TABLE OF CONTENTS

OPERATIONS MANUAL

UNIVERSAL **D**ATA **C**ONVERTER

INTERFACE **C**ONVERTER

UDC-IC

22 November, 2010

FOR TECHNICAL SUPPORT CALL:

East Coast Datacom, Inc.
245 Gus Hipp Blvd., STE 3
Rockledge, FL 32955 USA
TEL: (321) 637-9922
FAX: (321) 637-9980
Email: info@ecdata.com

Manufactured By:
East Coast Datacom, Inc.

SAFETY WARNING

Always observe standard safety precautions during installation, operation and maintenance of this product. To avoid the possibility of electrical shock, be sure to disconnect the power cord from the power source before you remove the IEC power fuses or perform any repairs.

PROPRIETARY NOTICE

The information contained herein is proprietary to East Coast Datacom, Inc. Any reproduction or redistribution of this publication, in whole or in part, is expressly prohibited unless written authorization is provided by East Coast Datacom, Inc.

WARRANTY NOTICE

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 accident, misuse, alterations or repair not made by E.C.D. or authorized by E.C.D. in writing.

PUBLICATION NOTICE

This manual has been compiled and checked for accuracy. The information in this manual does not constitute a warranty of performance. E.C.D. reserves the right to revise this publication and make changes from time to time in the content thereof. E.C.D. assumes no liability for losses incurred as a result of out-of-date or incorrect information contained in this manual.

CHAPTER 1 - INTRODUCTION

1.1   FUNCTIONAL DESCRIPTION

The UDC-IC allows the user to purchase a single product to convert interfaces between any combination of RS-232, RS-422/449, RS-530, V.35, X.21, HSSI, RS-485, TTL and Current Loop. The unit supports data rates up to 10Mbps.

The UDC-IC has two TTL level interfaces for connecting each data interface module. The unit is shipped with two user specified data interfaces. Additional data interfaces are sold separately. The individual data interfaces are available in DCE or DTE formats. Each data interface has the ability to force commonly used control signals such as RTS, CTS, DSR, DTR, DCD or Control and Indicate in X.21.

The data interfaces may be mix and matched in any combination. Installation is fast and simple by plugging the DTE interface card into Port B and the DCE interface card into Port A. In all installations, Port B will always provide timing to Port A.

The UDC-IC has status LED's for each attached data interface which allows the user to visually confirm the presence of control signals. Additionally, the unit has options for clock and pass / force of common control signals.

The UDC-IC utilizes state of the art digital CMOS technology to provide a feature filled product at a very affordable price. Our Field Programmable Gate Array (FPGA) design has allowed us to offer this product with a wide selection of data interfaces.

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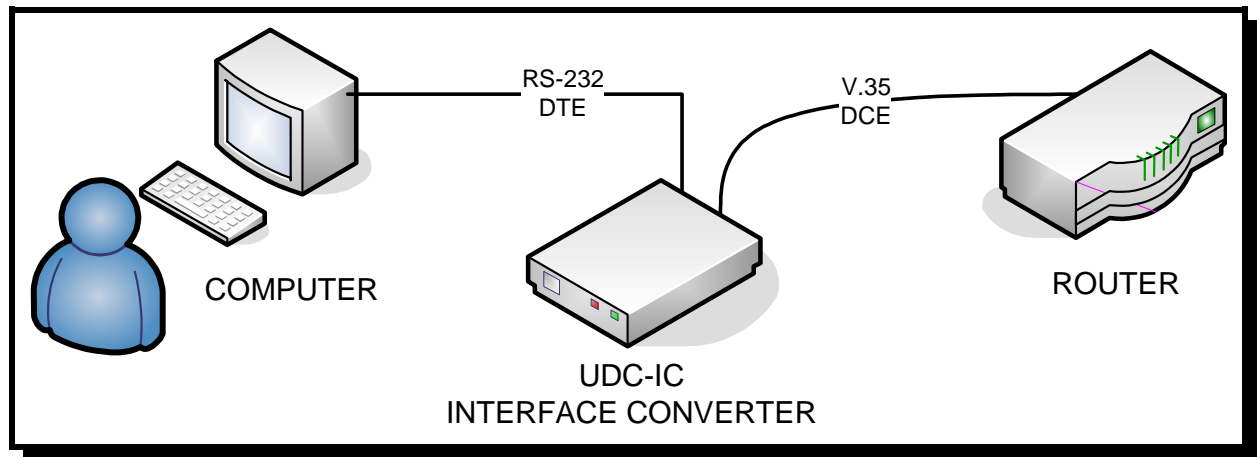
TYPICAL APPLICATION

Figure 1.1

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

Located inside of the UDC-IC are three dip switches. The switches are marked **SW1, SW2 and SW5**. For normal operation, **SW2** all positions should be set to **OFF**. Other Control Signal options are available, please refer to the appendix. ***SW1 and SW5 are for future use.***

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, Part # 714000. For 220 VAC +/- 10% operation the unit is equipped with slow blow 80ma Fuses, Part # 714001.

2.4   REAR PANEL DATA INTERFACE PORTS

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

2.5   CLOCKING

The UDC-IC must be externally clocked from **PORT B**. The unit has a clock option in the settings guide for: Port B EXTC from Port A TXC **or** Port B EXTC from Port B TXC.

2.6   DATA INTERFACES

The UDC-IC has a host of available **DATA INTERFACES** comprised of V.35, RS-422/449, RS-530, X.21, RS-485, TTL, HSSI and RS-232.

