Unique Micro Design
Advanced Thinking Products

Model M363
Multi Serial / Keyboard Wedge
User Manual

... Technologists & Suppliers to Professional Systems Integrators ...

Revision History		
Date	Issue	Comments
31/10/94	1	First Issue
03/02/95	2	Default Reset description fixed
05/06/95	3	ProtoLink Architecture Definition added

1. Introduction

This manual provides basic information about connecting to the Unique Micro Design Model 363 Multi Serial / Keyboard Wedge, a member of the *UMD ProtoLink Architecture family of products.*

The Model 363 is based on the *UMD Model 301 Controller Module* which is also used internally in other products such as custom keyboards, LCD terminals, peripheral controllers and custom VGA terminals.

In essence, the *UMD ProtoLink Architecture* is a versatile product development system.

The architecture specifies the following:
- standard definitions for configuration parameters that can be consistently used across a broad range of products.
- standard command set and peripheral control philosophy.
- standard set of hardware facilities which includes non-volatile memory to hold configuration parameters, a peripheral interface bus, serial ports which provide power for scanners and bar code wand, display, external keyboard, keyboard wedge and magnetic card reader interfaces.
- peripheral interface bus that allows the addition of other modules to the core controller.

The *UMD Model 301 Controller Module* has extensive programmable capabilities, which are not discussed in this manual (contact Technical Support at Unique Micro Design for further information).

2. Multi Serial / Keyboard Wedge Features

Multi Serial / Keyboard Wedges are packaged in an ABS plastic enclosure. The Model 363 has flexible interfacing options incorporating dual RS232 serial, AT keyboard interface and bar code decoder. Power is sourced externally from either a 5 Volt regulated or 7-9 Volt unregulated supply.

The UMD Model 363 has an array of programmable attributes including the communication settings, bar code decoder symbology settings and the serial port input / output configurations. Programming can be achieved through the keyboard or serial ports also programming bar codes can be used with a wand connected to the BCR port. The programmed details are permanently saved in memory.

The Model 363 has four non slip rubber feet mounted on the under side of the plastic housing, making it suitable for the desk top.

In *serial mode*, a plug pack provides power to the unit. Any serial input can be directed to the optional LCD display for operator information, or directly to the serial port of a computer. The second serial port is available for auxiliary I/O, eg with a printer or bar code scanner.

In *keyboard mode*, the Model 363 provides serial ports and bar code decoder port which connects in between the keyboard of a AT or PS/2 style personal computer and the system unit. The M363 converts asynchronous serial data to keyboard characters. It is totally transparent to the computer system which accepts the serial input as if it was typed from the keyboard. The keyboard port of the computer provides the 5 volt power.

4

Some options available include low cost bar code wand, a variety of bar code scanners, magnetic card reader, keylock or "Touch Memory" security and a 2 line by 16 character LCD display. A customisation service is provided by Unique Micro Design to meet specialised requirements.
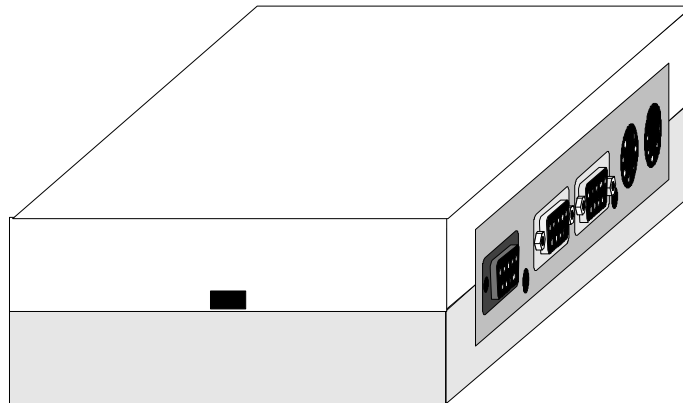
UMD Model 363

