DISPLAY DEVICES

DDI RS232 Lift Interface
Communication Protocol

These instructions are supplemental to the primary DDI Lift Manual. Please review that manual first to become familiar with the lift operation before attempting to control lift by RS232 interface.

Hardware:

* 9600 baud, no parity, one stop and start bits.
* Three wire hook up (transmit, receive, ground).

Software:

One letter commands to the lift, one letter responses from the lift.

Commands to Lift	Responses from Lift
'A' (65) - Stop	'R' (82) - Received Command / Ready
'B' (66) - Down	'T' (84) - Done Moving
'C' (67) - Up	'Z' (90) - Not Ready
'D' (68) - Start Manual Mode	'X' (88) - Error! Reset Needed
'E' (69) - End Manual Mode	'U' (85) - Invalid Command
'F' (70) - Down to Maintenance Level	'J' (74) - Communication Error
'G' (71) - Set Down Level	'L' (76) – Home Position
'H' (72) - Set Maintenance Down Level	'M' (77) – Show Position
'I' (73) - Ready Query	'N' (78) – Service Position

NOTES:

Set commands (G, H) are only operational in manual mode (D).

Down, Up, and Down to Maintenance Level commands will stop automatically only in 'automatic mode' (non-Manual Mode).

Down command and Up command will run until Stop command is issued *if in Manual mode*. There is considerable danger of running till bottom limit is reached.

Always exit Manual Mode after use!

The response R is issued after every valid command. Other response occur periodically. The response T is issued when the lift has stopped from a Up, Down, or Down to Maintenance Level command.

'R' is issued if the lift received a command that it understands. However, that command may not be valid at that time. Example: a 'G' (set down level) command sent when in automatic mode will produce a two letter response. First a 'R' (command understood), followed by a 'U' invalid command.

In the unlikely event the lift suffers a major malfunction, the lift will no longer operate and the LED will start blinking a number of times indicating the problem.   Every few seconds the serial port will send out 'X' letting the control system know that a power reset is needed on the lift.

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The control system may query the lift with the 'I' command. If the lift is moving, then a 'Z' will be the response otherwise the lift will issue a 'R'. Version 2 of the protocol (after 7/1/2004) will respond with 'L', 'M', 'N' if the lift is at home, show, or service position, respectively, and not moving.

RS232 Lift Interface
Cable Diagram

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          DB9 Female                              DB9 Male

        RX    2  ----------------------------------------------- 2   TX
  PC    TX    3  ----------------------------------------------- 3   RX      LIFT
        GND   5  ----------------------------------------------- 5   GND
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