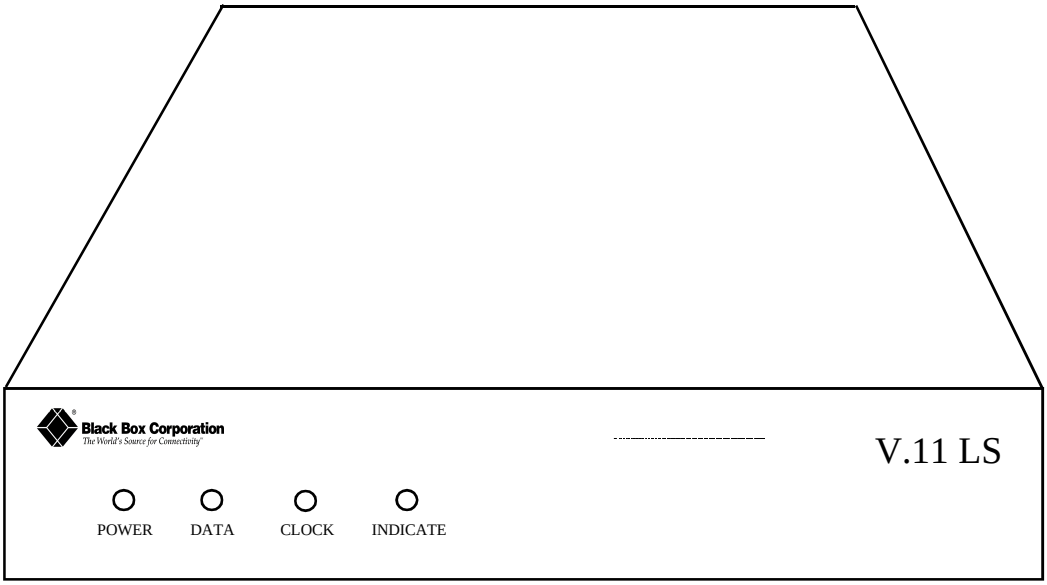
Black Box Corporation
The World's Source for Connectivity℠

NOVEMBER 1998

MODEL:
TL576A

V.11 LS
(V.11 Data Broadcast Unit)



CUSTOMER SUPPORT INFORMATION

To order or for technical support: Call **724-746-5500** or fax **724-746-0746**
Technical support and fax orders 24 hours a day, 7 days a week.
Phone orders 24 hours, 7 A.M. Monday to midnight Friday; Saturday 8 to 4 (Eastern).
Mail order: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018
Web site: **http://www.blackbox.com** · E-mail: **info@blackbox.com**

SAFETY AND STANDARDS COMPLIANCE

U.S.A AND CANADIAN STANDARDS

FEDERAL COMMUNICATIONS COMMISSION
AND
CANADIAN DEPARTMENT OF COMMUNICATIONS
RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada.

ELECTRICAL SAFETY STATEMENT - MEXICO

Normas Oficiales Mexicanas (NOM)
Electrical Safety Statement

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.

2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.

6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

A: El cable de poder o el contacto ha sido dañado; u

B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

C: El aparato ha sido expuesto a la lluvia; o

D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

E: El aparato ha sido tirado o su cubierta ha sido dañada.

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CHAPTER 1 - DESCRIPTION

1.1 FUNCTIONAL DESCRIPTION

The **V.11 LS** is designed for use in receive only data broadcast applications. Examples of typical data broadcast applications are: continuously updated private or public data displays and distribution of continuous data to PCs or receive only printers. The role of VSAT systems in receive only applications for real time data distribution is expected to increase dramatically over the next few years. The **V.11 LS** is an excellent choice for applications of this type.

The **V.11 LS** utilizes an ITU V.11 (X.21) balanced interface with a maximum data rate of up to 10Mbps. Additionally, V.11 can support data transmissions at far greater cable distances than does RS-232. The **V.11 LS** can support an unlimited amount of receive only terminals simultaneously.

The **V.11 LS** is housed in a sturdy aluminum enclosure and is supplied with an internal linear power supply. The unit has a 110/220 VAC rotary select switch located on the rear of the housing. The unit can operate on standard AC power found in all countries.