3. M363 Panel Layout
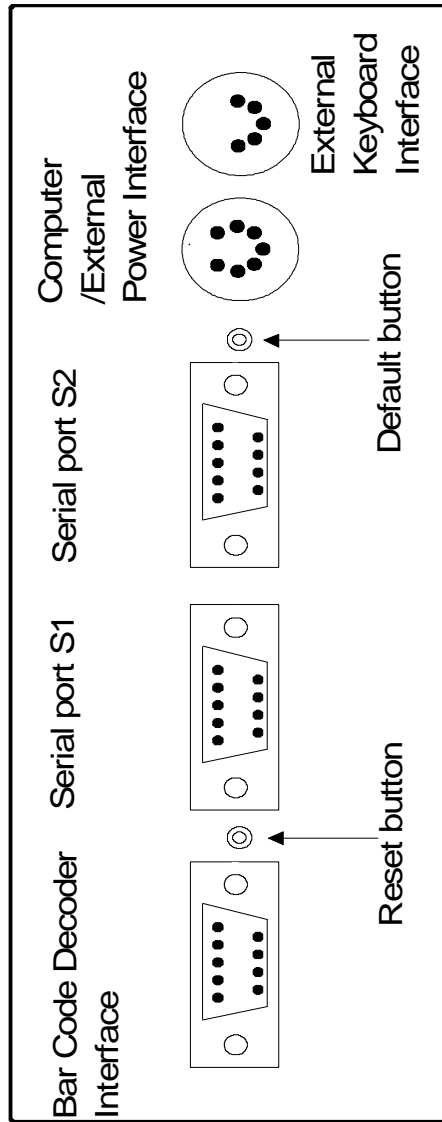
3.1. Bar Code Decoder Interface

The bar code decoder interface connects to industry standard digital wands, slot readers and devices that emulate wands.

These scanners contain an optical sensor with a LED light source, optics and circuits. The signal conditioning circuits converts optical information into digital pulses representing bars and spaces which the controller module decodes.

Pin	I/O	Description
1	-	no connection
2	i/p	data input
3	-	no connection
4	o/p	+5 volts DC
5	-	no connection
6	-	no connection
7	-	signal ground
8	-	shield ground
9	o/p	+5 volts DC

Bar code decoder interface

Front view of DB9 plug
AMP snap release

3.2. Serial Ports

There are two full duplex serial ports, designated "S1" and "S2". The interfaces are RS232 +/- 9 volt levels. Five volt DC power is also provided on the interface to allow bar code scanners to derive their power from the controller module.

The default communications parameters are 9600 baud, 8 data, no parity and one stop bits.

Pin	I/O	Description
1	-	no connection
2	i/p	RxD
3	o/p	TxD
4	o/p	DTR
5	-	Ground
6	-	no connection
7	o/p	5 Volts
8	i/p	CTS
9	o/p	optional auxiliary power

Serial interface

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  _____
○ \  1         5  / ○
   \  6         9 /
    ‾‾‾‾‾‾‾‾‾‾‾‾‾
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Front view of DB9 plug

3.3. Computer/Power Interface

The controller module connects to a PC system unit's keyboard interface via the seven pin computer/power interface. When connected in this manner, power is derived from the PC. Note that the seven pin DIN connector will mate with five pin 180 degree DIN connectors which are used to connect the PC to this interface. If the controller module is not connected to a PC via the keyboard interface, then power must be supplied externally. Five volts DC at typically 300 ma is required to operate the controller. The computer/power interface can accept either 6V to 9V unregulated, or 5V regulated power inputs. When the unit is supplied with unregulated power, usually from a 6 to 9V plug pack, an internally regulated 5V output is provided. Note that this 5V output is required to be reconnected to the 5V regulated input on the connector.

Pin	I/O	Description
1	i/o	Clock
2	i/o	Data
3	-	Reset
4	-	Ground
5	i/p	5 Volt DC power
6	i/p	DC unregulated power in
7	o/p	5 Volt DC regulated out (jumper to pin 5, must have unregulated input on pin 6)

Computer/Power interface 7 pin DIN socket
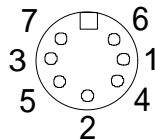
Front view of 7 pin DIN socket

3.4. External Keyboard Interface

A standard PC keyboard may optionally be connected to the external keyboard interface. When connected, this allows the controller module to operate as a keyboard wedge between the system unit and the standard keyboard.

Pin	I/O	Description
1	i/o	Clock
2	i/o	Data
3	-	Reset
4	-	Ground
5	o/p	5 Volt DC

Keyboard interface 5 pin 180 degree DIN socket
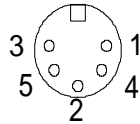
Front view of 5 pin DIN socket

