BLACK BOX

TB1012-R2
USER GUIDE

DIGITAL SERVICES SIMULATOR

DIGITAL SERVICES SIMULATOR.   MODEL TB1012-R2

1. GENERAL DESCRIPTION

This unit enables the direct connection of two synchronous devices having the CCITT X.21 (V11) interface. Four data speeds are selectable by a DIL switch on the rear panel.

The full duplex connection is identical in both directions which means that the unit may be connected either way way round in a circuit without affecting its operation.
The two interface connectors are identical and are labelled J1 and J2.
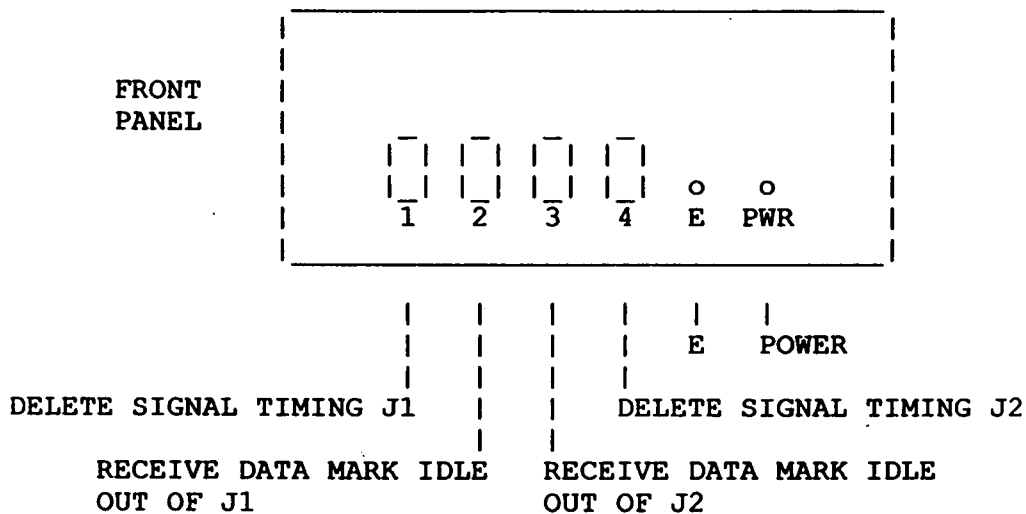
2. USE

3. Set the data speed to one of the four values 48, 56, 64 or 128 kbps by the rear panel DIL switch as shown below.

SPEED kbps	SWITCH 1	2	3	4	
		o		o	OFF
48	o		o		ON
	o			o	OFF
56		o	o		ON
				o	OFF
64	o	o	o		ON
		o	o		OFF
128	o			o	ON

5. Connect the plug mounted power supply to a suitable mains supply, and insert the concentric connector in the socket on the rear panel.

6. Front panel momentary action push button switches are used to set the receive data outputs to the mark idle state, and

to delete the signal timing outputs.
When in the mark idle state a receive data output has pin high and pin 11 low. In the deleted state a timing output has pin 13 high and pin 6 low.

7. Front panel LED indicators are

"E" flashes when any one of the four front panel test switches is depressed.

"PWR" indicates that the mains supply is connected.

