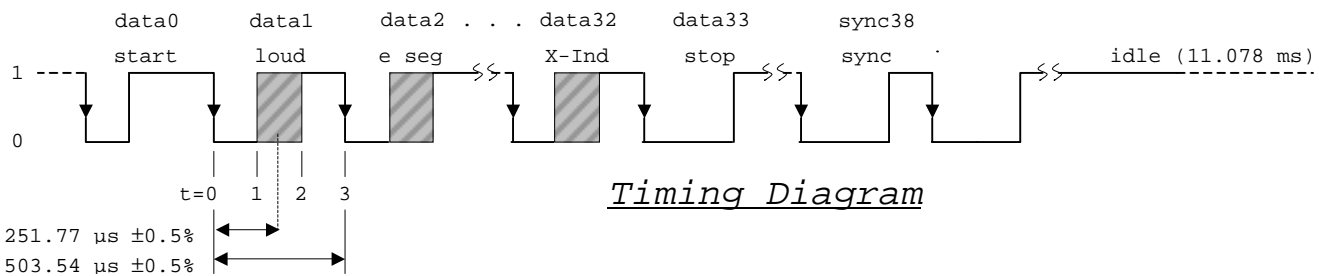
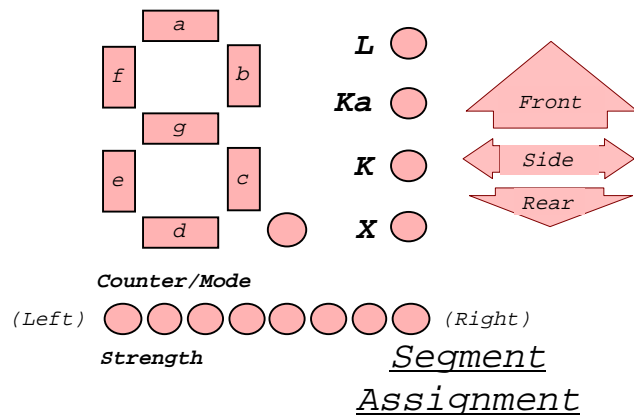
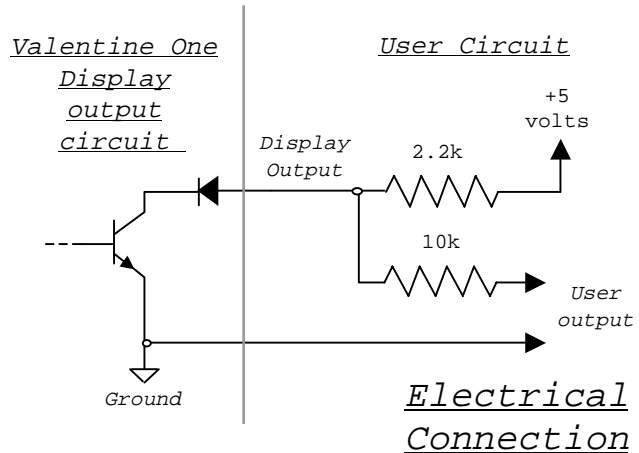
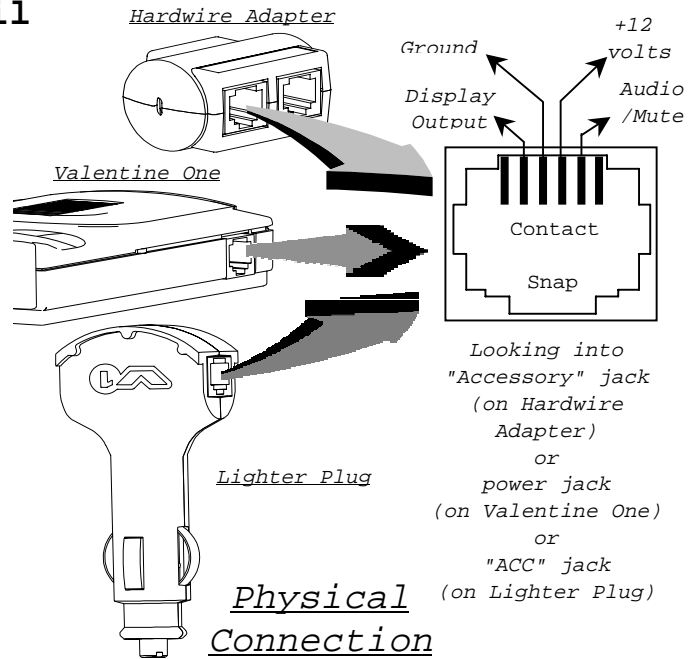