The **V.11 LS's** master port has tandem DB-15 connectors. This allows a dedicated input port and an additional port for cascading without losing a sub-channel port. The **V.11 LS** continuously broadcasts receive data, receive timing and Indicate (any user defined control signal from the main input data source may be used). The input signals are split with the internal circuitry and rebroadcast on the eight output ports.

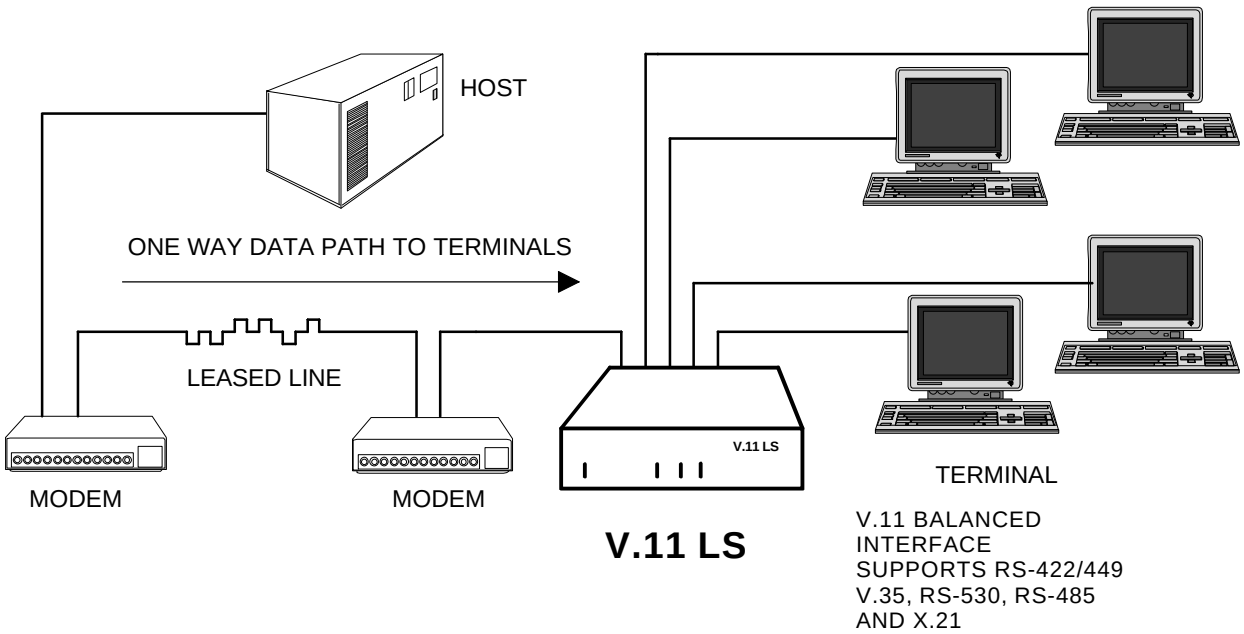


Figure 1-1 Typical V.11 LS Application

CHAPTER 2 - BASIC OPERATION

2.1 OPERATION

Operation of the **V.11 LS** is as simple as plugging a male DB-15 cable into the female DB-15 **INPUT PORT** on the back panel and plugging up to eight male DB-15 connectors into **Ports 1 - 8**. Data, Clock and Indicate are received on the Master Port and are broadcast out simultaneously on Ports 1 -8. The following table shows the pinout for the Master and Sub-Channel Ports.

2.2 X.21 PORT PINOUTS

DB - 15 FEMALE OR MALE CONNECTORS	
PIN NUMBER	PIN NAME
1	SHIELD
4	RECEIVE DATA (A+)
5	INDICATE (A+)
6	SIGNAL TIMING (A+)
8	GROUND
11	RECEIVE DATA (B-)
12	INDICATE (B-)
13	SIGNAL TIMING (B-)

2.3 FRONT PANEL LED INDICATORS

Located on the front panel of the **V.11 LS** are four green LEDs. The Power indicator, marked **POWER,** illuminates when AC voltage is applied to the box. Three adjacent LED indicators illuminate in conjunction with *Receive Data* (**DATA**), *Receive Clock* (**CLOCK**) and the user defined control signal which is marked **INDICATE**. The *DATA* and *CLOCK* LEDs will flash on and off at a constant rate regardless of the user's clock and data rate. The *INDICATE* LED will be illuminated when and if the user defined control signal is present.

