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OPERATIONS MANUAL

UNIVERSAL DATA CONVERTER

Router Delay Simulator

UDC-RDS

High Data Rate Code Version
8Kbps to 3.072Mbps

23 January, 2013

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Manual Part
Number 184055
Rev - A

SAFETY WARNING



Always observe standard safety precautions during installation, operation when the power cord is attached to the device.

DO NOT attempt to repair this device. Only qualified service personnel can service this device.

For AC powered devices which have 3 conductor power plugs (L1, L2 & GND or Hot, Neutral & Safety/Protective Ground), the wall outlet (or socket) must have an earth ground.

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WARRANTIES: East Coast Datacom, Inc. (hereafter referred to as E.C.D.) warrants that its equipment is free from any defects in materials and workmanship. The warranty period shall be three (3) years from the date of shipment. E.C.D.'s sole obligation under its warranty is limited to the repair or replacement of defective equipment, provided it is returned to E.C.D., transportation prepaid, within a reasonable period. This warranty will not extend to equipment subjected to; lightning strikes, electrical surges, water damage, misuse, alterations, mishandling (dropped and damaged) or repair not made by E.C.D. or authorized by E.C.D. in writing.

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CHAPTER 1 - INTRODUCTION

1.1 FUNCTIONAL DESCRIPTION

The UDC-RDS allows users to test/stage critical low data rate testing of DCE or DTE equipment while simulating network delay times. The unit provides a realistic simulation of physical network behavior with respect to time delays, clock rates and interface control signal passage. The unit supports user data rates of 8Kbps up to 3.072Mbps while providing delays from zero to a maximum of 1 second on each way per physical data link.

By using the UDC-RDS in place of or in series with a real data link (WAN) a wide variety of error conditions can be introduced under controlled and testable conditions.

The unit has two data port interfaces that support RS-232, RS-422/449, RS-530, V.35 and X.21. The data interfaces can be mix and matched where applicable, such as a V.35-to-RS-530 connection.

The UDC-RDS also allows the user to pass or force control signals. The control signals are also delayed along with the user data.

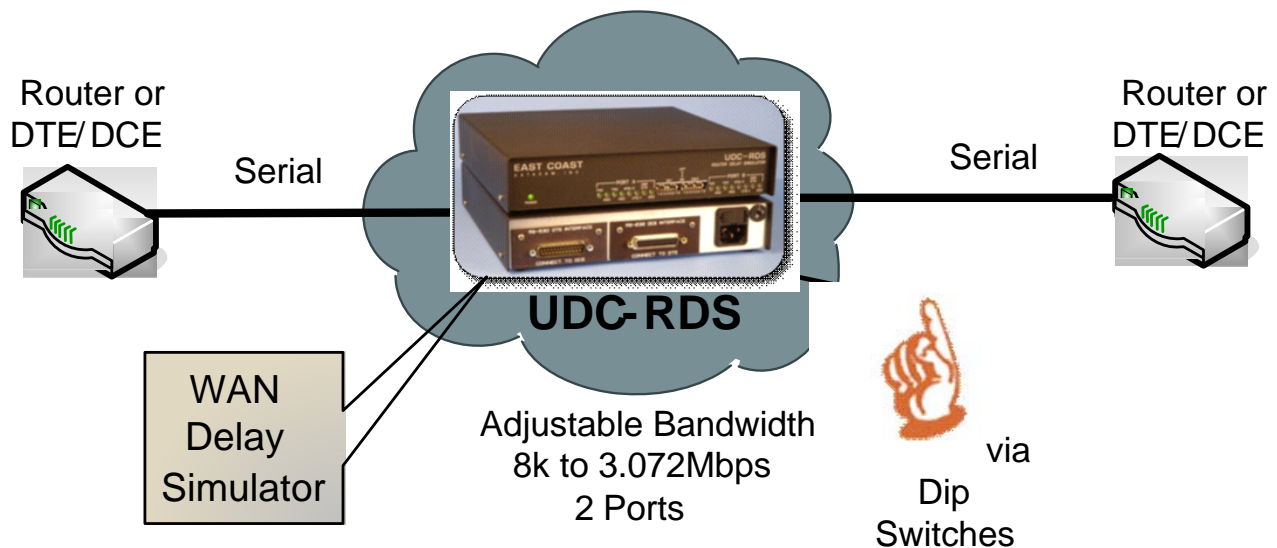
The unit is configured via accessible front panel dip switches and is available in a stand-alone or rack mount chassis. The user has no software to load as all configuration is within the UDC-RDS. The model is available in two models for internal clocking or external clocking.