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4.PHYSICAL LAYOUT

```
                ┌─────────────────────────────────────┐
                │                                     │
    FRONT       │                                     │
    PANEL       │                                     │
                │    _    _    _    _                  │
                │   | |  | |  | |  | |                 │
                │   |_|  |_|  |_|  |_|   o    o        │
                │    1    2    3    4    E   PWR       │
                │                                     │
                └─────────────────────────────────────┘

                     │    │    │    │    │    │
                     │    │    │    │    E   POWER
                     │    │    │    │
DELETE SIGNAL TIMING J1   │    │    │   DELETE SIGNAL TIMING J2
                          │    │
        RECEIVE DATA MARK IDLE    RECEIVE DATA MARK IDLE
        OUT OF J1                 OUT OF J2
```
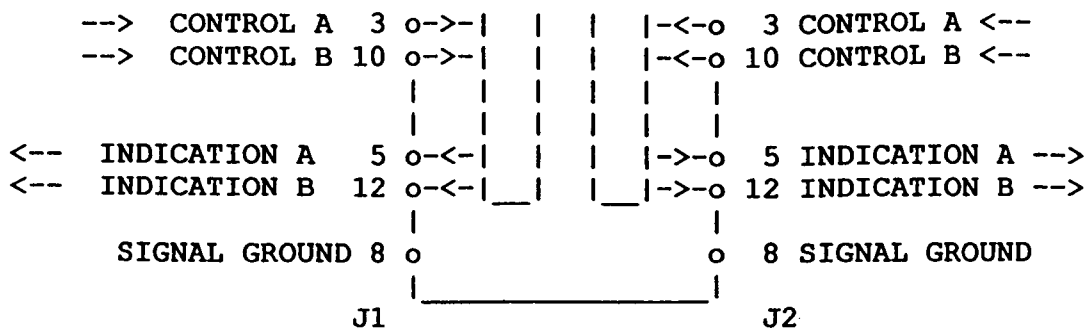
6.BLOCK DIAGRAM SHOWING INTERFACE CONNECTORS J1 AND J2

```
                          ┌─────────────────┐
                          │    ┌─────┐      │
--> TRANSMIT DATA A  2  o-->--│     │-->--o   4 RECEIVE DATA A -->
--> TRANSMIT DATA B  9  o-->--│_____│-->--o  11 RECEIVE DATA B -->
                          │      │         │
                          │     _│_        │
  <-- SIG TIMING A  6  o--<--│     │-->--o   6 SIG TIMING A -->
  <-- SIG TIMING B 13  o--<--│_    │-->--o  13 SIG TIMING B -->
                          │      │         │
                          │     _│_        │
  <-- RECEIVE DATA A   4  o--<--│     │--<--o   2 TRANSMIT DATA A <--
  <-- RECEIVE DATA B  11  o--<--│_____│--<--o   9 TRANSMIT DATA B <--
                          │                │
                          │    __     __   │
```

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```
      -->   CONTROL A   3 o->-|  |    |  |-<-o  3 CONTROL A <--
      -->   CONTROL B  10 o->-|  |    |  |-<-o 10 CONTROL B <--
                            |  |  |  |  |   |
                            |  |  |  |  |   |
  <--   INDICATION A   5 o-<-|  |    |  |->-o  5 INDICATION A -->
  <--   INDICATION B  12 o-<-|__|    |__|->-o 12 INDICATION B -->
                            |                 |
          SIGNAL GROUND 8 o                 o  8 SIGNAL GROUND
                            |_____|
                  J1                          J2
```
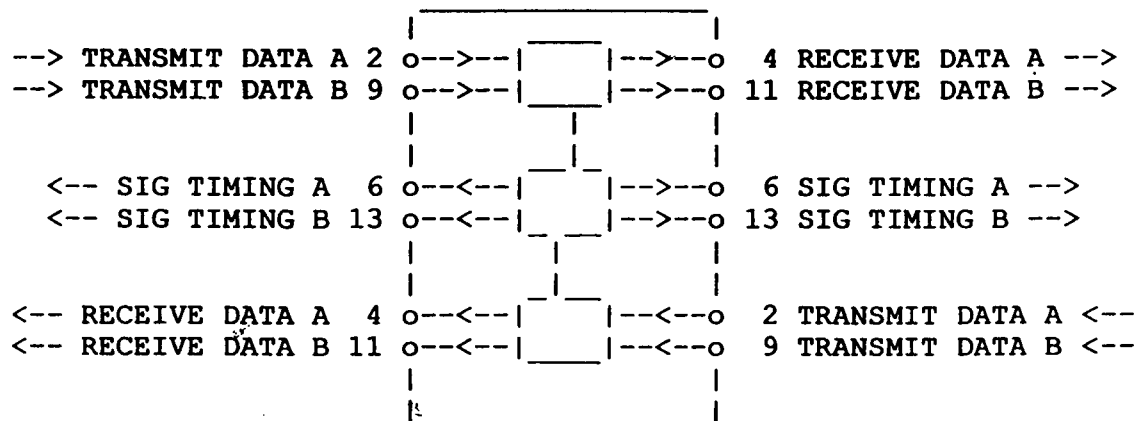
```
      BOTH CONNECTORS      8            1     PIN NUMBERS VIEWED
      DB15 FEMALE         15            9     FROM MATING PLUG
```

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3.MAINTENANCE

For servicing the unit should be returned to the supplier.

7.SPECIFICATIONS

Weight:	Unit 0.6 kg Power supply unit 0.5 kg
Dimensions in mm:	130 W x 150 D x 60 H excluding plug mounted PSU.
Mains supply:	240 VAC + - 10% 50 HZ 6 VA Other voltages available.
Ambient Temperature:	0 to 40 degrees C
Relative humidity:	5 to 95 % non condensing
Connectors:	Two DB15S female
Interface:	X21 (V11)
Speed:	48, 56, 64, 128 Kbps