Mixed DC I/O Module

HE350DIQ811

(16 Input Channels)
12/24 Vdc In, Positive/Negative Logic
(16 Output Channels)
24Vdc Out, Negative Logic

SmartStix

For electronic information, see www.SmartStix.com.
This product has a Programming Reference (SUP0552).

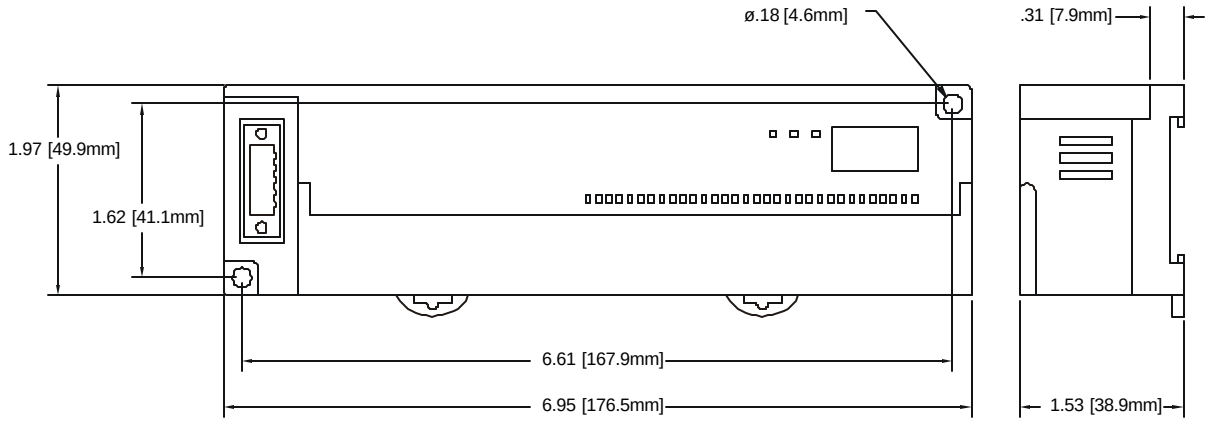
1 SPECIFICATIONS

IN				
Number of input points	16	**OFF to ON Response**		0 - 3ms. or less
Rated Input Current	7mA	**ON to OFF Response**		0 - 3ms. or less
ON Voltage Level	19VDC or more	**Common Terminal**		16 points / COM
OFF Voltage Level	6VDC or less	**Operating Indicator**		LED turns on during ON state of input
Input Characteristics	Bidirectional	**External Connections**		Terminal block connector (M3 x 6 screws)
Isolation Method	Photo Coupler			
OUT				
Number of output points	16	**External Power Supply**	**Voltage**	24VDC ± 10%(ripple voltage: 4Vp-p or less)
Commons per Module	1		**Current**	30mA (TYP, All points ON)
Operating Voltage	24VDC	**OFF to ON Response**		2ms.
Rated Load Voltage	24VDC	**ON to OFF Response**		2ms.
Maximum Load Current per channel	0.1A Max. per output 2A per common	**Output Type**		Sinking
OFF Leakage Current	0.1mA or less	**Common Method**		16 points / COM
Maximum Inrush Current per channel	0.4A, 10ms.	**Operating Indicator**		LED turns on during ON state of output
		External connections		Terminal block connector (M3 x 6 screws)
Maximum Voltage Drop during ON circuit	1.5VDC(0.5A)	**Isolation methods**		Photo Coupler
GENERAL				
Storage Temperature	-25° to 70° C	**Altitude for use**		Up to 2,000m
Operating Temperature	0° to 55° C	**Pollution degree**		2 or lower
Atmosphere	Free from corrosive gases and excessive dust	**Internal power Consumption (mA)**		350
Cooling method	Self-cooling	**Weight**		8.3 oz. (236 g)
Operating and Storage Humidity	5 to 95% Non-condensing			

Vibration			
Occasional Vibration			
Frequency	**Acceleration**	**Amplitude**	**Sweep Count**
10 ≤ f < 57 Hz	-	0.075 mm	10 times in each direction for X,Y,Z
57 ≤ f ≤ 150 Hz	9.8 m/s^2 {1G}	-	
Continuous Vibration			
Frequency	**Acceleration**	**Amplitude**	**Sweep Count**
10 ≤ f < 57 Hz	-	0.035 mm	10 times in each direction for X,Y,Z
57≤ f ≤ 150 Hz	4.9 m/s^2 {0.5G}	-	