Installation is fast and simple by setting the internal switches for Delay Simulation, Clocking, control signal forcing. All clocking and signal crossover are provided within the UDC-RDS.

The UDC-RDS has status LED's for each attached DTE or DCE device which allows the user to visually confirm the presence of control signals.

The UDC-RDS is housed in a sturdy metal enclosure and operates on 110/220VAC.

The unit has a three year warranty and a 24 hour turnaround on warranty repairs.



CHAPTER 2 - PRODUCT OVERVIEW

2.1 FRONT PANEL INDICATORS

A *Green* LED marked **PWR** illuminates when AC Power has been applied. Two adjacent sets of *Green* LEDs, one for **PORT A** and another for **PORT B**, illuminate in union with individual port control signal activity. Both **Port A** and **Port B** indicators flash in union with **Port A** and **Port B** data interfaces(see section 2.4 Data Interfaces).

2.2 INTERNAL SWITCHES

The UDC-RDS has three(3) dip switches. The switches are marked **SW1**, **SW2** and **SW5**. Switch **SW1** allows the user to set the Clock Rate(s). Switches **SW2** and **SW5** allow the user to Invert the Clock and force control Signals.

2.3 REAR PANEL POWER CONNECTOR

Located on the back or rear of the product you will find an **IEC POWER RECEPTACLE**. The supplied power cord plugs into this receptacle. This receptacle also contains a fuse drawer. Two (2) fuses are located in this compartment. For 110 VAC +/- 10% operation the unit is equipped with slow blow 160ma Fuses. For 220 VAC +/- 10% operation the unit is equipped with slow blow 80ma Fuses.

2.4 REAR PANEL DATA INTERFACE PORTS

Located adjacent to the IEC Power receptacle are the **DATA INTERFACE PORTS**. The ports are metal stamped **PORT A** and **PORT B**. The data interface modules plug into the UDC-RDS main printed circuit board through these openings. The top two screws on the interface module hold the card into place. The front panel Port A and Port B indicators flash in union with Port A and Port B data interfaces.

2.5 CLOCKING

The UDC-RDS allows clock rates from 300bps to 1.024Mbps. The unit has 32 selectable clock rates.

2.6 DATA INTERFACES

The UDC-RDS has a host of available **DATA INTERFACES** comprised of RS-232, V.35, RS-422/449, RS-530, X.21 and TTL. Each interface module is available in a DCE configuration, the true EIA or ITU recommended connector and female gender is provided. The V.35 interface modules are MR-34 male, with factory optional DB-25 female. *This option can reduce cabling costs.*

