



## **BBG-550 and BBG-550D**

### **Serial to 2-Channel Synchro/Resolver Interface**



#### **Features**

- Serial Input, Two-Speed Synchro/Resolver and Serial Outputs
- NMEA Type 12/13 or 19 inch Rack Mount Enclosure
- NMEA-0183 Compatible Outputs
- RS-232, RS-422, RS-423, RS-485, MIL-STD-188C Protocols
- AC Input Filtered and Circuit Breaker Protected

#### **Description**

The BBG-550 is a bulkhead mount NMEA 12/13, or 19 inch rack mount enclosure which converts angular information from a serial data message into three outputs: a two speed synchro or resolver output and a NMEA-0183 serial data format.

The serial data input/output uses the NMEA 0183 message structures and supports RS-232, RS-422, RS-423, RS-485, and MIL-STD-188C protocols. Custom message formats are available upon request.

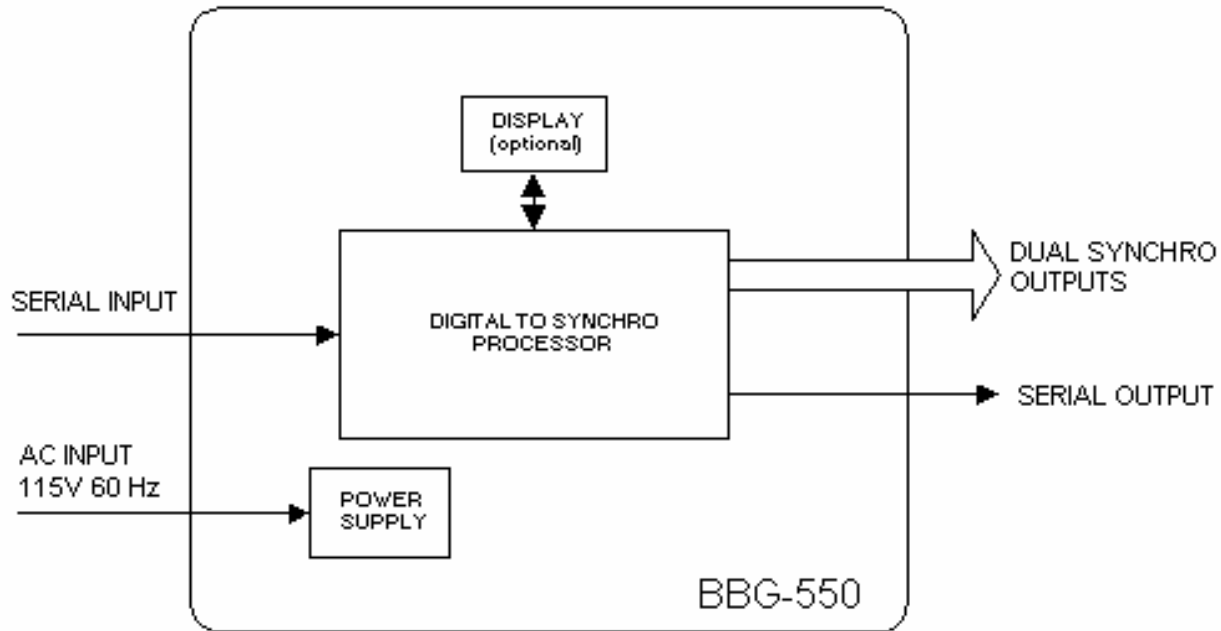
Power input, serial input, reference inputs, synchro/resolver outputs, and serial outputs are available on standard militarized connectors. Synchro outputs are virtually indestructible incorporating current limiting, short circuit protection, over voltage transient protection, and thermal cutoff. AC input power is filtered and circuit breaker protected.

The BBG-550D includes a backlighted Liquid Crystal Display (LCD) which provides a visual indication of the synchro angle outputs.



# BBG-550 and BBG-550D Product Specifications

## Chart



## Technical Specifications

Parameter	Units	Value
Power Input	Volts	115
	Hertz	60
	Miliamps	500
Temperature Range		
Operating	C	0 to +50
Storage	C	-65 to +150
Physical Characteristics		
Enclosure	Inches	16 x 14 x 6
Mounting	Inches	16.75 x 12.00



# BBG-550 and BBG-550D Product Specifications

## Overview

The BBG-550 is a bulkhead mount NMEA 12/13, or 19 inch rack mount enclosure which converts angular information from a serial data message into three outputs: a two speed synchro or resolver output and a NMEA-0183 serial data format.

The two speed synchro or resolver outputs are factory configurable to user defined voltages and frequencies. Outputs are transformer isolated and fully protected against overloads, transients from load kickbacks, short circuits and overheating.

