

HIL Ready EasyGen Controller Datasheet

Customer: Typhoon HIL, Inc

Project: Lincoln Lab

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This document is the datasheet for the HIL Ready EasyGen Controller device.



Typhoon HIL

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1 General information

This device consists of the Woodward EasyGen 3500 control unit for engine-generator system management applications, and interface circuits that connects controller with the HIL Device.



2 Functional description

The simplified block diagram of the HIL Ready EasyGen Controller is shown on Figure 1:

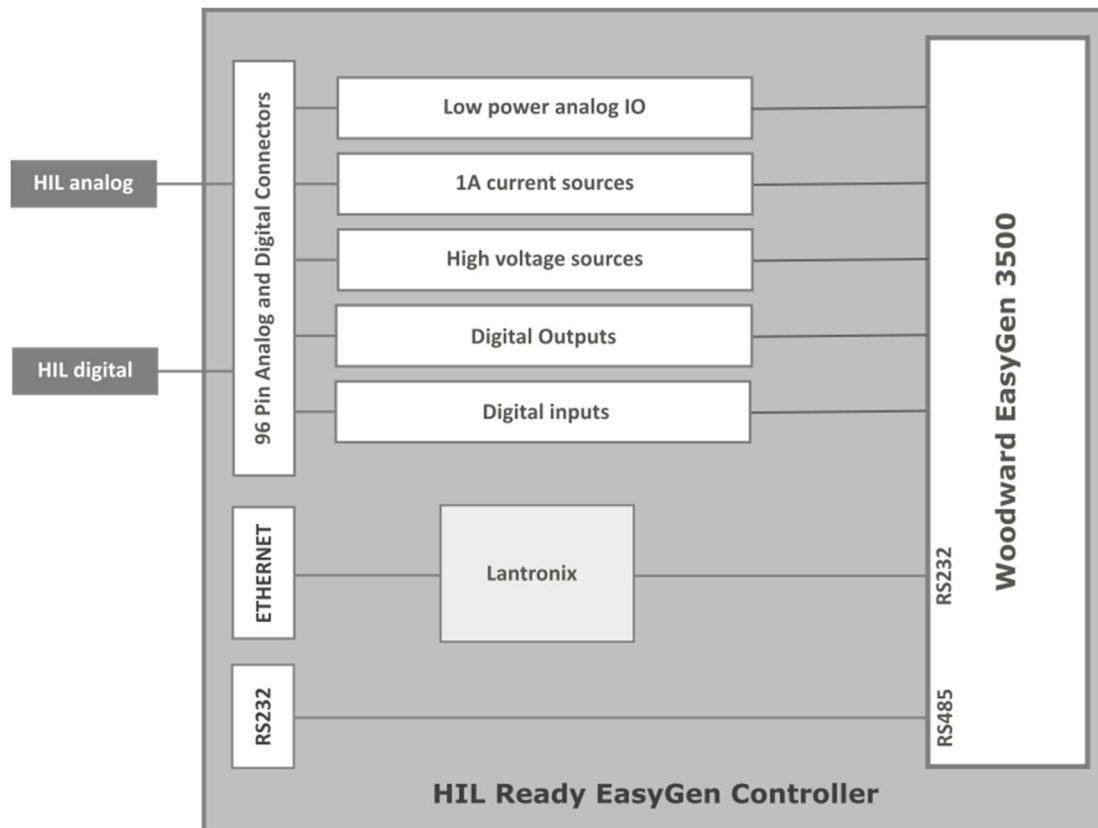


Figure 1: **HIL Ready EasyGen Controller**

3 Signal mapping

3.1 Analog signals

Table 1: **HIL analog outputs**

HIL Channel	Rating	EasyGen 3500 Signal	EasyGen 3500 pin
AO3	1 Arms	Mains current L1 s2(I)	1
AO4	1 Arms	Generator current L2 s2(I)	5
AO5	1 Arms	Generator current L1 s2(I)	3
AO6	1 Arms	Generator current L3 s2(I)	7
AO11	120 VAC	Mains Voltage L1	21
AO12	120 VAC	Mains Voltage L2	23
AO13	120 VAC	Mains Voltage L3	25
AO14	120 VAC	Generator Voltage L1	29
AO15	120 VAC	Busbar Voltage L1	37
AO16	120 VAC	Generator Voltage L2	31
AO17	120 VAC	Generator Voltage L3	33
AO19	±20 mA	Fuel level	10
AO20	±20 mA	Engine Coolant Temperature	12
AO21	±20 mA	Engine Oil Pressure	14

Table 2: **HIL analog inputs**

HIL Channel	Rating	EasyGen 3500 Signal	EasyGen 3500 pin
AI1	±20 mA / 249 R	Governor	15
AI2	±20 mA / 249 R	AVR	18
AI7	±20 mA / 249 R	Governor	15
AI8	±20 mA / 249 R	AVR	18

EasyGen 3500 pins 2, 4, 6, 8, 9, 11, 13, 17, 20, 27, 35, 39 are connected to ground.

