



High Density Mixed DC I/O Module

HE800DIQ937 / HE-DIQ937*

24 Vdc In, Positive Logic

24Vdc Out, Negative Logic

150mA Maximum

* HE- denotes plastic case.



This datasheet also covers products starting with IC300.

The High Density Mixed DC I/O Module (DIQ937) is used for applications requiring a high number of digital connections and relatively low current such as LED panels and Annunciator panels.

Note: Due to DIQ937's very high density, the amount of protective circuitry is reduced. For applications with a high degree electrical noise, a lower density I/O module (e.g., DIQ711, DIQ716) could be more suitable.

1 SPECIFICATIONS

INPUT		DIQ937	DIQ937	
Inputs per Module		32	Input Impedance	6K Ohms
Input Voltage		24 VDC	Minimum ON Current	3mA
Peak Voltage		35 VDC Max.	Maximum OFF Current	1mA
ON Voltage Level		18 VDC	OFF to ON Response	1ms.
OFF Voltage Level		6 VDC	ON to OFF Response	1ms.

OUTPUT		DIQ937	DIQ937	
Outputs per Module		40	Maximum Leakage Current	100µA
Operating Voltage		5 - 35VDC	Maximum Load Current per output	150mA
Output Type		Sinking	Maximum Inrush Current	500mA. per channel
Peak Voltage		35VDC Max.	Minimum Load	None
ON Voltage Level		1.5VDC Max.	OFF to ON Response	1ms.
Output Characteristics		Current Sinking	ON to OFF Response	1ms.

General Specifications			
Required Power (Steady State)	0.12W (5mA @ 24VDC)	Operating Temperature	0° to 60° Celsius
Required Power (Inrush)	Negligible	Terminal Type	High Density D-Sub
Relative Humidity	5 to 95% Non-condensing	Weight	9.5oz.
CE	See Compliance Table at http://www.heapg.com/Support/compliance.htm		
UL			

2 WIRING

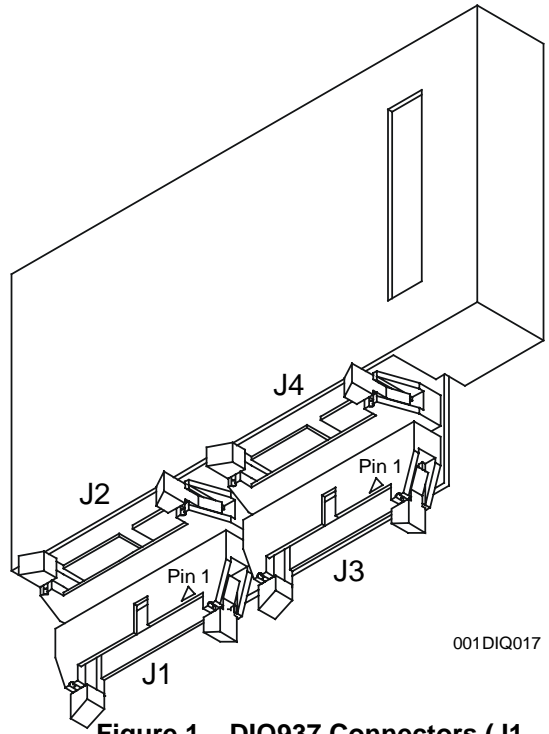
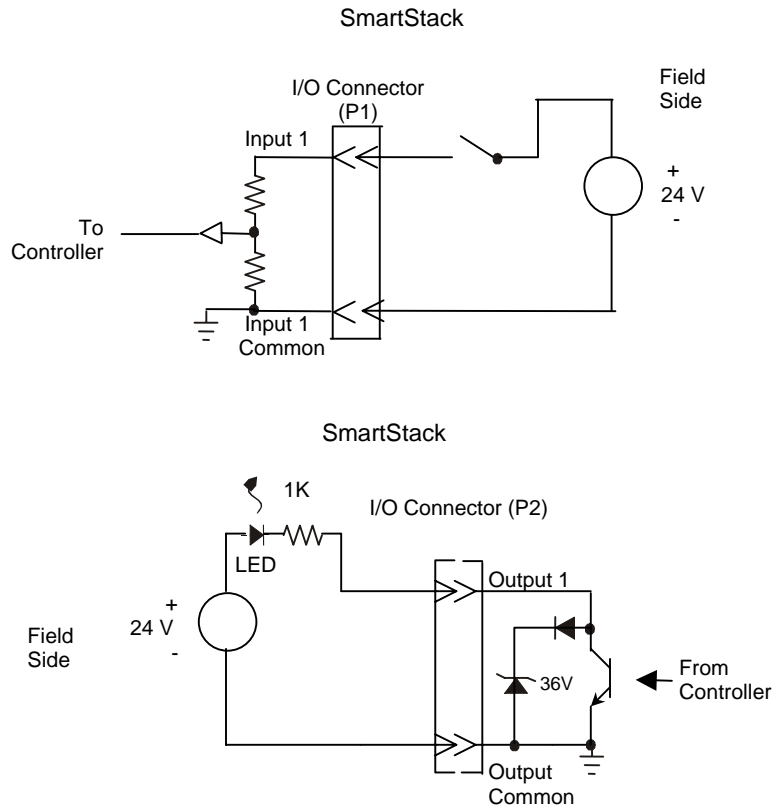


