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User Instructions for VIP-313 "SmartWye"™ PC Keyboard Encoders

DESCRIPTION

The "SmartWye"™ PC Keyboard Encoders make it easy to use the PC's keyboard port for operator input in embedded and dedicated PC's. The encoder and custom switch panel replace the standard keyboard by converting switch closures to standard PC keyboard scan codes. The encoder also generates all required PC power-up responses, and provides all the required handshaking with the PC's keyboard interface, giving error free boot up.

OPERATION

The encoder detects and debounces switch closures, generates appropriate key "make" codes, and sends them to the PC. When the switch is opened, the encoder sends the corresponding "break" code. Only the "make" code is sent for each switch closure, regardless of the time the switch is held closed. When several switches are closed simultaneously, "make" codes are sent once for each switch. "Break" codes are sent when the switches are again opened.

GENERATED CODES

The keyboard code generated for a given switch closure is shown in two tables (maps) below in terms of US keyboard keys. J3 is the switch input connector to the encoder.

The first table, Table 1, shows the two standard maps for encoder models which accept up to 16 switches to ground. The given key code is generated when the J3 pin in the table is closed to one of the GND pins. "Map Type" is one of two standard maps. The "DHH1" (Hex) map generates hexadecimal keys, the "DFF1" (Function) map generates function keys.

Table 2 applies to matrix connected switches, such as membrane keypads. Models VIP-313-MCK1 and MCK2 refer to the C&K Series 4000 3x4 and 4x4 membrane keypads. Model VIP-313-MGR1 refers to the Grayhill Series 96 3x4 and 4x4 membrane keypads.

PREPARE FOR OPERATION

In order to assure proper operation of the "SmartWye", certain conditions should be observed in its application. The following is a list of these conditions:

ALL CONNECTIONS SHOULD BE MADE WITH THE PC POWER OFF!!

(1) Do not connect or disconnect either the keyboard to the "SmartWye" or the "SmartWye" to the host when the host is powered up.

(2) Communications from the standard keyboard is strictly unidirectional. Therefore keys such as CAPS LOCK, and NUM LOCK send the proper codes, the status LED's on the keyboard will be non-functional.

(3) The "SmartWye" may be operated with:
(a) only the keypad (no keyboard) or
(b) with only the keyboard,
(c) or with both.

(4) The host is connected to the "SmartWye" at the J1 connector location using a Vetra VIP-310-M Male Interface Cable or one provided by customer. The keyboard, if used, is connected to the "Smart-Wye" at the J2 connector location using a Vetra VIP-310-F Female Interface Cable or one provided by customer. The VIP-310-M and VIP-310-F do not come with the "SmartWye", they must be ordered separately. If the customer is furnishing the interface cables to the "SmartWye", please observe the pin outs as listed below. Discrete switches or matrix keypads connect to the "SmartWye" at the J3 connector location.

BOARD CONNECTOR PINOUTS FOR J1 and J2

J1-1 Vcc	J2-1 Vcc
J1-2 Host Clock	J2-2 Keyboard Clock
J1-3 Host Data	J2-3 Keyboard Data
J1-4 Not Used	J2-4 Not Used
J1-5 Shield	J2-5 Shield

J1-6 Gnd	J2-6 Gnd

TABLE 1 MAP FOR MODELS VIP-313-DHH1 & VIP-313-DFF1

J3 PIN	DHH1 OUTPUT	DFF1 OUTPUT
-1	A	F1
-2	B	F2
-3	C	F3
-4	D	F4
-5	E	F5
-6	F	F6
-7	0	F7
-8	1	F8
-9	2	F9
-10	3	F10
-11	4	F11
-12	5	F12
-13	6	LEFT ALT
-14	7	LEFT CTRL
-15	8	LEFT SHIFT
-16	9	ENTER
-17	ENTER	TAB
-18	ESC	ESC
-19 & 20	GND	GND

TABLE 2 MAP FOR MODELS

VIP-313-MCK1	VIP-313-MCK2	VIP-313-MGR1

J3	-8	-7	-6		J3	-8	-7	-6	-5		J3	-8	-7	-6	-5
-12	1	2	3		-12	1	2	3	C		-12	1	2	3	A
-11	4	5	6		-11	4	5	6	D		-11	4	5	6	B
-10	7	8	9		-10	7	8	9	E		-10	7	8	9	C
-9	*	0	#		-9	A	0	B	F		-9	*	0	#	D

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