2.7 EXTERNAL CLOCK REFERENCE

Consult Factory

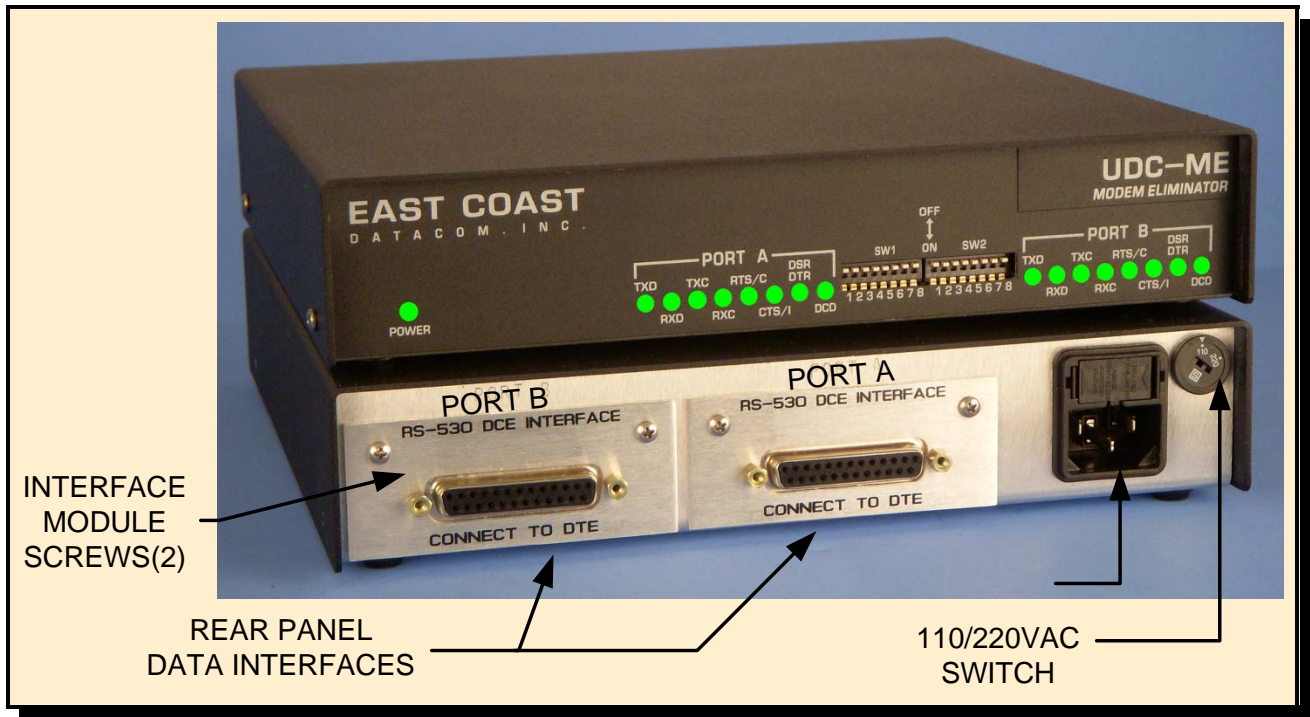
2.8 CONTROL SIGNAL FORCING

USE THE 3-PIN STRAPS ON THE INTERFACE CARDS TO FORCE CONTROL SIGNALS

The UDC-RDS **Control Signals** are forced on the serial interface cards located inside the UDC-RDS. When forcing control signals, you will not see the control signal LED light illuminate on **Channel A** or **Channel B**.

2.9 DATA INTERFACE REMOVAL

Disconnect the AC power source from the UDC-RDS and disconnect the users data cables from the Data Interface Module(DIM). Located on back panel of the UDC-RDS are **PORT A** and **PORT B**. Each DIM is plugged into and out of these ports through mating connectors. Remove the top cover using a phillips screwdriver, then remove the top two screws of the DIM. Gently pull the module from the UDC-RDS housing. It may be easier to hold the edges of the DIM and rock the DIM back and forth as you pull the DIM out of the socket.



(Unit model name may vary)

CHAPTER 3 - INSTALLATION

CAUTION: Disconnect Power Before Servicing
ATTENTION: Couper Le Courant Avant l' Entretien
VORSICHT: Befor Deckung Abnehmen Mach Strom Zu

3.1 VOLTAGE SELECTION

It is *very* important to check that the unit is set to the correct voltage setting for your application before applying AC power. Located on the rear of the unit you will find a rotary 110/220 VAC switch. Using a coin or small screwdriver, *gently* turn the switch to the appropriate power position as required for your installation (110 or 220 VAC).

3.2 VOLTAGE SELECTION FUSES

Located on the back or rear of the product you will find an IEC Power receptacle. This receptacle contains a fuse drawer. Two (2) fuses are located in this compartment. For 110 VAC +/- 10% operation the unit is equipped with slow blow 5 x 20mm 160ma Fuses, E.C.D. Part # 714000. For 220 VAC +/- 10% operation the unit is equipped with slow blow 5 x 20mm 80ma Fuses, E.C.D. Part # 714001. Spare fuses may be purchased by calling East Coast Datacom or by contacting the fuse manufacturer: Little Fuse www.littlefuse.com or Shurter, Inc. at www.schurter.com

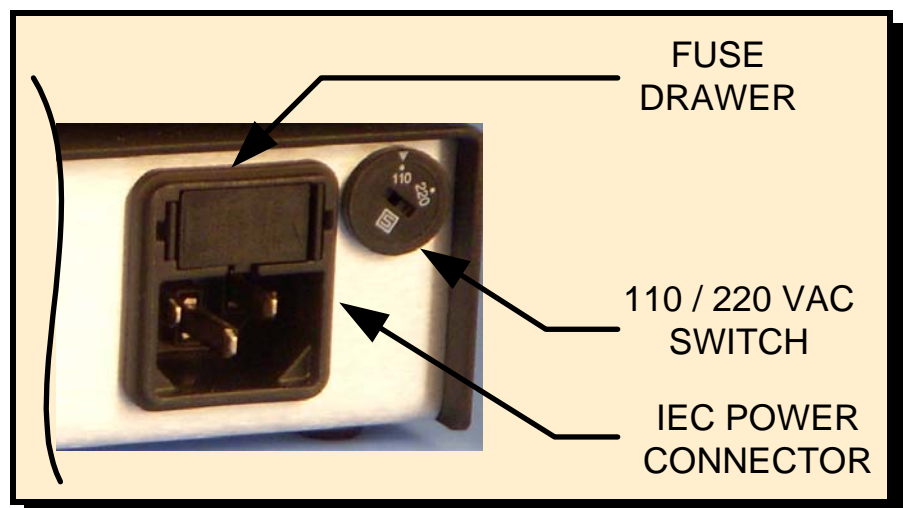
Little Fuse Part #'s are: 160ma = 218.160 and 80ma = 218.080