The serial data output is transmitted over RS232 and RS422 interfaces using NMEA-0183 message structure. This output is transmitted over both RS-232 and RS-422 interfaces. Input and output baud rates are switch selectable on the Digital to Synchro Processor housed internal to the BBG-550. Selectable baud rates include: 1200, 2400, 4800, 9600, and 19,200 bits per second. Default data output is 9600, 8 bits, no parity, and one stop bit (9600, 8, N, 1).

BBG-550/550D Baud Rate Switch Selection								
BAUD RATE (bits per sec)	Configuration Switch S1							
	1	2	3	4	5	6	7	8
1200	1	1	0	X	X	X	X	X
2400	0	0	1	X	X	X	X	X
4800	1	0	1	X	X	X	X	X
9600	0	1	1	X	X	X	X	X
19200	1	1	1	X	X	X	X	X

1 = off, 0 = on, X = Don't Care



# BBG-550 and BBG-550D Product Specifications

## NMEA 0183 Format

The BBG-550 can be factory programmed for any NMEA 0183 data format or any custom data format. Current data format for two-speed synchro operation is as follows:

\$PTBBG,XXX.XX,A\*CSCRLF

\$	Start of message ascii character 24 Hex
PT	Proprietary message
BBG	BBG Incorporated
XXX.XX	Channel 1 synchro/resolver angle (ex: 045.01)
A	Validity (A = valid, V = Invalid)
*	ascii character 2A Hex
CS	Checksum (8 bit XOR of characters between \$ and *)
CR	Carriage return
LF	Line feed

## Optional Synchro/ Resolver Outputs

The BBG-550 can be factory configured for 90Vrms, 11.8Vrms, and/or 6.8Vrms synchro or resolver outputs at 60Hz or 400Hz. Custom voltages and frequencies are available upon request. Please specify desired voltage and frequency when ordering.



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# BBG-550 and BBG-550D Product Specifications

## CONNECTOR LIST FOR BBG-550

### I/O CONNECTOR: POWER (J1)

I/O CONNECTOR TYPE: MS3112E12-3P

CONNECTOR MATE: MS3116F12-3

Pin No.	Signal
A	115V 60/400 Hz AC Input
B	Chassis Ground
C	115V 60/400 Hz AC Return

### I/O CONNECTOR: SERIAL (J2)

I/O CONNECTOR TYPE: MS3112E16-8P

CONNECTOR MATE: MS3116F16-8S

BBG-550/550D Serial Connector (J2)			
Type: MS3112E16-8P		Mate: MS3116F16-8S	
Pin No.	Signal	Pin No.	Signal
A	TXD232 (Output)	E	Ground
B	TXD422+ (Output)	F	RXD232 (Input)
C	TXD422- (Output)	G	RXD422+ (Input)
D	Ground	H	RXD422- (Input)



# BBG-550 and BBG-550D Product Specifications

## I/O CONNECTOR: SYNCHRO (J3)

I/O CONNECTOR TYPE: MS3112E14-19P

CONNECTOR MATE: MS3116F14-19S

Pin No.	Signal	Pin No.	Signal
A	RL1 (Input)	L	RL2 (Input)
B	RH1 (Input)	M	RH2 (Input)
C	S1_1/+SIN_1 (Output)	N	S1_2/+SIN_2 (Output)
D	S2_1/-COS_1 (Output)	P	S2_2/-COS_2 (Output)
E	S3_1/-SIN_1 (Output)	R	S3_2/-SIN_2 (Output)
F	S4_1/+COS_1 (Output)	S	S4_2/+COS_2 (Output)
G	Spare	T	Spare
H	Spare	U	Spare
J	Spare	V	Spare
K	Spare		



# BBG-550 and BBG-550D Product Specifications

## BBG-550/550D Ordering Information

BBG-550X,X,X,X,X

```
| | | | |
| | | | -- B Bulkhead mount
| | | |   R Rack mount
| | | |
| | | -- Power Input
| | |   115 = 115V L-L, 60 Hz
| | |   220 = 220V L-L, 60 Hz
| | |   115/400 = 115V L-L, 400 Hz
| | |   220/400 = 220V L-L, 400 Hz
| | |
| | |
| | -- Output Frequency
| |   60 = 60 Hz
| |   400 = 400 Hz
| |
| |
| -- Output Voltage Level
|   90S = 90 Vrms L-L Synchro
|   11.8S = 11.8 Vrms L-L Synchro
|   11.8R = 11.8 Vrms L-L Resolver
|   6.8R = 6.8 Vrms L-L Resolver
|
|
-- Display Option
   N = No Display

                                   D = With LCD Display
```



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