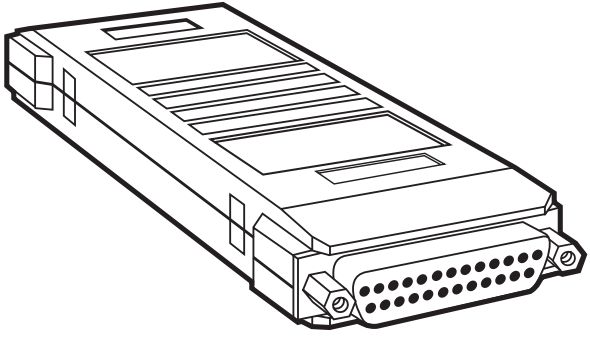
BLACK BOX®
NETWORK SERVICES

MAY 2000

MC122A
MC123A
MC125A
MC126A-F
MC126A-M
MC127A-F
MC127A-M
MC128A-F
MC128A-M

Tail Circuit Buffer (TCB)



CUSTOMER SUPPORT INFORMATION

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TRADEMARKS

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CONTENTS

1. Specifications

Transmission Format—Synchronous, transparent to protocol

Transmission Mode—Full duplex

Data Rates—Up to 2.048 kbps

DCE to DCE Buffering—Buffer A and Buffer B, full duplex: 512-bit buffers set to 256 bits in case of overflow or underflow

Functional Interface—MC122A, MC125A: RS-232; MC123A: RS-530; MC126A: RS-422; MC127A: V.35; MC128A: X.21

Electrical Interface, Data and Clock Signals—MC122A, MC125A: Compatible with RS-232/V.24; MC123A, MC126A, MC128A: Input Receivers: TTL compatible, balanced, Output Drivers: TTL compatible, balanced; MC127A: Input Receivers: V.35 drivers compatible, Output Drivers: 0.55 V differential signal

Connectors—MC122A, MC123A, MC125A: (2) DB25 female; MC126A: (2) DB37 male or female on a 1-ft. (30-cm) cable; MC127A: (2) 34-pin connectors, one male and one female, on a 1-ft. (30-cm) cable; MC128A: (2) DB15 male or female on a 1-ft. (30-cm) cable

Power—From data and clock signals

Size—5.3"H x 1.2"W x 2"D (13.5 x 3 x 5.1 cm)

2. Introduction

The Tail-Circuit Buffer (TCB) lets you connect two independently clocked DCEs. When two internally clocked devices exchange data and neither can be clocked externally, the TCB is used as an interface between them.

The TCB is available in nine models:

- TCB-232, 512-bit buffer (part number MC122A)
- TCB-530, 512-bit buffer (part number MC123A)
- TCB-232, 64-bit buffer (part number MC125A)
- TCB-422, male, 512-bit buffer (part number MC126A-M)
- TCB-422, female, 512-bit buffer (part number MC126A-F)
- TCB-V35, male, 512-bit buffer (part number MC127A-M)
- TCB-V35, female, 512-bit buffer (part number MC127A-F)
- TCB-X21, male, 512-bit buffer (part number MC128A-M)

- TCB-X21, female, 512-bit buffer (part number MC128A-F)
- The TCB-232 models have the electrical and functional characteristics of the V.24/RS-232 interface. The TCB-V35 models have the electrical and functional characteristics of the V.35 interface. The other models have the same electrical characteristics, similar to V.11/RS-422, and comply with different standards for the functional/physical characteristics: The X.21 models comply with CCITT X.21 (15-pin connector). The 422 models comply with EIA RS-449/422 or CCITT V.36 (37-pin connector). The 530 models comply with EIA RS-530 (25-pin connector).
- The TCB uses two 512-bit or 64-bit buffers to reduce errors caused by drift between the two DCE clocks. Upon overflow or underflow, the TCB automatically restarts at the middle of the buffer.
- A schematic diagram (**Figure 4-1**) shows the flow of data clocking in and out of the buffers, as follows:

  Receive Clock of DCE "A" clocks Receive Data into buffer A. Transmit Clock of DCE "B" clocks Transmit Data out of buffer A.

Receive Clock of DCE "B" clocks Receive Data into buffer B. Transmit Clock of DCE "A" clocks Transmit Data out of buffer B.

- For the X.21 model, Receive Clock and Transmit Clock of each side are connected to the DCE's Signal Timing signal.

NOTE

The TCB delays the data only, while the control signals are just wired through (see **Figure 4-1**). Take care when designing applications where the data and control signals must have the same delay.

- The TCB interface for each balanced pair can operate with cables of up to 7 feet (2 meters) on each side.
- The TCB operates without a separate power connection, using low power derived from the DCE interface signals.

3. Installation

Installation of the TCB is straightforward and simple. No tuning or strapping is required. Connect each end of the TCB to one of the DCEs, either directly or by using an extension cable, up to 7 feet (2 meters) on each side.

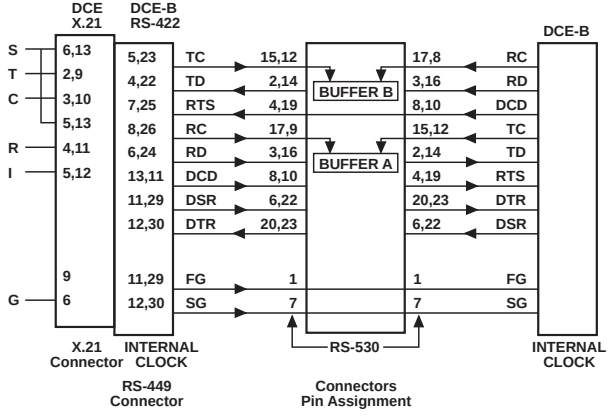

Figure 3-1. Schematic Diagram of Data Flow through the TCB.

4. Application

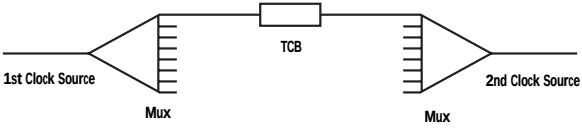

Figure 4-1. Connecting sub-channels of two multiplexors operating with different clocks.

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