Schurter, Inc. Part #'s are: 160ma = 034.3109 and 80ma = 034.3106

3.3 POWER CONNECTION

Before connecting the UDC-RDS to an AC power source the top cover should be installed with the supplied #4-40 screws. AC power is supplied to the unit through a 2.3m (6.6 ft) cord terminated by a grounded 3-prong plug. Select an appropriate location accessible to and within four to five feet of an AC outlet. The AC Power source **MUST** be grounded or the units warranty will be void.

Power Connection
Figure 3-1



3.4 DEFAULT CONFIGURATION SWITCH SETTINGS

The UDC-RDS is factory configured as follows:

- 1) Clock Source - **Internal**
- 2) Control Signals - **All Signals Passed if present**
- 3) Sync Clock Rate - **8k**
- 4) Chassis to Signal GND - **Not Connected**

If your system application requires one or more of the default settings to be changed, this is accomplished by changing the Dip Switch settings on **SW1 and SW2**.

3.5 DATA PORT CONNECTIONS

Before applying AC Power to the unit, the users cabling to the UDC-RDS Data Interfaces should be connected. Straight through shielded cables should be used. **PORT A & B** must *always* have a DCE interface module plugged into the port and connected to a DTE device.

3.6 SWITCH SETTINGS

3.6.1 DIP SWITCHES

The UDC-RDS has two(2) dip switches. The switches are marked **SW1 and SW2**. Switch **SW1** allows the user to set the Clock Rate(s). Switch **SW2** allows the user to set the delays.