# Concealed Display Output Detail

Bit #	Function	Time (ms) {±0.5%}	State
Data bit 01	start bit	0.504	1
Data bit 02	loud	1.007	1=Soft
Data bit 03	Counter/Mode e	1.511	1=On
Data bit 04	Counter/Mode d	2.014	.
Data bit 05	Counter/Mode c	2.518	.
Data bit 06	Counter/Mode b	3.021	.
Data bit 07	Counter/Mode a	3.525	.
Data bit 08	Counter/Mode dp	4.028	.
Data bit 09	Strength Right	4.532	.
Data bit 10	.	5.035	.
Data bit 11	.	5.539	.
Data bit 12	.	6.042	.
Data bit 13	.	6.546	.
Data bit 14	.	7.050	.
Data bit 15	.	7.553	.
Data bit 16	Strength Left	8.057	.
Data bit 17	Counter/Mode g	8.560	.
Data bit 18	Counter/Mode f	9.064	.
Data bit 19	K indicator	9.567	.
Data bit 20	Ka indicator	10.071	.
Data bit 21	Laser indicator	10.574	.
Data bit 22	Front Arrow	11.078	.
Data bit 23	Front Arrow	11.581	.
Data bit 24	Front Arrow	12.085	.
Data bit 25	Side Arrow	12.588	.
Data bit 26	Side Arrow	13.092	.
Data bit 27	Side Arrow	13.596	.
Data bit 28	Rear Arrow	14.099	.
Data bit 29	Rear Arrow	14.603	.
Data bit 30	Rear Arrow	15.106	.
Data bit 31	(not used)	15.610	.
Data bit 32	X indicator	16.113	.
Data bit 33	stop bit	16.617	0
Data bit 34	stop bit	17.120	0
Data bit 35	stop bit	17.624	0
Data bit 36	stop bit	18.127	0
Sync bit 01	sync bit	18.631	0
.	.	.	.
.	.	.	.
Sync bit 38	sync bit	37.262	0
Idle begin	idle	37.765	1
.	.	.	.
.	.	.	.
Idle end	idle	48.340	1

Function Table



### General Description

This document describes the *Valentine One* Concealed Display Output Stream (CDOS). The information contained within this document applies to all versions of the *Valentine One*.

### Function Table

The **Function Table** describes the bit assignments in the CDOS. Each of the thirty-two (32) data bits represents a corresponding user interface feature. The remaining non-data bits are used for synchronization of the transmitter (*Valentine One*) and the receiver (user defined.)

### V1 Connection

The **V1 Connection** illustration shows the connection to the *Valentine One* necessary to read the CDOS. The RJ-11 power connector is located on the right hand side (facing the front panel) of the *Valentine One* as shown. Illustrations are also included for proper connection to the *Lighter Plug Adapter* as well as the *Hardwire Adapter*.

**CAUTION:** Incorrect connection by the owner can place +12 volts on the *Valentine One's* "ground" pin. Remote devices must be designed to avoid damage from such erroneous installation.

### Electrical Connection

The **Electrical Connection** details the basic output circuitry contained in the *Valentine One* and suggested circuitry for receiving the CDOS by the user. Note that the suggested user circuit implements a pull-up resistor to +5 volts. Presence of this +5 volts on the *Display Output Terminal* of the *Valentine One* causes it to extinguish its internal display.

### Segment Assignment

The **Segment Assignment** graphic describes specific display segment designators as they are referred to in the **Function Table** Function column.

### Timing Diagram

The **Timing Diagram** illustrates the CDOS timing details. A successful scheme for decoding the CDOS is outlined as follows:

- 1) Wait for an idle period (High level) of at least 11.078 milliseconds
- 2) Wait for the first falling edge after the 11.078 millisecond idle period followed by the *start bit* (High level)
- 3) Wait for a High level to Low level transition
- 4) Start a 251.77 microsecond timer
- 5) Wait for 251.77 microsecond to elapse
- 6) Sample the state of the data bit
- 7) After the sample wait for the state to be a High level
- 8) Repeat step 3-8 until all data bits are read
- 9) Upon reception of all data bits update user display

**NOTE:** Absence of CDOS activity should cause the user display to blank to avoid erroneous display information.