Universal Switch

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1. DESCRIPTION

The DCB Universal Switch connects any one of its ASYNC RS-232 ports to any other of its ports. Connection is made by entering a port number or port name. Disconnection is accomplished by entering a disconnect code string or by lowering an RS-232 control lead on the accessed port. The DCB Universal Switch can be used to connect modems, terminals, PCs, RS-232 control ports etc. at speeds of 1200 or 9600 bps.

The Universal Switch is available in 8, 16, 24 or 32 port units.

The Universal Switch allows both local terminal and remote dial-in access. All ports can be active at the same time. The user always gets positive feedback, there is no blind switching. Before connect and after disconnect, the Universal Switch gives the user a **Connect >>** (or user defined) prompt. Port switching requires no cryptic code entry. Ports can be named and accessed by that name or by port number.

If the device being accessed can be forced to lower an RS-232 control lead on command, as is the case with DCB products, the hardware disconnect method can be used. This makes the switch 100% data transparent and suitable for use between devices that do binary file transfers. Data transparency also insures that no control codes will inadvertently cause a disconnect.

2. SPECIFICATIONS

2.1 Ports

1200 or 9600 bps Asynchronous
1 start bit, 8 data bits, 1 stop bit

2.2 Connectors

RJ-45 8-wire

2.3 Parity

Accepts any parity, echoes space (default), even, odd or mark parity.

2.4 Port Commands

Help
Show Configuration

2.5 Setup Functions

Set Password
Set Port ID
Configure Port
Set Prompt
Set Disconnect Characters
Set Error Message
Set Wakeup
Show Type
Show Configuration
Show Port Status
Kill Connections
Exit Setup
Reset and Clear Memory
Reset and Keep Memory

2.6 Environmental

Operation: 0 to 65° C, 10 to 85% relative humidity
Storage: -40 to 85° C, 10 to 85% relative humidity

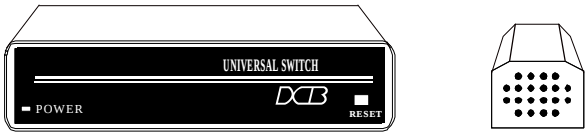
2.7 Physical / Electrical

120 VAC external power supply
30-43 watts, .25-.36 amps
10 ¼" x 9 ¾" x 4 ¼" - 24 and 32 port units
10 ¼" x 9 ¾" x 2 ½" - 8 and 16 port units

3. INSTALLATION

3.1 Unpacking

The following is included with each Universal Switch.



- Universal Switch and external power supply.
- Cable to connect a terminal to the setup port for configuration.

- Manual
- Information regarding warranty, maintenance contract and repair.

3.2 Location

Place the Universal Switch in an uncluttered area where you can easily reach the rear panel to connect the cables. The Universal Switch has an external power supply that is plugged into a 120 VAC outlet. The total power cord length is about 12 feet.

3.3 Setup

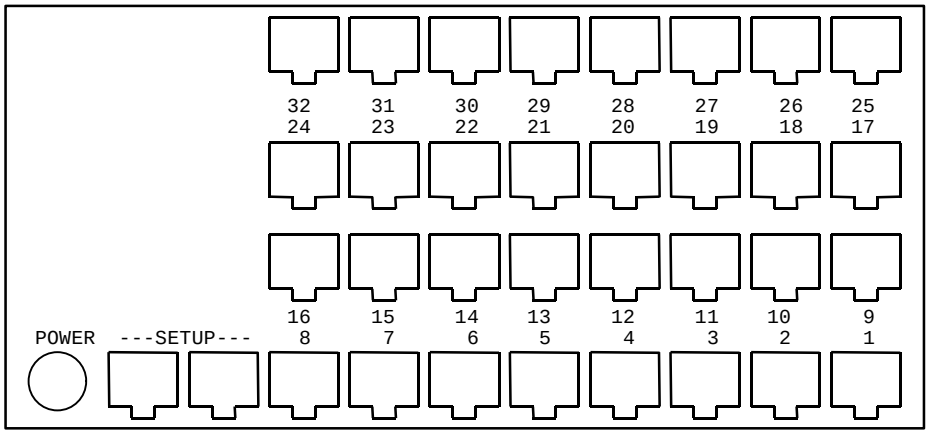
Setup of the Universal Switch is done using a terminal connected to either of the two setup ports. Use the cable labeled "TERMINAL TO NETWORK MANAGEMENT" supplied with the unit and set the terminal for 9600 8,N,1. When connected, you should see a **SETUP >>** prompt on the screen. Type “H” to see the command set. See Section 5 for an explanation of the setup commands.

3.4 Connections

The DCB Universal Switch is an any port to any port device. Equipment should be connected to Universal Switch ports using cables described in Section 6.2.

All ports operate at 1200 or 9600 bps with no flow control. Ports accept any parity and echo even, odd, mark or space parity. When connected to an accessed device, the Universal Switch passes 8 data bits, no parity.