Figure 1 – DIQ937 Connectors (J1 – J4)

Table 1 – DIQ937 Connector Pinout (J1 – J4)							
(Note: N/C = No Connection)							
J1		J2		J3		J4	
Pin	Description	Pin	Description	Pin	Description	Pin	Description
J1-1	Input 1	J2-1	Input 17	J3-1	Output 1	J4-1	Output 17
J1-2	Input 2	J2-2	Input 18	J3-2	Output 2	J4-2	Output 18
J1-3	Input 3	J2-3	Input 19	J3-3	Output 3	J4-3	Output 19
J1-4	Input 4	J2-4	Input 20	J3-4	Output 4	J4-4	Output 20
J1-5	Input 5	J2-5	Input 21	J3-5	Output 5	J4-5	Output 21
J1-6	Input 6	J2-6	Input 22	J3-6	Output 6	J4-6	Output 22
J1-7	Input 7	J2-7	Input 23	J3-7	Output 7	J4-7	Output 23
J1-8	Input 8	J2-8	Input 24	J3-8	Output 8	J4-8	Output 24
J1-9	GROUND	J2-9	GROUND	J3-9	GROUND	J4-9	GROUND
J1-10	GROUND	J2-10	GROUND	J3-10	GROUND	J4-10	GROUND
J1-11	N/C	J2-11	N/C	J3-11	Output 33	J4-11	Output 37
J1-12	N/C	J2-12	N/C	J3-12	Output 34	J4-12	Output 38
J1-13	N/C	J2-13	N/C	J3-13	Output 35	J4-13	Output 39
J1-14	N/C	J2-14	N/C	J3-14	Output 36	J4-14	Output 40
J1-15	GROUND	J2-15	GROUND	J3-15	GROUND	J4-15	GROUND
J1-16	GROUND	J2-16	GROUND	J3-16	GROUND	J4-16	GROUND
J1-17	Input 16	J2-17	Input 32	J3-17	Output 16	J4-17	Output 32
J1-18	Input 15	J2-18	Input 31	J3-18	Output 15	J4-18	Output 31
J1-19	Input 14	J2-19	Input 30	J3-19	Output 14	J4-19	Output 30
J1-20	Input 13	J2-20	Input 29	J3-20	Output 13	J4-20	Output 29
J1-21	Input 12	J2-21	Input 28	J3-21	Output 12	J4-21	Output 28
J1-22	Input 11	J2-22	Input 27	J3-22	Output 11	J4-22	Output 27
J1-23	Input 10	J2-23	Input 26	J3-23	Output 10	J4-23	Output 26
J1-24	Input 9	J2-24	Input 25	J3-24	Output 9	J4-24	Output 25
J1-25	N/C	J2-25	N/C	J3-25	N/C	J4-25	N/C
J1-26	N/C	J2-26	N/C	J3-26	N/C	J4-26	N/C

3 INTERNAL CIRCUIT SCHEMATIC



Warning: Wiring the positive side of the DC source to loads connected to outputs 1 through 40 and the negative side of the DC source to the output common(s) would create a Negative Logic condition, which may be considered an unsafe practice under CE directives.

4 CONFIGURATION

Preliminary configuration procedures that apply to SmartStack™ Modules are contained in the hardware manual of the controller you are using. Refer to the **Additional References** section in this data sheet for a listing of hardware manuals.

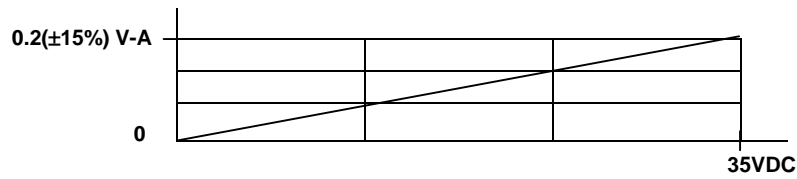
Selecting the **I/O Map** tab provides information about the I/O registers, which are assigned to a specific SmartStack™ Module and where the module is located in the point map. The I/O Map is determined by the model number and location within the SmartStack™. The I/O Map is not edited by the user.

The **Module Setup** is used in applications where it is necessary to change the default states of the outputs when the controller (e.g., OCS100) enters idle/stop mode. The default turns the outputs OFF when the controller enters idle/stop mode. By selecting the Module Setup tab, each output can be set to either turn ON, turn OFF or to hold the last state. Generally, most applications use the default settings.