Shocks				
Maximum shock acceleration	147 m/s^2 {15G}			
Duration Time	11 ms.			
Pulse Wave	Half sine wave pulse (3 times in each of X, Y, Z directions)			
Noise Immunity				
Square wave impulse noise	AC: ± 1,500VDC DC: ± 900VDC			
Electrostatic Discharge	Voltage: 4kV (contact discharge)			
Radiated electromagnetic field	27 – 500MHz, 10V/m			
Fast Transient Burst Noise	**Severity level**	All power modules	Digital I/Os (Ue ≥24V)	Digital I/Os (Ue < 24 V) Analog I/Os Communication I/Os
	Voltage	2 kV	1 kV	0.25 kV

2 DIMENSIONS



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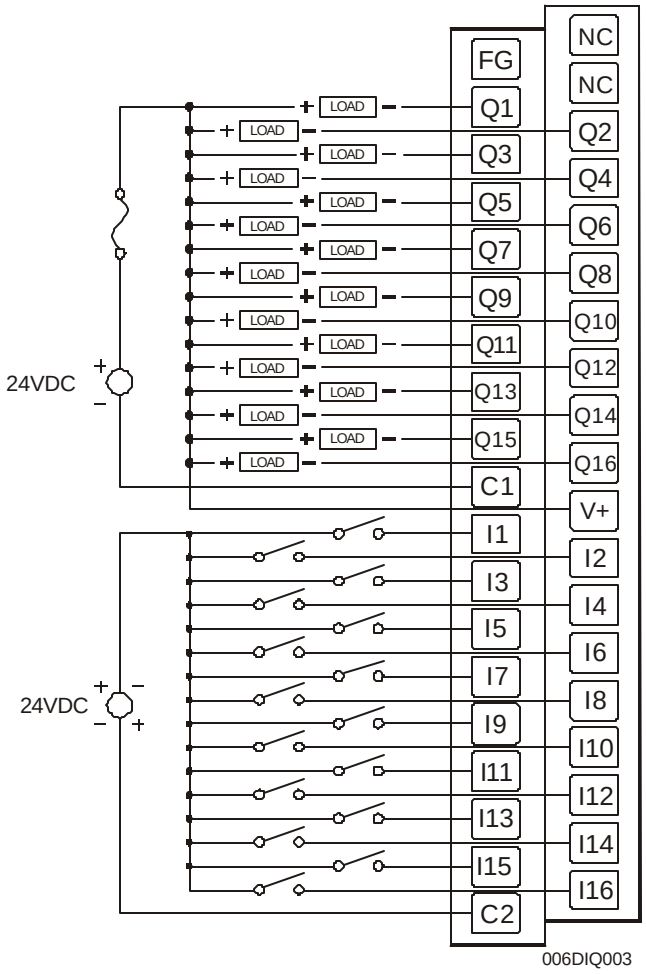
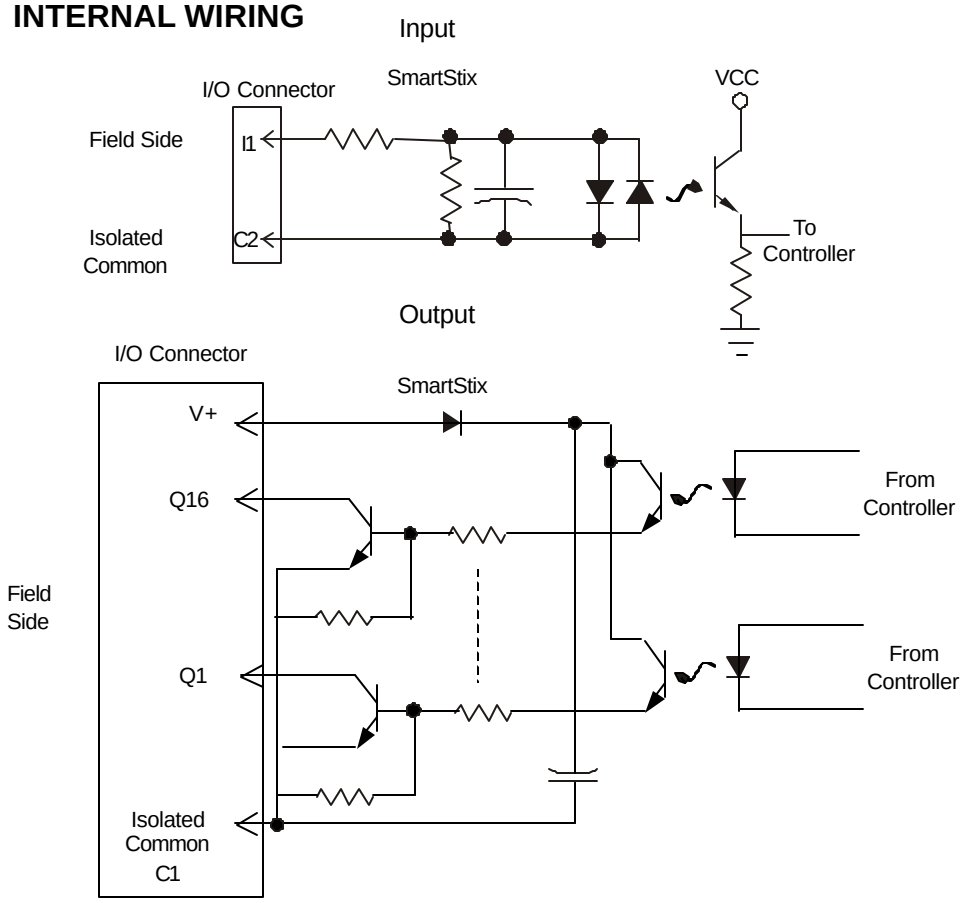
3 WIRING