3.2 Digital signals

Table 3: **HIL digital inputs**

HIL Channel	Rating	EasyGen 3500 Signal	EasyGen 3500 pin
DI1	5 V	Ready for operation	41
DI2	5 V	Centralized alarm	43
DI3	5 V	Starter (Crank)	44
DI4	5 V	Fuel solenoid (Fuel valve)	45
DI5	5 V	Preglow	47
DI6	5 V	Close GCB	49
DI7	5 V	Open GCB	51
DI8	5 V	DI1	53
DI9	5 V	Open MCB	55
DI10	5 V	Auxiliary Services (Lube pump)	57
DI11	5 V	Alarm class A or B (Warning signal)	58
DI12	5 V	Alarm class C-F (Shutdown signal)	59

EasyGen 3500 pins 42, 46, 48, 50, 52, 54, 56, 60 are connected to +5V from HIL.

Table 4: **HIL digital outputs**

HIL Channel	Rating	EasyGen 3500 Signal	EasyGen 3500 pin
DO1	12 V / 2,2 kΩ	Emergency stop	67
DO2	12 V / 2,2 kΩ	Start in auto	68
DO3	12 V / 2,2 kΩ	Low oil pressure	69
DO4	12 V / 2,2 kΩ	Coolant Temperature	70
DO5	12 V / 2,2 kΩ	External alarm acknowledge	71
DO6	12 V / 2,2 kΩ	Enable MCB	72
DO7	12 V / 2,2 kΩ	Reply MCB is open	73
DO8	12 V / 2,2 kΩ	Replay GCB is open	74
DO9	12 V / 2,2 kΩ	Discrete input configurable	75
DO10	12 V / 2,2 kΩ	Spare	76
DO11	12 V / 2,2 kΩ	MCB	77
DO12	12 V / 2,2 kΩ	GCB	78
DO13	12 V / 2,2 kΩ	MPU input – inductive/switching	79

EasyGen 3500 pins 66,80 are connected to ground.

4 Internal signal mapping

4.1 Analog signals

Table 5: **UBOB current outputs**

OUTPUT IDC10 pin	UBOB Channel	Rating	EasyGen pin
2	AO19	± 20 mA	10
4	AO20	± 20 mA	12
6	AO21	± 20 mA	14
1, 3, 5	Grounds	-	9, 11, 13

Table 6: **UBOB current inputs**

INPUT IDC10 pin	UBOB Channel	Rating	EasyGen pin
2	AI1, AI7	249 Ω	15
4	AI2, AI8	249 Ω	18
1, 3	Grounds	-	17, 20

4.2 Digital signals

Table 7: **UBOB Digital outputs**

IDC40 pin	UBOB Channel	Rating	EasyGen pin
1	DO1	12 V / 2,2 kΩ	67
3	DO2	12 V / 2,2 kΩ	68
5	DO3	12 V / 2,2 kΩ	69
7	DO4	12 V / 2,2 kΩ	70
9	DO5	12 V / 2,2 kΩ	71
11	DO6	12 V / 2,2 kΩ	72
13	DO7	12 V / 2,2 kΩ	73
15	DO8	12 V / 2,2 kΩ	74
17	DO9	12 V / 2,2 kΩ	75
19	DO10	12 V / 2,2 kΩ	76
21	DO11	12 V / 2,2 kΩ	77
23	DO12	12 V / 2,2 kΩ	78
25	DO13	12 V / 2,2 kΩ	79
34, 36, 38, 40	Grounds	-	66, 80

Table 8: **UBOB Digital inputs**

IDC40 pin	UBOB Channel	Rating	EasyGen pin
2	DI1	12 V / 2,2 kΩ	41
4	DI2	12 V / 2,2 kΩ	43
6	DI3	12 V / 2,2 kΩ	44
8	DI4	12 V / 2,2 kΩ	45
10	DI5	12 V / 2,2 kΩ	47
12	DI6	12 V / 2,2 kΩ	49
14	DI7	12 V / 2,2 kΩ	51
16	DI8	12 V / 2,2 kΩ	53
18	DI9	12 V / 2,2 kΩ	55
20	DI10	12 V / 2,2 kΩ	57
22	DI11	12 V / 2,2 kΩ	58
24	DI12	12 V / 2,2 kΩ	59
35, 39	+5V	-	42, 46, 48, 50, 52, 54, 56, 60

5 Revision history

Date	Version	Revision	Author
25.01.2017.	1.0		Igor Pintaric