3.7 EXTERNAL CLOCK OPTION

Consult Factory

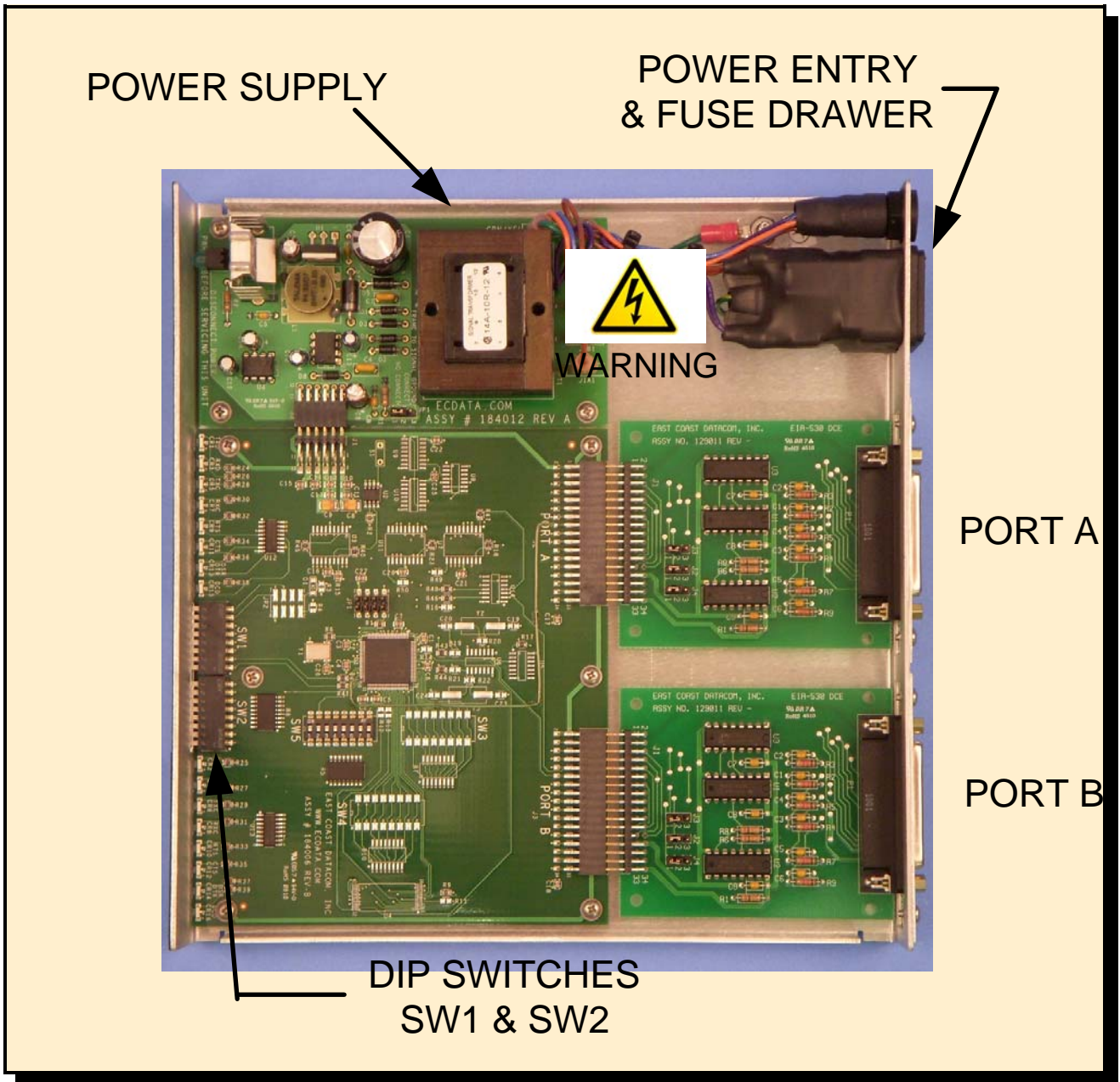
4.0 - APPENDIX

4.1 STRAP CHART

UDC-RDS BAUD RATE SETTING CHART

See settings chart for Baud Rate and Delay Settings at end of Manual

4.2 UNIT OVERVIEW



Application

Interconnection of two DTE (Terminal) devices located within proximity of each other while adding delay.

Capacity

Two (2) DTE's

Serial Data Interface

RS-232, RS-422/449, RS-530, X.21, V.35 and HSSI, LVDS

Simulation Delay Times

0 to 1 Second in 1 to 10Ms increments, depending on Delay settings

Clock Rates

8k, 16k, 24k, 32k, 48k, 56k, 64k, 72k, 80k, 96k, 112k, 128k, 144k, 160k, 192k, 256k, 320k, 384k, 512k, 640k, 768k, 896k, 1.024M, 1.536M, 1.544M, 2.048M, 3.072M

Indicators

Power, TXD, RXD, TXC, RXC, RTS, CTS, DTR, DCD

Surge Protection

Main power supply

Power Source

AC Mains: 100-120 to 200-220VAC @10%, 50/60Hz, 0.16/0.08A, external 110/220 volt select switch, IEC Power Inlet, (2) 5mm Fuses
 DC Mains: DC Voltage, Input Range of -36 to -72vdc Current Draw at 48vdc: 75ma @ 3.6watts

Environmental

Operating Temperature....32° to 122° F (0° to 50° C)

Relative Humidity.....5 to 95%

Non-Condensing

Altitude.....0 to 10,000 feet

Dimensions

Height 1.75 inches (4.44 cm)

Width 9.00 inches (20.86 cm)

Length 9.00 inches (22.86 cm)

Weight

2 pounds (0.914Kg)

Regulatory Approvals

UL 60950-1, 2nd Ed 2007; CAN/CSA 22.2 No. 60950-1-07; EN 60950-1:2006; EN 55022:2006; FCC Pt 15/ICES-003 Class A

Warranty

Three Years, Return To Factory

ORDERING INFORMATION

Main Unit Part Number: 203000

Model: UDC-RDS_H

Description: UDC-RDS Internal Clock Delay Simulator High Code Rate Version

Serial Interface Cards, Two Cards Required Per UDC-RDS, may be the same card twice or any combination.

PART NUMBER	SERIAL CARD
129014	RS-232 DCE I/M,
129010	V.35 DCE I/M,
129011	RS-530 DCE I/M,
129012	RS-422/449 DCE
129013	X.21 DCE I/M,
151028	HSSI DCE I/M, 50

INCLUDED WITH EACH UNIT:

- 1) Operations Manual
 - 2) U.S.A. Grounded Power Cord, Part # 713015
 - 3) Optional Power Cords
 - A) United Kingdom, Part # 713016
 - B) Continental Europe, Part # 713017
 - C) Other: Specify Country on Purchase
- Order

OPTIONAL ACCESSORIES

- 1) Spare Data Center Fuses
 - A) 160ma Fuse, Qty (2) Part # 714000
 - B) 80ma Fuse, Qty (2) Part # 714001

For further detailed technical information on this product, contact East Coast Datacom Technical Assistance at (321) 637-9922.