Output Pin	Signal DIQ811
NC*	No Connection (*Do not Connect)
FG	Frame Ground
NC*	No Connection (*Do not Connect)
Q1	Output 1
Q2	Output 2
Q3	Output 3
Q4	Output 4
Q5	Output 5
Q6	Output 6
Q7	Output 7
Q8	Output 8
Q9	Output 9
Q10	Output 10
Q11	Output 11
Q12	Output 12
Q13	Output 13
Q14	Output 14
Q15	Output 15
Q16	Output 16
C1	Isolated Common
V+	Isolator Power

Input Pin	Signal DIQ811
I1	Input 1
I2	Input 2
I3	Input 3
I4	Input 4
I5	Input 5
I6	Input 6
I7	Input 7
I8	Input 8
I9	Input 9
I10	Input 10
I11	Input 11
I12	Input 12
I13	Input 13
I14	Input 14
I15	Input 15
I16	Input 16
C2	Isolated Common

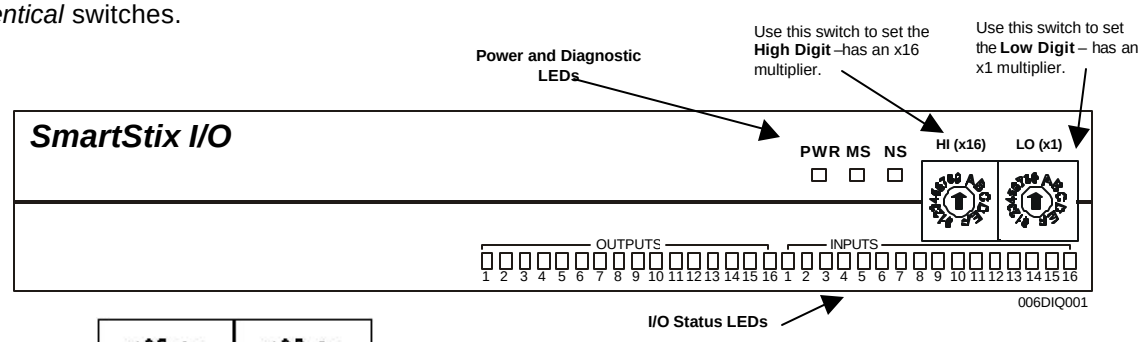
4 INTERNAL WIRING

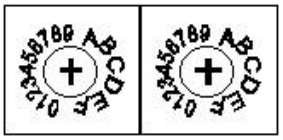


5 SETTING ID SWITCHES

Setting Slave Addresses:

Modbus Slave Addresses are set using the hexadecimal number system from 01 to F7. The decimal equivalent is 1 to 247. Refer to the conversion table in this, which shows the decimal equivalent of hexadecimal numbers. Set a unique address by inserting a small Phillips screwdriver into the two *identical* switches.