3.4.1 Port Layout



Universal Switch Rear Panel

3.5 Operation

A port is selected by either entering the port number or the port ID at the **Connect >>** prompt. The port ID must begin with an alpha character. This allows the Universal Switch to easily distinguish between a port accessed by its number or its name. Typing “H” at the **Connect >>** prompt will display a help screen.

The connection to an accessed port is broken immediately when the disconnect string is received by the originating port. The default disconnect string is ^D^D^D, where “^” represents the Ctrl key. The disconnect characters are buffered and not passed on to the accessed port. If one or two of the disconnect characters are received, followed by a different character, the buffered characters are released to the accessed port and there is no disconnect.

4. FRONT PANEL CONTROLS AND INDICATORS

4.1 Controls

The only control on the front panel is a RESET switch. Pressing this switch will reset the Universal Switch and keep configuration data intact.

4.2 Indicators

The only indicator on the Universal Switch is POWER.

5. SETUP COMMANDS

5.1 Introduction

The setup commands are used to set operating parameters into the switch. Such things as prompt, port ID's and disconnect character strings can be changed through the setup port. Port connection status can be displayed and connections can be killed using setup commands.

5.2 Connections and Terminal Setup

Connect a local terminal to the Universal Switch setup port using the "TERMINAL TO NETWORK MANAGEMENT" cable supplied with the unit. You can connect to either setup port but only one can be active at a time. Set the terminal for 9600 bps, 8,N,1.

5.3 Using the Setup Port

When connected you should see a **SETUP >>** prompt on the screen indicating that the setup port is active. The HELP screen can be displayed by typing "H".

5.4 Commands

5.4.1 Help

Function	Command	Paragraph
Set Password	PW	5.4.2
Set Port ID	ID	5.4.3
Configure Port	CP	5.4.4
Set Prompt	SP	5.4.5
Set Disconnect Characters	SD	5.4.6
Set Error Message	SM	5.4.7
Set Wakeup	SW	5.4.8
Show Type	TY	5.4.9
Show Configuration	SC	5.4.10
Show port Status	SS	5.4.11
Kill Connections	KC	5.4.12
Exit Setup	BYE	5.4.13
Reset and Clear Memory	RC	5.4.14
Reset and Keep Memory	RS	5.4.15

5.4.2 Set Password

The set password (PW) command is used to set a password for the setup port. This will deter unauthorized use of the setup commands.

5.4.3 Set Port ID

Set Port ID (ID) allows the user to name each port on the switch. Names must be unique, must begin with an alpha character and are limited to 15 characters.

5.4.4 Configure Port

Configure Port (CP) is used to configure speed and parity for each individual port. The options are 1200 or 9600 bps and even, odd, mark, space or no parity.

5.4.5 Set Prompt

The switch prompt defaults to Connect >>. SP is used to change this if desired.

5.4.6 Set Disconnect Characters

The default disconnect character string is ^D^D^D. The "^" indicates the Ctrl key. This sequence may be changed or disabled if required.

5.4.7 Set Error Message

Error messages are normally displayed in English text. Coded messages can be displayed if required. This is similar to terse vs. verbose responses from a modem.

Error Code	Meaning	Port
E000	Invalid Port Number	Data
E001	Invalid Port Name	Data
E002	Port Busy	Data
E003	Unable to Connect	Data
E004	Error in Input Data	Setup
E005	Cannot Connect to Self	Data
I015	Connected	Data

5.4.8 Set Wakeup

Set Wakeup (SW) determines the method used to generate the Connect >> prompt. Default is control lead only. Other options are Carriage Return only or both CR and the control lead. See Section 6 for an explanation of interface control leads.

5.4.9 Show Type

This command displays basic information about the switch including number of ports and firmware version number.

5.4.10 Show Configuration

The Show Configuration (SC) command displays the name (ID), parity and speed settings for each port.

5.4.11 Show port Status

The Show port Status (SS) command displays the connection status of each port. Each connection will be displayed twice in this listing because this is a bi-directional any port to any port device.

5.4.12 Kill Connections

This command allows the operator to disconnect (kill) connections through the switch. This is handy when a connection exists to a device that someone else needs to access.

5.4.13 Exit Setup

This command (BYE) will have no effect on a directly connected terminal. BYE toggles RTS (pin 7) low for 5 seconds and can be used to disconnect devices that monitor the control lead, a dial-up modem for example.

5.4.14 Reset and Clear Memory

This command will reset the switch to factory default settings. All port ID's, password, prompt and port configuration data will be lost.

5.4.15 Reset and Keep Memory

The RS command performs the same function as the front panel Reset switch. Configuration data will remain intact.

