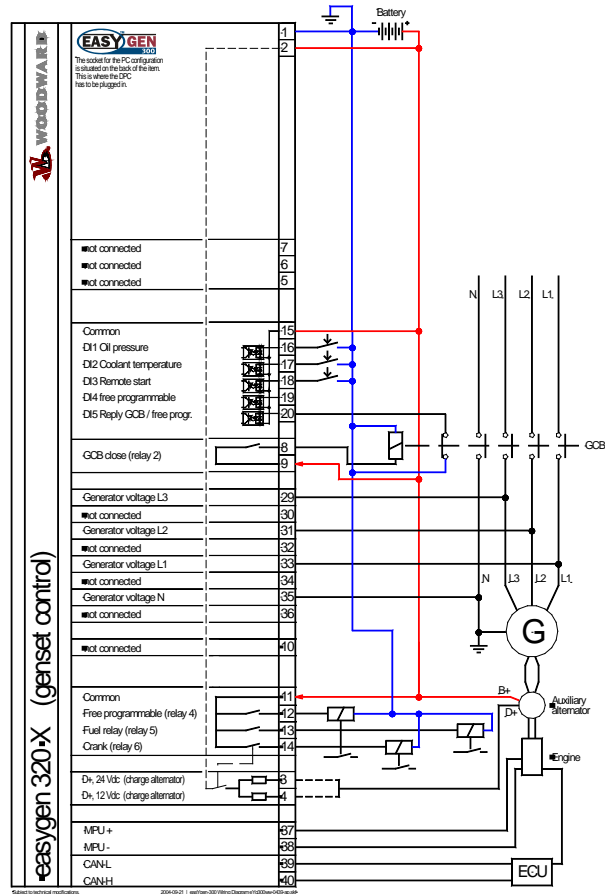
DIMENSIONS



PART NUMBERS

Model	Part Number (P/N)	Description
Model "320/X"	P/N 8440-1800	EASYGEN-320-50B/X
Model "350/X"	P/N 8440-1801	EASYGEN-350-50B/X

WIRING DIAGRAMS



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FEATURES OVERVIEW

		easY™gen-300	
		320X 	350X 
Measuring			
Generator voltage - true rms	rated 277/480 Vac max. 346/600 Vac	configurable#1	configurable#1
Mains voltage - true rms	rated 277/480 Vac max. 346/600 Vac	configurable#1	configurable#1
Control			
Push-buttons to operate the unit		ü	ü
Isolated single-unit operation		ü	ü
AMF (auto mains failure operation)			ü
Stand-by operation		ü	ü
Open transition (break-before-make)			ü
ATS (automatic transfer switching)			ü
Accessories			
6digit 7segment LED (display of values and alarms)		ü	ü
Global multi-lingual use with customized paper-strip		ü	ü
Start/stop logic for Diesel engines		ü	ü
Operating hours/service hours/start counter		ü	ü
15 entry event logger		ü	ü
Configuration via front panel (password protected)		ü	ü
Configuration via PC #2		ü	ü
Protection			
Engine: over-/underspeed		ü	ü
Generator: voltage/frequency		ü	ü
J1939 DM1 red / amber lamp		ü	ü
I/Os			
MPU input (magnetic/switching; Pickup)		ü	ü
D+ (charge alternator input/output)		ü	ü
Discrete alarm inputs (fixed)		2	2
Discrete remote start input (fixed)		1	1
Discrete alarm inputs (configurable) #3		2	2
Relay outputs (fixed)		3	4
Relay outputs (configurable)		1	2
CAN bus communication #4		ü	ü
Listings/Approvals			
CE marked		ü	ü
UL/cUL listed		ü	ü
Shock and vibration test approvals		ü	ü
Part Numbers P/N		8440-1800	8440-1801

#1 Configurable: 1p-2w, 1p-3w, 3p-3w, 3p-4w

#2 Configuration software 'Toolkit' available free at Woodward.com, USB connection requires Woodward DPC cable P/N 5417-1251 (or 'LeoPC'; RS232 connection with DPC cable P/N 5417-557)

#3 Only available if breaker replies are not used

#4 fixed CAN J1939 (selected ECU manufacturers; request information)

Example for customizable paper strips:

X = Only available in X-Versions		350 = Only available in EasyGen 350/350X		0/1 = Off/On		Alarm Messages:	
01 Horn reset time	[s]	52 Gen. under freq.	[%]	72 Display level		10A	Generator overfrequency
10 Rated frequency	[Hz]	53 Gen. under freq.	[s]	80 Mains settling time	[s] (350)	11A	Generator underfrequency
11 Gen. rated volt	[V]	54 Gen. over volt	[%]	81 Mains over volt.	[%] (350)	12A	Generator overvoltage
12 Mains rated volt	[V](350)	55 Gen. over volt	[s]	82 Mains under volt	[%] (350)	13A	Generator undervoltage
20 Fuel relay	[0/1]	56 Gen. under volt	[%]	83 Mains volt. hysteresis	[%] (350)	14A	Mains rotation field
21 Preglow time	[s]	57 Gen. under volt	[s]	84 Mains over frequency	[%] (350)	20A	Engine overspeed
30 Pickup	[0/1] (X)	58 Eng. ovrsprd. monit.	[0/1] (X)	85 Mains under frequency	[%] (350)	21A	Engine underspeed
31 Nom. speed	[rpm](X)	59 Eng. over speed	[rpm](X)	86 Mains freq. hysteresis	[%] (350)	30A	Start failure
32 No. pickup teeth	(X)	60 Batt. under volt	[V]	90 J1939 Device type	(X)	31A	Unintended stop
40 Cool down time	[s]	61 Charge fail monit.	[0/1]	91 J1939 Request send address	(X)	40A	Maintenance hours
50 Gen. over freq.	[%]	62 Charge fail level	[V]	92 J1939 Receive device No.	(X)	50A	Battery undervoltage
51 Gen. over freq.	[s]	71 Reset maint hours	[0/1]	93 J1939 Monitoring	[0/1] (X)	51A	Charge failure
						60A	Discrete input 1
						61A	Discrete input 2
						62A	Discrete input 4
						63A	Discrete input 5
						64A	J1939 Error (X)