3.5. Reset and Default Buttons

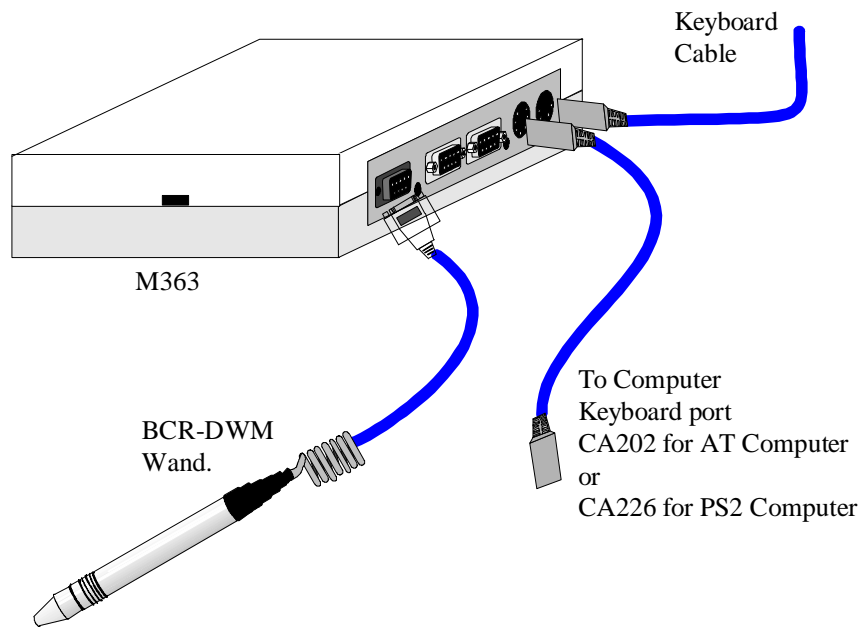The reset button physically resets the microcontroller, forcing it to perform a power up sequence.

The default button is used to return the non volatile configuration memory back to the default settings. To use this facility, the default button is held whilst pressing the reset button. Upon reset the controller module will issue three rapid beeps to indicate that the defaults have been set.

NOTE:
If any changes have been made to the programming of the Model 363, these will be lost when the reset to defaults sequence above is used.
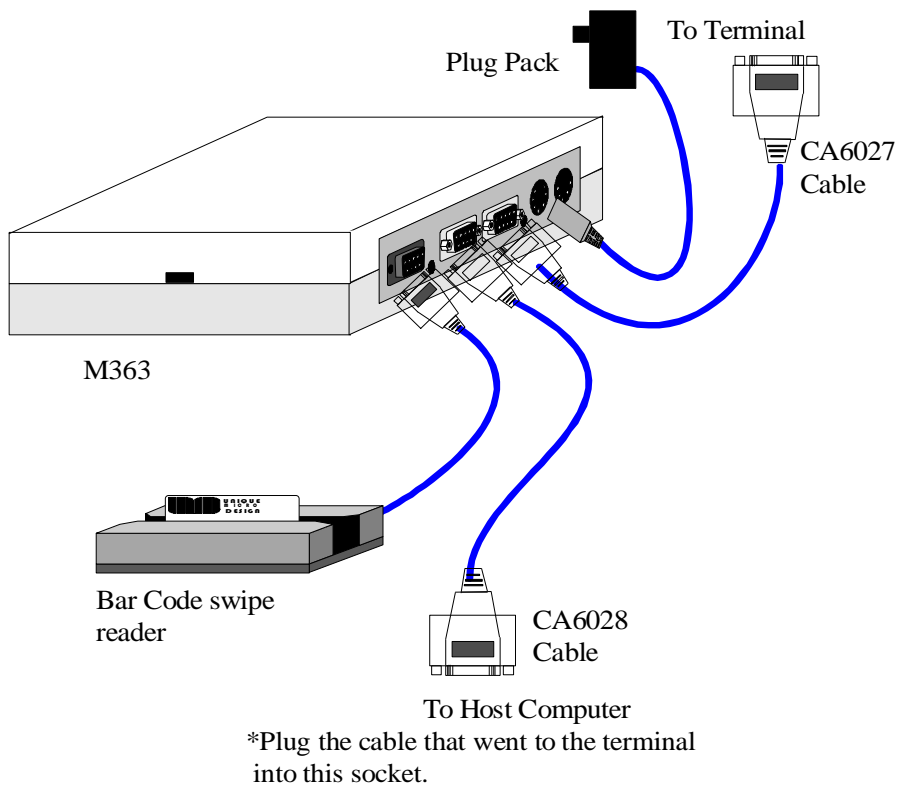
4. M363 Connection Examples

4.1 Keyboard Wedge (Wand input)

Keyboard
Cable

M363

To Computer
Keyboard port
CA202 for AT Computer
or
CA226 for PS2 Computer

BCR-DWM
Wand.

4.1.1 Installation of Keyboard Wedge (Wand input)

1) Turn off the computer.

2) Disconnect the keyboard from the keyboard port of the computer.

3) Connect the keyboard to the "external keyboard" interface of the M363.

4) Using the appropriate cable (dependent on the type of computer - PS/2 or AT) , connect it between the "computer/ external power " interface of the M363 and the keyboard port of the computer.

5) Connect the wand to the "bar code decoder" interface on the M363.

6) Turn on computer. The computer should now operate as usual and characters received on the bar code decoder interface of the M363 will be "typed" into the computer.

