WA73A-455   Tektronix 73A455
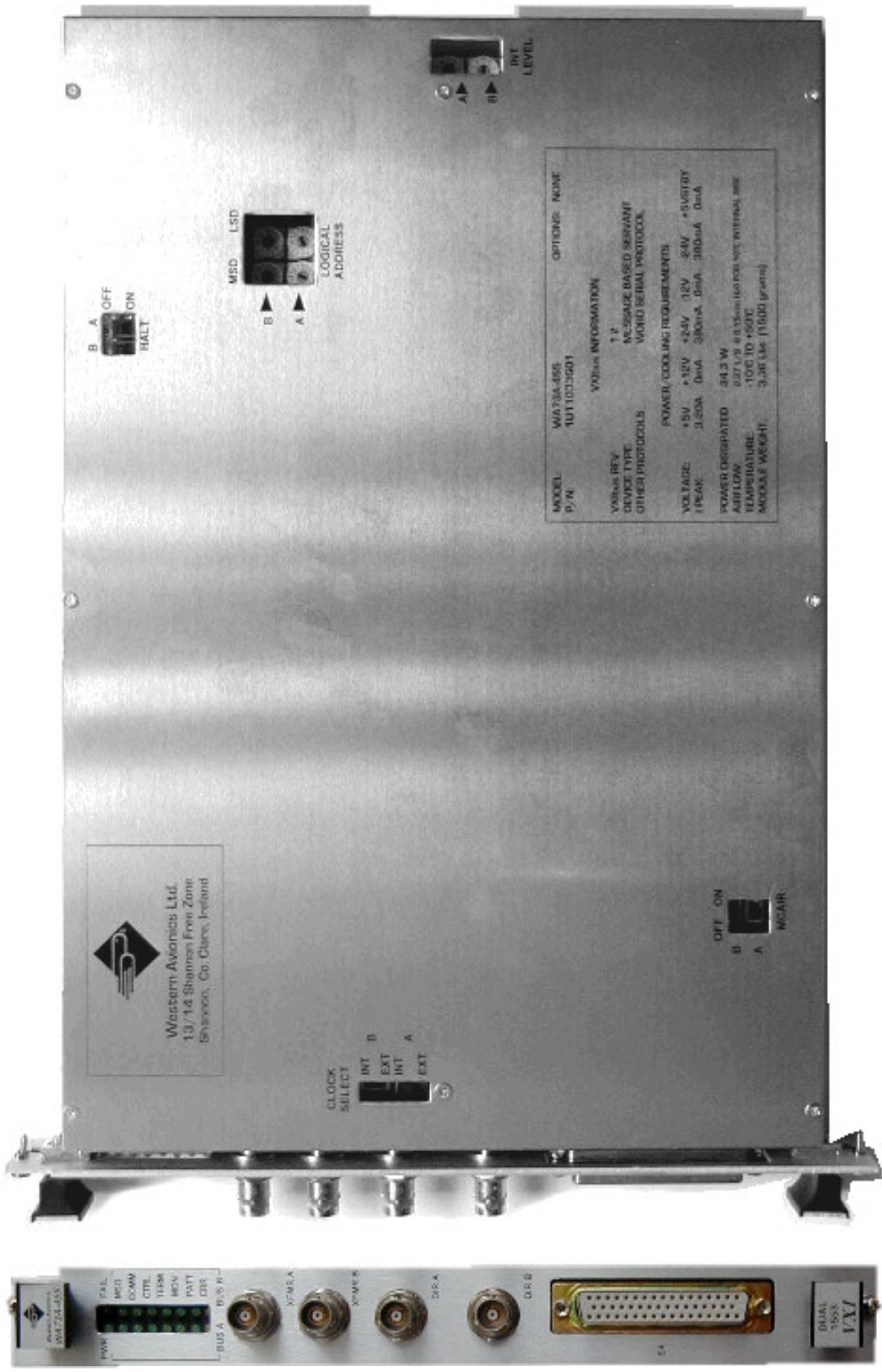## 2Ch MIL-STD-1553A/B BUS Simulator Module

WA73A-455

2-CH MIL-STD-1553A/ B Bus Simulator Module

Specifications

Configuration (Programmable)
   MIL-STD-1553 Bus Controller Simulator, single or multiple RT Simulator, or Bus Monitor

1553 Bus Coupling:
   Direct Coupling: 1:1 turns ratio, 55-ohm isolation resistor each leg
   Transformer Stub Coupling: 1:0.707 turns ratio.

Operating Modes:
   Bus Controller Simulator:
   Programmable for 32 separate data lists.
   RT Simulator:
   Programmable for data collection and response from 32 separate RT associated buffers.
   Bus Monitor:
   Collects all data on bus in single buffer, receive-only mode.

Buffer Capability:
   30,000 22-bit words (16 bits data, 6 bits error/sync code). completely user allocated.

