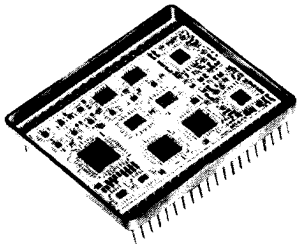
DDC
ILC DATA DEVICE CORPORATION

BUS-65110® AND BUS-65120®

LOW POWER MIL-STD-1553 DUAL REDUNDANT RTU HYBRID

NEW



FEATURES

- *PIN-FOR-PIN AND FUNCTIONAL BUS-65112 REPLACEMENT*
- *NEW LOW POWER DUAL TRANSCEIVER*
- *DDIP OR FLATPACK*
- *COMPLETE RTU PROTOCOL*
- *SUPPORTS 13 MODE CODES: ANY COMBINATION CAN BE ILLEGALIZED*
- *TRANSFERS DATA WITH DMA TYPE HANDSHAKING*
- *LATCHED OUTPUTS FOR COMMAND WORD AND WORD COUNT*
- *14 BIT BUILT-IN-TEST WORD REGISTER*
- *4 ERROR FLAG OUTPUTS*

DESCRIPTION

DDC's BUS-65110 is a complete dual redundant MIL-STD-1553 Remote Terminal Unit (RTU) packaged in either DDIP or flatpack hybrid packages. Based upon DDC custom ICs, it includes two low power transceivers, two encoder/decoders, two bit processors, RTU protocol, data buffers, and timing control logic. It supports all 13 mode codes for dual redundant operation, any combination of which can be illegalized.

Parallel data transfers are accomplished with a DMA type handshaking, compatible with most CPU types. Data transfers to/from memory are simplified by the latched command word and word count outputs. Error detection and recovery are enhanced by BUS-65110 special features. A 14 bit built-in test word register stores RTU information, and sends it to the Bus Controller in response to the Mode Command Transmit Bit Word. The BUS-65110 performs continuous on-line wrap-around self-test, and provides 4 error flags to the host CPU. Inputs are provided for host CPU control of 6 bits of the RTU Status Word.

The BUS-65110 uses BUS-65112 digital circuitry along with new, low power transceiver technology to provide truly "drop-in" replacement performance.