4.2. Serial Wedge, Terminal - Host connection
(Bar Code Slot reader)

Plug Pack

To Terminal

CA6027
Cable

M363

Bar Code swipe
reader

CA6028
Cable

To Host Computer
*Plug the cable that went to the terminal
 into this socket.

The M363 used in this situation will require a firmware option, F02, which has a default setup that configures the M363 to operate as a serial wedge.

4.2.1 Installation of Serial Wedge, Terminal - Host connection
(Bar code slot reader)

1) Turn off the computer and terminal.

2) Unplug the cable that goes to the terminal, leave host end connected.

3) Connect UMD cable CA6028 to "serial port S1" on the M363 then connect cable CA6027 to "serial port S2" and connect the plug pack adapter to the "computer/external power " interface of the M363.

4) Connect the cable that previously connected to the terminal into the socket on the end of the CA6028 cable.

5) Connect the bar code swipe reader (or wand) to the "bar code decoder" interface on the M363.

6) Plug the plug pack into a 240 volt mains socket, turn on computer and terminal. (The default communication parameters are 9600baud, 8 data bits, no parity, 2 stop bits) The host computer should now operate as usual and characters received on the bar code decoder interface of the M363 will be "typed" into the host as if they came from the terminal.

5. Specifications.

Physical	Dimensions	180 (w) x 120 (d) x 40 (h) mm
	Enclosure	Moulded ABS plastic
	Weight	300 grams
	Colour	Two tone (white/grey)
Bar Code Decoder Interface	Symbologies	Code 39, Code 128, ITF, EAN, & UPC
	Connector	AMP DB9 plug snap release
Serial Ports	Interface	Two RS232C (DTE)
	Connector	DB9 plug (UMD standard)
	Power output	+5 Volts DC on Pin 7
	Baud Rates	300, 1200, 2400, 4800, 9600, 19.2K, 38.4K
	Handshake	DTR, XON/XOFF
	Default Settings	9600baud, 8 data bits, no parity, 2 stop bits
Computer/Power Interface	Regulated	5 Volt DC @ 100 ma (typical) not including peripherals
	Unregulated	6 - 9 Volts @ 100 ma (typical) not including peripherals
	Connector	7 pin DIN socket
	Keyboard Interface	Bi-directional, serial synchronous (clock/data format)
	Data Format	AT-, PS/2 systems
External Keyboard interface	Keyboard Interface	Bi-directional, serial synchronous (clock/data format)
	Data Format	AT-, PS/2 systems

6. Ordering information and Accessories

Part Number	Model Number	Description
M363 multi-function keyboard wedge (F00 firmware)		
9-0363-002-3	K363-002	M363-F00 AT wedge, wand and cable
9-0363-003-1	K363-003	M363-F00 PS/2 wedge, wand, cables
9-0363-008-1	K363-008	M363-F00 IBM 319x Series wand, cables (CA308,CA309)
9-0363-001-5	K363-001	M363-F00 multi-function wedge only
M363 Multi-function serial wedge (F02 firmware)		
9-0363-006-5	K363-006	M363-F02 with plug pack and cables
9-0363-016-2	K363-016	M363-F02 serial wedge only
Multi-function wedge with LCD display		
9-363-100-3	K363-100	M363-D216 wedge with display only
Cables and accessories		
9-5202-020-2	CA202	5 pin DIN plug to 5 pin DIN plug (AT)
9-5226-020-0	CA226-2	PS/2 system cable (5 pin DIN plug to 6 pin mini DIN plug)
9-5227-000-1	CA227	Adapter (5 pin DIN plug to 6 pin mini DIN socket, keyboard)
9-5211-020-1	CA211-2	*UMD* serial - D9 skt to D9 skt 2m
9-6027-020-1	CA6027-2	*UMD* serial - D9 skt to D25 plug Wyse 60 *com port)*
9-6028-020-2	CA6028-2	*UMD* serial - D9 skt to D25 plug com port emulation
2-6999-002-8	CA308/309	*IBM* 319x terminal series adaptor set
1-6004-107-5	PP6D1000-E	M264 plug pack (for serial mode only)

Part Number	Model Number	Description

Options

	option Cx	Mag card reader (single track, x= 1,2 or 3)*
	option Cy	Mag card reader (two track, y= 1&2, 2&3)*
	option D216	2x16 LCD Display

Documentation

6-0363-992-7	DOC-M363-PD	Product description
6-0264-997-9		M264 programming kit
6-0363-993-5	DOC-M363-UM	M363 user manual
7-5010-122-7	DOC-AN-122	Product overview: *UMD* Custom Keyboards
7-5020-107-7	DOC-TN-107	*UMD* ProtoLink Architecture

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