CHAPTER 3 - SETUP AND INSTALLATION

3.1 POWER CONNECTION

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).

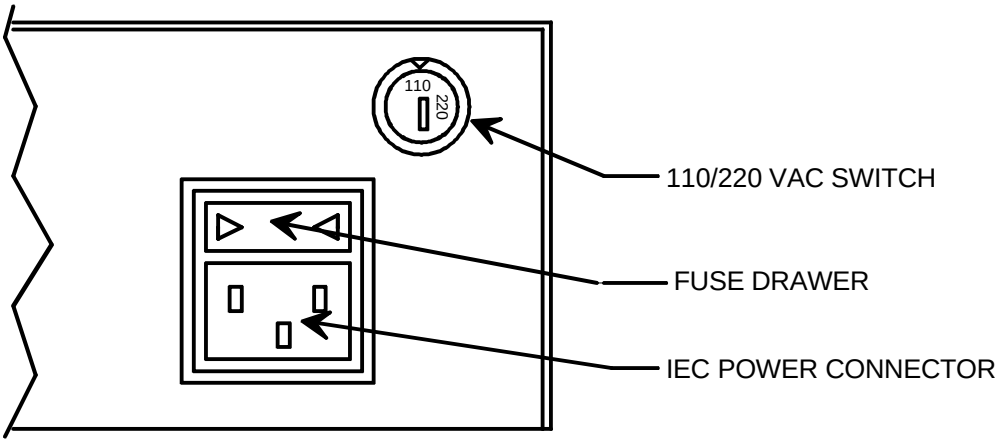


Figure 3-1
Power Connection

3.2 INSTALLATION

Connect the main input data feed source into the **INPUT** port DB-15 female connector. The output ports are marked **PORT 1** through **PORT 8**. Connect from one to eight DTE V.11 (X.21) compliant devices into the sub-channels ports on the back of the **V.11 LS**.

3.3 CASCADING AND TERMINATION RESISTORS

If more than one **V.11 LS** are to receive Data, Clock and Indicate from the same source, a shielded DB-15 one-to-one extension cable with a male DB-15 on one end and a female DB-15 on the other end can be used to link the **V.11 LS** together. The box **furthest** from the source of the data and clock should have jumpers **JMP2**, **JMP3** and **JMP4** moved to the ***opposite*** position of the factory default setting for proper termination.

High quality shielded cables are recommended for box to box cascading. The cabling should be a twisted pair with a wire mesh shield. All signal pairs should be kept together for clean quality signals. We recommend Black Box EGM16E or equivalent cable with metal hoods.