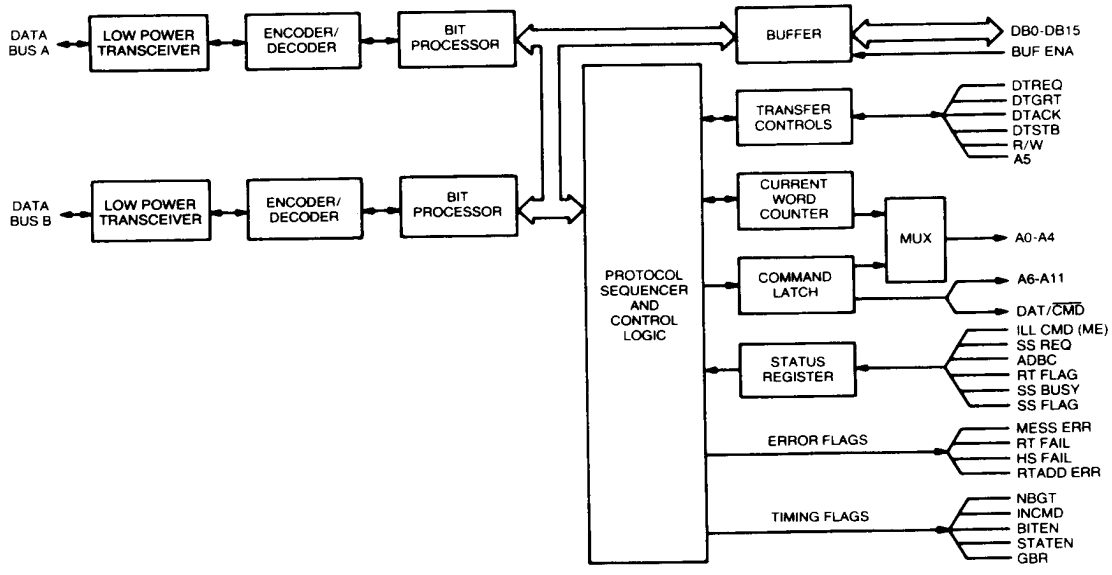


FIGURE 1. BUS-65110 BLOCK DIAGRAM

SPECIFICATIONS – Values at nominal power supply voltages and +25°C unless otherwise specified		
PARAMETER	**UNITS**	**VALUE**
RECEIVER		
Differential Input Impedance (DC to 1MHz)	kΩ	4 min
Differential Input Voltage	V_{p-p}	40 max
Input Threshold (Direct Coupled)	V_{p-p}	0.56 min, 1.00 max
CMRR (DC to 2 MHz)	dB	40 min
CMV (DC to 2MHz)	V	± 10 min
TRANSMITTER		
Differential Output Voltage		
Direct Coupled (Across 145Ω Load)	V_{p-p}	30 typ
Transformer Coupled (at Stub)	V_{p-p}	21 typ
Output Rise and Fall Times	ns	170 typ
Output Noise	mV_{p-p}	10 max
LOGIC		
V_{IH}	V	2.4 min
V_{IL}	V	0.7 max
I_{IH} (Note 1) (V_{IH} = 2.7V)	mA	−0.7 max
I_{IH} (Note 2) ($V_{IH} \geq 2.4V$)	μA	±20 max
I_{IL} (Note 1) (V_{IL} = 0.4V)	mA	−1.6 max
I_{IL} (Note 2) ($V_{IL} \leq 0.7V$)	μA	±20 max
V_{OH} (Note 3) (I_{OH} = 0.3 mA)	V	2.4 min
V_{OH} (Note 4) (I_{OH} = 3 mA)	V	2.4 min
V_{OH} (Note 6) (I_{OH} = −3 mA)	V	2.4 min
V_{OL} (Note 3) (I_{OL} = −1.6 mA)	V	0.4 max
V_{OL} (Note 5) (I_{OL} = −4 mA)	V	0.4 max
V_{OL} (Note 6) (I_{OL} = −6 mA)	V	0.4 max
C_I (f = 1 MHz)	pF	5 typ
C_O (f = 1 MHz)	pF	10 typ
C_{IO} (Note 6) (f = 1 MHz)	pF	15 typ

SPECIFICATIONS – Continued			
PARAMETER	**UNITS**	**VALUE**	
POWER SUPPLIES		**65110**	**65111**
+5VDC			
Tolerance, max	%	±10	±10
Current Drain, max	mA	175	175
−15VDC or −12VDC			
Tolerance, max	%	±5	±5
Current Drain			
Idel, max	mA	30	30
50% Transmit, max	mA	135	155
100% Transmit, max	mA	240	280
TEMPERATURE RANGE			
Operating (Case)	°C	−55 to +125	
Storage	°C	−65 to +150	
PHYSICAL			
Size			
DDIP	in. (mm)	1.9 x 2.1 x 0.25 (48 x 53 x 6)	
Flatpack	in. (mm)	1.6 x 2.19 x 0.171 (40.6 x 55.6 x 4.34)	
Weight	oz(g)	1.7(41)	

Notes:
1. I_{IH} and I_{IL} for input pins 12, 13, 14, 15, 53, 54, 55.
2. I_{IH} and I_{IL} for input pins other than in Note 1.
3. V_{OH} and V_{OL} for output pins, 1, 2, 3, 16, 25, 27, 28, 35, 40, 41, 42, 65, 73, 78.
4. V_{OH} for all output pins other than in Note 3.
5. V_{OL} for output pins 21, 22, 24, 26, 29, 60, 61, 62, 63, 64.
6. V_{OL} and C_{IO} for pins 43 thru 50 and 4 thru 11.

Refer to the BUS-65112 data sheet for additional information on operation, timing, pin functions, mechanical outlines and applications.

ORDERING INFORMATION

BUS-65110-883B

Reliability Grade:
- 883B = Fully compliant with MIL-STD-883.
- B = Screened to MIL-STD-883 but without QCI testing.
- Blank = Standard DDC

Power Supply Option:
- 0 = −15VDC
- 1 = −12VDC

Packaging:
- 1 = DDIP
- 2 = Flatpack

Mating Data Bus Transformers:
- for BUS-65110 use DDC BUS-25679
- for BUS-65111 use DDC BUS-29854

J

C