1553 Analog Output: (Level-programmable to approximately 250 different levels):
   Range:
   35 ohms, direct-coupled output 0.20 to 8.20 V p-p.
   70 ohms, direct-coupled output 0.30 to 13.75 V p-p.
   1000 ohms, direct-coupled output 0.75 to 34.40 V p-p.
   70 ohms, transformer-coupled output, 0.60 to 24.2 V p-p.
   At 1553 bus with two 70 ohm terminators, either direct-coupled direct connection, or
   transformer-coupled through MIL-STD-1553 coupler, 0.20 to 8.20 V p-p.
   *Voltage range depends on the bus loading. Differential voltage level output range for the
   typical bus loads is shown with the MAC Air switch in the OFF position. With the MAC Air
   switch in the ON position, the peak-to-peak levels are approximately 10% higher than shown.*

Accuracy:
   0.3 V ptp with 35 and 75 ohm loads.

Noise Content:
   50 mV ptp.

Current Drive:
   260 mA RMS maximum, direct-coupled output.
   380 mA RMS maximum, transformer-coupled output.

Short-circuit Protection:
   The direct-coupled output may be shorted for several minutes without degradation of the
   transmitter
   The transformer-coupled output should not be shorted, as this may cause damage to the
   module

1553 Analog Input:
    Maximum Input: 40 V p-p differential.
    Threshold (Programmable to approximately 250 different levels);
            Direct-coupled: 0.50 to 9.00 V p-p
            Transformer-coupled   0.35 to 6.36 V p-p

Transition Time Error Detection:
To within 0.5, 1.0, 1.5 or 2.0 microseconds nominal, per MIL-STD-1553.

Word Format:
    Manchester bi-phase, self-clocking, 1 MHz, 20-bit word with command/data sync, data, and
    parity bits,

Message Format:
    Programmable command or status word plus user-defined number of data words per
    message.

Message capability:
    Any number of messages may be transmitted or received up to available buffer memory.

Message Rate:
    Bus Controller Simulator Mode: (Time from the end of one message to start of the next
    message). Programmable from 14 µs to 65,535 µs on an individual basis.
    RT Simulator Mode: (RT response time)
    Programmable from 4.25 µs to 65,535.25 µs on an individual message basis.
    Bus Monitor Mode: Defined by active devices on bus.

Message Synchronisation:
    An operation may be programmed to start on a user-specified pattern word.

Induced Transmitter Errors:
    Programmable on an individual word basis to give incorrect parity, Manchester error,
    dropped bit error, sync pattern error, or incorrect bit count (1 bit), 150-ns bit transition time
    error, 150-ns sync transition time error, dropped parity bit, or 1-bit inter-word gap error.
    Programmable on an individual message basis to give incorrect RT response time, word
    count, or status word RT address.
    Bit position programmable, dropped bit, and transition time errors.

Receiver Error Checking:
    Individual Word Basis:
    Bit transition time, parity, dropped bit, sync pattern, and receiver response time
    (programmable from 4µs to 31µs).
    Individual Message Basis:
    Inter-word data gap, word count, no RT response, or incorrect RT address.
    Format errors:
    Improper mode code operation, improper broadcast mode operation, and improper use of
    status word bits.

Time base:
    16 MHz crystal oscillator.

Interrupt Capability:
Programmable to interrupt the system controller on completion of a bus communications sequence.

Programmed By:
ASCII characters. Data either a hexadecimal or a binary encoded format.

Auxiliary Outputs (TTL levels):
Reconstructed Received Data and Clock
Transmitted Data and Clock.
Pattern Recognition Output.
Status Error Output.
Data Word Received Output.
Data Bus Input Active Output.
Position Identification Output.

Auxiliary Inputs (Analog):
Common-mode Voltage: 6 Vrms maximum rating.

Auxiliary Inputs (TTL):
External 1553 Data Rate Clock.
External Halt Input.
External Trigger Input.
External Transmitter Enable Input.

VXIbus Specifications:
VXI Device Type: VXI message based instrument, VXIbus Revision 1.2.
VXI Protocol: Word serial.
VMEbus Interface: Data transfer bus (DTB) slave, A16, D16 only.

Power Requirements:
Current (Peak Module I_{pm})	5 volt Supply:	3.2A
	+24 volt supply	0.38A
	-24 volt supply	0.38A

VXIbus Radiated Emissions:
Complies with VXIbus Specification and EN 55022 Radiated Emissions, Class A

VXIbus Conducted Emissions: EN 55022 (Emissions)
Complies with VXIbus Specification and EN 55022 Conducted Emissions, Class A

CE Compliance: EN 50082-1 (Immunity)
EN 50082-1 Table 1.1, Radio Frequency Electromagnetic Field
EN 50082-1 Table 4.1, Fast Transient Common Mode
EN 50082-1 Table 1.2, Electrostatic Discharge

Module Dimensions:
262 mm high, 352 mm deep, 31 mm wide (10.3 inches by 13.9 inches by 1.2 inches)

Weight:
3.36 lb. (1500 grams)

Front Panel Signal Connectors:
4 TNC Triaxial female connectors
50 way sub-miniature DD50S connector