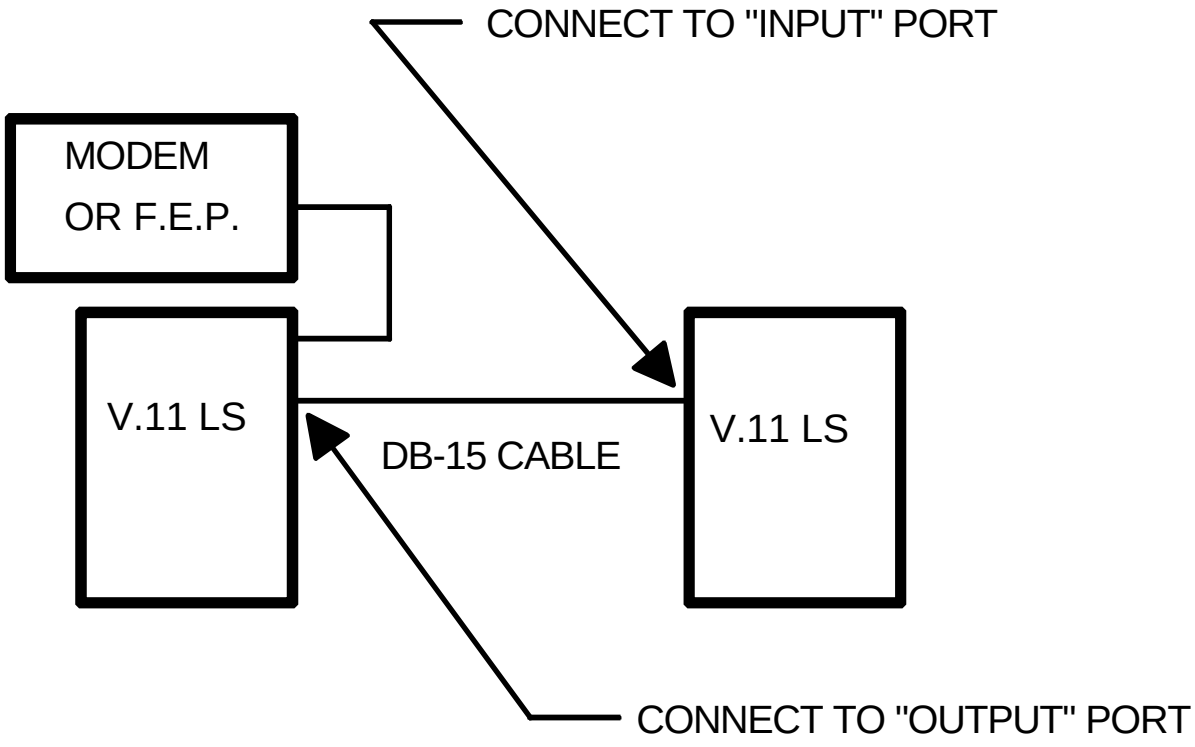


Figure 3-2
Cascading Diagram

3.4 EQUIPMENT GROUNDING

Jumper **JMP1** provides for grounding interconnection in those systems requiring a connection between Pin #1 (*frame ground*) and Pin # 8 (*signal ground*). Please reference Appendix B for further strapping details.

APPENDIX A:

ADDRESSES OF STANDARDS ORGANIZATIONS

ANSI
American National Standards Institute
1430 Broadway
New York, NY 10018
Telephone: (212) 354-3300

EIA
Electronic Industries Association
2001 Eye Street, N.W.
Washington, DC 20006
Telephone: (202) 457-4966

FED-STD
General Services Administration
Specification Distribution Branch
Building 197
Washington Navy Yard
Washington, DC 20407
Telephone: (202) 472-1082

FIPS
U.S. Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Telephone: (703) 487-4650

CCITT
Outside the United States
General Secretariat
International Telecommunications Union
Place des Nations
1121 Geneva 20, Switzerland
Telephone +41 22 995111

In the United States
United States Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Telephone: (703) 487-4650

ISO
Outside the United States
International Organization for Standardization
Central Secretariat
1 rue de Varembe
CH-1211 Geneva, Switzerland
Telephone +41 22 34-12-40

Inside the United States
American National Standards Institute
1430 Broadway
New York, NY 10018
Telephone: (212) 354-3300

IEEE
The Institute of Electrical and
Electronics Engineers, Inc.
345 East 47th Street
New York, NY 10017
Telephone: (212) 705-7900

NBS
National Bureau of Standards
Institute for Computer Sciences
and Technology
Technology Building, Room B-253
Gaithersburg, MD 20899
Telephone: (301) 921-2731

CCITT documents may be reached by calling (800) 553-6847

V.35 is a CCITT specification and is implemented per ISO 2593

The **ISO** documents are obtainable by calling (212) 354-3300

AT&T Bell Publications documents may be reached by calling (800) 344-0223 or (800) 432-6600

APPENDIX B

STRAPPING INFORMATION

Hold this space for the strapping chart

5.2 TECHNICAL SPECIFICATIONS

Application
Multiple Synchronous broadcasting of Data, Clock and Indicate utilizing V.11 signaling

Capacity
One to eight sub-channels:
Standard DB-15-S (female) interface connector for each sub-channel

Data Format
Data transparent at all data rates

Data Rates
Up to 10 Mbps

Electrical Interface
ITU V.11 (Pinned to X.21)

Sub-Channel Interface
V.11, DB-15-S (female connectors)

Master Port
V.11, Female/Male DB-15 connectors

Enclosure
Metal: Aluminum

Approvals
UL 1950, FCC Class A
CE - EN60950
CE - EN55022
CE - EN50082-1

Front Panel
Indicators.... Power, Data,
Clock and Indicate

Power Requirement
100-120/200-220 VAC @±10%,
47 to 63 Hz, 5 Watts
Switch selectable

Environmental
Operating Temperature....32º to 122º F
(0º to 50º C)
Relative Humidity.....5 to 90%
Non-Condensing
Altitude.....Up to 10,000 feet
(3048 meters)