2.7 CONTROL SIGNAL FORCING

DO NOT USE THE 3-PIN STRAPS ON THE INTERFACE CARDS TO FORCE CONTROL SIGNALS

The UDC-IC **Control Signals** are forced on the main printed circuit card located at switch position **SW2**. ONLY use the Dip Switch to force control signals.
When forcing control signals via SW1, you should see the control signal LED light on channel A or B illuminate.
While each Data Interface Module has straps(3 pin header) that force select control signals, those straps are for other East Coast Datacom products. It will not harm the unit, but utilizing them can give false LED lights or operation.

2.8 DATA INTERFACE REMOVAL

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

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-IC 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

FUSE
DRAWER

110 / 220 VAC
SWITCH

IEC POWER
CONNECTOR
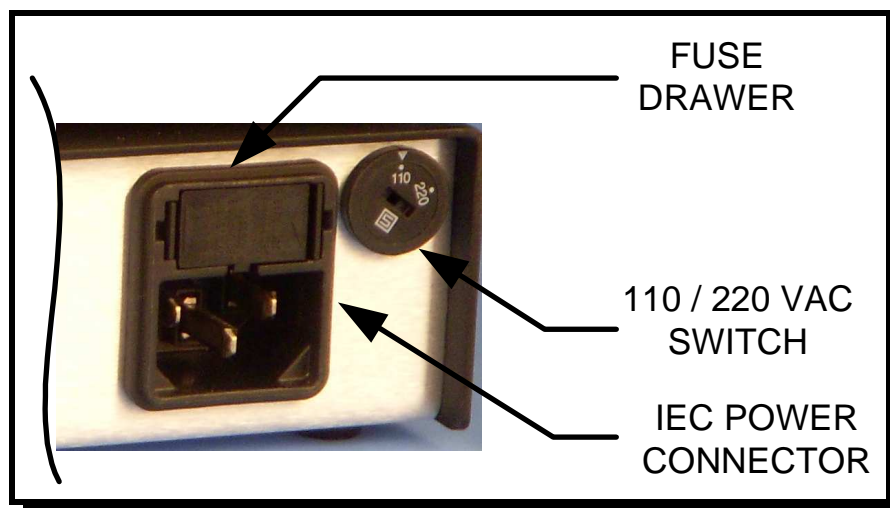
3.4   DEFAULT CONFIGURATION SWITCH SETTINGS

The UDC-IC is configured prior to shipping with the Dip Switches set as follows:

1) Clock Source - **Port B (Connect to DCE device)**
2) Control Signals - *Not Forced*
3) Port B EXTC from Port A TXC
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 removing the top cover to change Dip Switch **SW2** or to connect chassis to signal ground.

3.5   DATA PORT CONNECTIONS

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

3.6   SWITCH SETTINGS

3.6.1   DIP SWITCHES

The UDC-IC has *three Dip Switch*es that is accessible inside the unit. The switches are marked **SW1,** *SW2* **and** *SW5*. For normal operation, **SW2** all positions should be set to **OFF**. Other Control Signal options are available, please refer to the appendix. *SW1 and SW5 are for future use.*

4.0 - APPENDIX

4.1   STRAP CHART

UDC-IC Dip Switch settings									
DIP SWITCH	SW2:	8	7	6	5	4	3	2	1
Port B EXTC from Port A TXC		**OFF**	Not	Not					
Port B EXTC from Port B TXC		ON	Used	Used					
Port A DSR follows Port B DSR					**OFF**				
Port A DSR Always ON					ON				
Port A DCD follows Port B DCD						**OFF**			
Port A DCD Always ON						ON			
Port B DTR follows Port A DTR							**OFF**		
Port B DTR Always ON							ON		
Port A CTS follows Port B CTS								**OFF**	
Port A CTS Always ON								ON	
Port B RTS follows Port A RTS									**OFF**
Port B RTS Always ON									ON
SW1 and SW5 are for future use									

*** Factory Default is **OFF**, marked in BOLD.

Technical specifications

Application
Allows interconnection of a DCE and a DTE device which have different data interfaces, converting signal levels and the physical data interface

Capacity
One DCE and one DTE

Serial Data Interface
Available in V.35, RS-530, RS-422/449, RS-232, X.21, HSSI, TTL, RS-485 and Current Loop
* other interfaces available by special order

Data Format
Synchronous or Asynchronous
Data Transparent at all Data Rates

Data Rates
Up to 10Mbps

Indicators
POWER(PWR), 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....32º to 122º F (0º to 50º 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 (20.86 cm)

Weight
2 pounds (0.914Kg)

Warranty
Three Years, Return To Factory

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

ORDERING INFORMATION
Main Unit Part Number: 190000
Model: UDC-IC
Description: UDC-IC Interface Converter, 110/220VAC

Serial Interface Cards, **Two Cards Required** Per UDC-IC, pick one DCE and one DTE card.

PART #	SERIAL CARD DESCRIPTION
129100	10 Mhz Sine Wave, BNC
129014	RS-232 DCE I/M, DB-25 Male
129032	RS-232 DTE I/M, DB-25 Female
129010	V.35 DCE I/M, V.35 Female
129028	V.35 DTE I/M, V.35 male
129011	RS-530 DCE I/M, DB-25 Female
129029	RS-530 DTE I/M, DB-25 Male
129012	RS-422 DCE I/M
129030	RS-422 DTE I/M
129013	X.21 DCE I/M
129031	X.21 DTE I/M
129057	TTL I/M, 2-In & 2-Out BNC 75Ohm
129070	RS-485 I/M
129080	Current Loop

Optional DC Supply
Part Number: 184018
Model: UDC-DC -36 to -72 DC Power Supply

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, Inc at:
support@ecdata.com