Tapwave® Connector for Zodiac™ 1 and 2

Version 1.0

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1. Hotsync Connector – Custom 17 Pin Connector

Signal Name	Type	Pin	Description	Notes
Gnd	I	1	Ground	P2A
DC_In	I	2	DC Input. 5.0V±5% @ 1.1A max. Used for charging.	P2A
USB_D+	B	3	USB D+	S1A
USB_D-	B	4	USB D-	S1A
VBUS	I	5	USB VBUS. USB Detect	S1A
HS_Int	I	6	HotSync Interrupt (i.e. HotSync Button)	S1A
RXD	I	7	Receive Data (CMOS level), Serial Line	S1A
Vcc	O	8	Peripheral Supply Voltage Vcc (also used for HS_Int). 3.0-3.3V @ 100mA maximum.	S1A
TXD	O	9	Transmit Data (CMOS level), Serial Line	S1A
ID	I	10	Peripheral ID: A peripheral must tie this to a 1% resistor to ground. A total of 6 peripheral types are supported. Also generates an interrupt when connected. USB Travel Cable: Shorted Keyboard*: 2.00K Mfg. Test Cradle*: 5.0K RxTx Travel Cable: 10.0K USB Peripheral*: 20.0K RxTx Peripheral*: 50.0K Undocked: Open	S1A
DockConnect	I	11	Dock Connect (connects to ground on travel cables)	S1A
RTS	O	12	Request to Send (CMOS level), Serial Line	S1A
CTS	I	13	Clear to Send (CMOS level), Serial Line	S1A
Reserved	B	14	Reserved	S1A
Reserved	B	15	Reserved	S1A
Reserved	B	16	Reserved	S1A
Gnd	I	17	Ground	S1A

* Tentative peripherals (to be determined)

Notes:

1. DC_In – Be sure to observe the proper polarity.
2. P2A – 2A Power Line
3. S1A – 1A Signal Line
4. Serial lines (non USB) will require RS-232 transceiver to communicate with CMOS voltage levels.

2. Peripheral ID Voltage

The Zodiac 1 and 2 can support six different types of attached peripherals not including the unconnected state. The type of peripheral is determined by reading the corresponding voltage across a given peripheral id resistor in the peripheral. Each peripheral type has a unique value resistor.

The attachment of any peripheral (i.e. travel cable, docking the unit in a cradle, or attaching a peripheral) generates an interrupt when the DockConnect line (pin 11) is grounded. Upon receiving the interrupt, the Zodiac will read the peripheral id voltage to determine what corresponding peripheral/device is attached.

The table below shows the peripheral id voltage (range and nominal), corresponding peripheral/device attached and 1% resistor value, and any notes.

Peripheral ID Voltage (1.8V Ref)	Nominal Voltage (1.8V Ref)	Peripheral ID Voltage (1.92V Ref)	Nominal Voltage (1.92V Ref)	Peripheral/Device Attached	Resistor Value 1% Tolerance	Notes
1.925–1.675V	1.800V	2.053-1.787V	1.920V	Undocked	open	
1.625–1.375V	1.500V	1.733-1.467V	1.600V	RxTx Peripheral*	50.0K	
1.325–1.075V	1.200V	1.413-1.146V	1.280V	USB Peripheral*	20.0K	
1.025–0.775V	0.900V	1.093-0.827V	0.960V	RxTx Travel Cable	10.0K	
0.725–0.475V	0.600V	0.773-0.507V	0.640V	Mfg Test Travel Cable*	5.00K	
0.425–0.175V	0.300V	0.453-0.187V	0.320V	Keyboard*	2.00K	No Charging
0.125–0.000V	0.000V	0.133-0.000V	0.000V	USB Travel Cable	0 ohms	

* Tentative peripherals (to be determined)

3. Standard Peripheral Information

Cradle

The cradle is used for charging the Zodiac device, Hotsyncing, and simply holding the Zodiac in a tilted position. The cradle is always used in conjunction with a travel cable (for charging and Hotsyncing) that attaches to the rear of the cradle.

Electrically the cradle is essentially a pass-through device with the addition of a Hotsync button, hence there is no id resistor associated with the cradle -- the travel cable id resistor is used instead. Mechanically the cradle simply holds the device in a tilted position.

Travel Cables

The travel cables can be used stand alone or with the cradle. There are 2 different types of travel cables:

- USB
- Rx/Tx Serial

Each travel cable allows the following:

- Usage with the external AC adapter to charge the Zodiac device.
- Ability to Hotsync the Zodiac device with the user's computer.

The USB travel cable will be shipped with each Zodiac sold. It uses an id resistor of 0 ohms.

The "Rx/Tx Serial" travel cable will be primary used by developers. It uses an id resistor of 10K ohms. In addition this cable also contains electronics (RS-232 transceivers) to convert the TTL/CMOS Rx/Tx signals to the RS-232 levels. Note: The electronics are powered from the Zodiac device (Vcc, pin 8), however the electronics are powered off when the host RS-232 connection is either unplugged or turned off.