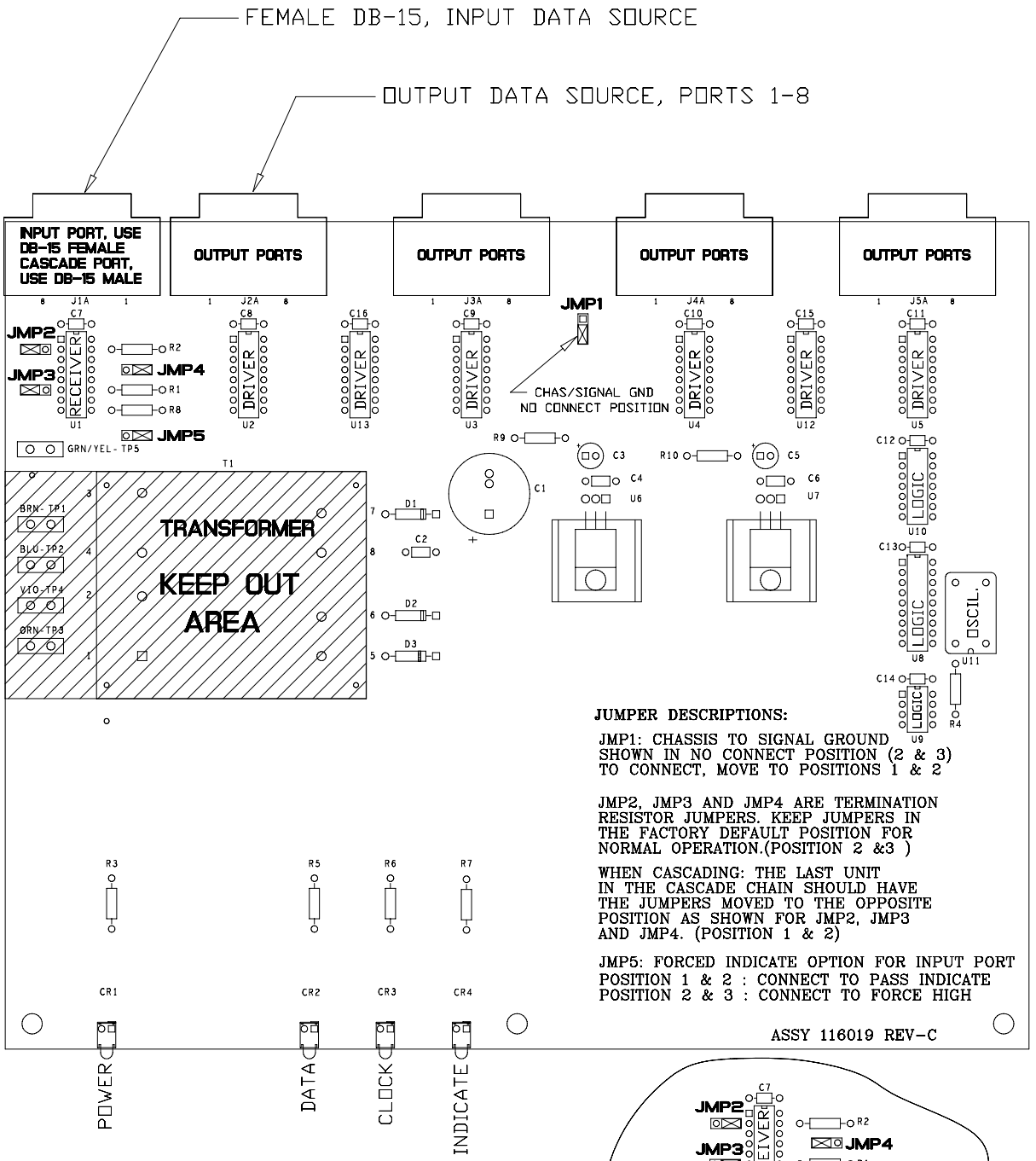
Dimensions

Height	1.75 inches	(4.44 cm)
Width	17.00 inches	(43.18 cm)
Length	9.00 inches	(22.86 cm)

Weight
4.5 pounds (2.1Kg)

Shock and Vibration
Withstands normal shipping

Included With Each Unit:
Operations Manual
Grounded Power Cord



TOP VIEW OF CIRCUIT CARD

1000 Park Drive Lawrence, PA 15055-1018 724-746-5500 Fax 724-746-0746