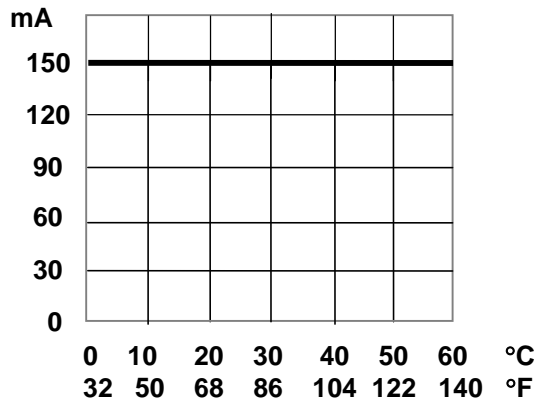
Warning: The default turns the outputs OFF when the controller enters idle/stop mode. To avoid injury of personnel or damages to equipment, exercise extreme caution when changing the default setting using the **Module Setup** tab.

5 INPUT / OUTPUT CHARACTERISTICS

Digital Input Chart



Derating Chart



6 TECHNICAL SUPPORT

For assistance and manual up-dates, contact Technical Support at the following locations:

North America:
(317) 916-4274
www.heapg.com

Europe:
(+) 353-21-4321-266
www.horner-apg.com

7 ADDITIONAL REFERENCES

For detailed installation, configuration and other information, refer to the hardware manual of the controller you are using. See the **Technical Support** section in this document for the web site address to download references and to obtain revised editions.

Additional References	
Controller	Manual Number
Operator Control Station Hardware (OCS, OCX) e.g., OCS1XX / 2XX; Graphic OCS250	MAN0227
Remote Control Station Hardware (RCS [except RCS116], RCX) e.g., RCS210, RCS250	
Color Touch OCS Hardware e.g., OCS300, OCS301, OCS350, OCS351 e.g., OCS451, OCS551, OCS651	MAN0465
OCS LX Series Hardware e.g., LX280 / LX300; RCS116	MAN0755
MiniOCS / MiniRCS / MiniOCX / MiniRCX Hardware e.g., HE500OCSxxx	MAN0305
Other Useful References	
Cscape Programming and Reference	MAN0313
DeviceNet™ Implementation	SUP0326
Wiring Accessories and Spare Parts Manual	MAN0347

8 INSTALLATION / SAFETY

8.1 General

Warning: Remove power from the OCS controller, CAN port, and any peripheral equipment connected to this local system before adding or replacing this or any module.

- a. All applicable codes and standards are to be followed in the installation of this product.
- b. Use the following wire type or equivalent: Belden 8917, 16 AWG or larger.

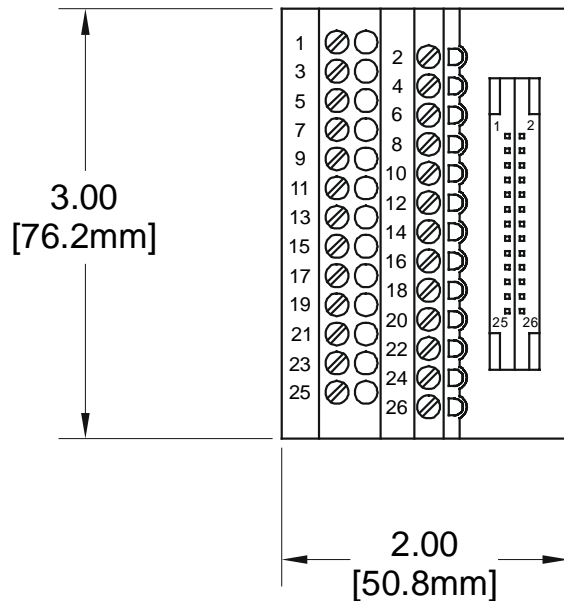
For detailed installation, configuration and other information, refer to the hardware manual of the controller you are using. See the **Technical Support** section in this document for the web site address to download references and to obtain revised editions.

8.2 Termination Option

The HE800TRM526 is used for termination for the DIQ937.

Table 2 - DIQ937 I/O				
TRM526 Pin	J1	J2	J3	J4
1	Input 1	Input 17	Output 1	Output 17
2	Input 2	Input 18	Output 2	Output 18
3	Input 3	Input 19	Output 3	Output 19
4	Input 4	Input 20	Output 4	Output 20
5	Input 5	Input 21	Output 5	Output 21
6	Input 6	Input 22	Output 6	Output 22
7	Input 7	Input 23	Output 7	Output 23
8	Input 8	Input 24	Output 8	Output 24
9 & 10	Common (GND)	Common (GND)	Common (GND)	Common (GND)
11	NC	NC	Output 33	Output 37
12			Output 34	Output 38
13			Output 35	Output 39
14			Output 36	Output 40
15 & 16	Common (GND)	Common (GND)	Common (GND)	Common (GND)
17	Input 16	Input 32	Output 16	Output 32
18	Input 15	Input 31	Output 15	Output 31
19	Input 14	Input 30	Output 14	Output 30
20	Input 13	Input 29	Output 13	Output 29
21	Input 12	Input 28	Output 12	Output 28
22	Input 11	Input 27	Output 11	Output 27
23	Input 10	Input 26	Output 10	Output 26
24	Input 9	Input 25	Output 9	Output 25
25 & 26	NC	NC	NC	NC

Note: J1 and J2 connect inputs using either INP935 or TRM526 or RLY160.
J3 and J4 connect outputs using the TRM526.



001ACC002-R1

TRM526 Connector