6. INTERFACE SIGNALS AND CABLING

6.1 Port Interface

6.1.1 Setup Port

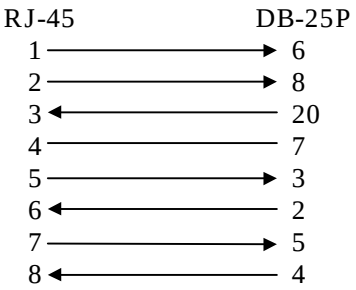
Pin	Signal	Function
1		Not Used
2		Not Used
3	Data Carrier Detect	Wakeup input, turning on DCD activates the setup port.
4	Signal Ground	
5	Transmit Data	Data output from switch.
6	Receive Data	Data input to switch.
7	Request to Send	Device Present output from switch, normally on. Toggles off for 5 seconds, then back on after user enters "BYE" at the **SETUP>>** prompt.
8		Not Used

6.1.2 Data Ports

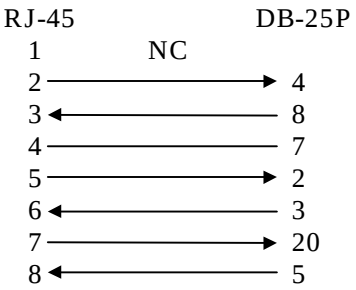
Pin	Signal	Function
1	Data Set Ready	+12V out
2	Data Carrier Detect	Wakeup output, turns on after port is selected, turns off on disconnect sequence or if RTS is dropped.
3		Not Used
4	Signal ground	
5	Receive Data	Data output from switch.
6	Transmit Data	Data input to switch.
7	Clear to Send	Device Present output, normally on, turns off for 5 seconds on disconnect.
8	Request to Send	Originate port wakeup input. Turning on RTS activates the port and generates the **Connect>>** prompt when the wakeup method is control lead “L”. Accessed port device present input. RTS must be on in order to make a connection. Turning off RTS will drop the connection.

6.2 Data Port Cables

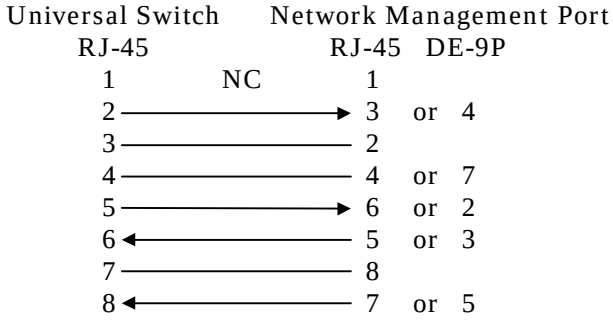
6.2.1 To a Terminal or Printer



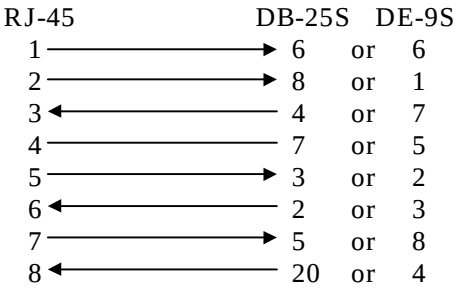
6.2.2 To an ASYNC Modem



6.2.3 To DCB Network Management Port

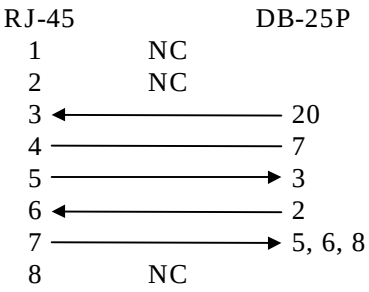


6.2.4 To a PC com port

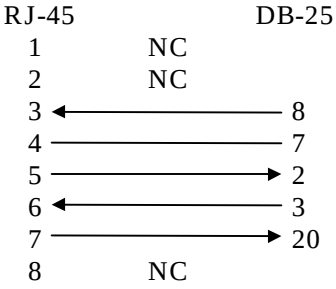


6.3 Setup Port Cables

6.3.1 To a Terminal (supplied)



6.3.2 To an ASYNC Modem



7. TROUBLESHOOTING

If the installation is new and you are having trouble, be sure you are using the correct cables and that the speed and parity of the attached devices matches that of the port. If the Universal Switch had been working and quit, reset the unit. If reset does not help, power the Universal Switch off and back on. If that does not clear up the problem, contact DCB Customer Support at (217) 352-3207 for assistance.

8. WARRANTY

The Universal Switch is warranted to be free of defects in manufacturing or materials for 1 year. Data Comm for Business will repair or replace any equipment proved to be defective for one year from date of purchase. All warranty work is F.O.B. Champaign, IL. This warranty is exclusive of abuse, misuse, accidental damage, acts of God or consequential damages. DCB liability shall not exceed the original purchase price.

All equipment returned to DCB for warranty, repairs or upgrades must be accompanied by a Return Material Authorization (RMA) number. To receive an RMA number call 217-352-3207 between the hours of 8 AM and 5 PM central time. It is the customer's responsibility to pay for the shipping to DCB and DCB's responsibility to pay shipping charges back to the customer after warranty repair.

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