Close-up of Switches

Decimal (Dec) to Hexadecimal (Hex) Conversion														
Dec	**Hex**		**Dec**	**Hex**		**Dec**	**Hex**		**Dec**			**Dec**	**Hex**	
	HI	**LO**		**HI**	**LO**		**HI**	**LO**		**HI**	**LO**		**HI**	**LO**
			54	3	6	108	6	C	**162**	A	2	**216**	D	8
1	0	1	55	3	7	109	6	D	**163**	A	3	**217**	D	9
2	0	2	56	3	8	110	6	E	**164**	A	4	**218**	D	A
3	0	3	57	3	9	111	6	F	**165**	A	5	**219**	D	B
4	0	4	58	3	A	112	7	0	**166**	A	6	**220**	D	C
5	0	5	59	3	B	113	7	1	**167**	A	7	**221**	D	D
6	0	6	60	3	C	114	7	2	**168**	A	8	**222**	D	E
7	0	7	61	3	D	115	7	3	**169**	A	9	**223**	D	F
8	0	8	62	3	E	116	7	4	**170**	A	A	**224**	E	0
9	0	9	63	3	F	117	7	5	**171**	A	B	**225**	E	1
10	0	A	64	4	0	118	7	6	**172**	A	C	**226**	E	2
11	0	B	65	4	1	119	7	7	**173**	A	D	**227**	E	3
12	0	C	66	4	2	120	7	8	**174**	A	E	**228**	E	4
13	0	D	67	4	3	121	7	9	**175**	A	F	**229**	E	5
14	0	E	68	4	4	122	7	A	**176**	B	0	**230**	E	6
15	0	F	69	4	5	123	7	B	**177**	B	1	**231**	E	7
16	1	0	70	4	6	124	7	C	**178**	B	2	**232**	E	8
17	1	1	71	4	7	125	7	D	**179**	B	3	**233**	E	9
18	1	2	72	4	8	126	7	E	**180**	B	4	**234**	E	A
19	1	3	73	4	9	127	7	F	**181**	B	5	**235**	E	B
20	1	4	74	4	A	128	8	0	**182**	B	6	**236**	E	C
21	1	5	75	4	B	129	8	1	**183**	B	7	**237**	E	D
22	1	6	76	4	C	130	8	2	**184**	B	8	**238**	E	E
23	1	7	77	4	D	131	8	3	**185**	B	9	**239**	E	F
24	1	8	78	4	E	132	8	4	**186**	B	A	**240**	F	0
25	1	9	79	4	F	133	8	5	**187**	B	B	**241**	F	1
26	1	A	80	5	0	134	8	6	**188**	B	C	**242**	F	2
27	1	B	81	5	1	135	8	7	**189**	B	D	**243**	F	3
28	1	C	82	5	2	136	8	8	**190**	B	E	**244**	F	4
29	1	D	83	5	3	137	8	9	**191**	B	F	**245**	F	5
30	1	E	84	5	4	138	8	A	**192**	C	0	**246**	F	6
31	1	F	85	5	5	139	8	B	**193**	C	1	**247**	F	7
32	2	0	86	5	6	140	8	C	**194**	C	2			
33	2	1	87	5	7	141	8	D	**195**	C	3			
34	2	2	88	5	8	142	8	E	**196**	C	4			
35	2	3	89	5	9	143	8	F	**197**	C	5			
36	2	4	90	5	A	144	9	0	**198**	C	6			
37	2	5	91	5	B	145	9	1	**199**	C	7			
38	2	6	92	5	C	146	9	2	**200**	C	8			
39	2	7	93	5	D	147	9	3	**201**	C	9			
40	2	8	94	5	E	148	9	4	**202**	C	A			
41	2	9	95	5	F	149	9	5	**203**	C	B			
42	2	A	96	6	0	150	9	6	**204**	C	C			
43	2	B	97	6	1	151	9	7	**205**	C	D			
44	2	C	98	6	2	152	9	8	**206**	C	E			
45	2	D	99	6	3	153	9	9	**207**	C	F			
46	2	E	100	6	4	154	9	A	**208**	D	0			
47	2	F	101	6	5	155	9	B	**209**	D	1			
48	3	0	102	6	6	156	9	C	**210**	D	2			
49	3	1	103	6	7	157	9	D	**211**	D	3			
50	3	2	104	6	8	158	9	E	**212**	D	4			
51	3	3	105	6	9	159	9	F	**213**	D	5			
52	3	4	106	6	A	160	A	0	**214**	D	6			
53	3	5	107	6	B	161	A	1	**215**	D	7			

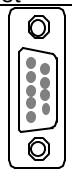
6 LEDS

Communication LED	Status
PWR	Displays the status of power
TX	Displays the status of sending of Comm. module
RX	Displays the status of receiving of Comm. module

7 NETWORK CABLE

a. Network Cable (RS-485)

MASTER Unit	Connection	SMART I/O Snet	
TX+		3	RX-
TX-		4	RX+
GND		5	GND
RX+		8	TX-
RX-		9	TX+



b. Modbus Support

Modbus ASCII Support	No
RTU Binary Support	Yes
Baud Rates	2400, 4800, 9600, 19.2K, 38.4K
Parity, Data Bits, Stop Bits	N, 8, 1
Handshaking	None
Modbus Commands Supported	3,4, 6,16
Modbus Offset	0

8 INSTALLATION / SAFETY

a. All applicable codes and standards need to be followed in the installation of this product.
b. For I/O wiring (discrete), use the following wire type or equivalent: Belden 9918, 18 AWG or larger.

Warning: Consult user documentation.

Warning: Electrical Shock Hazard.

9 TECHNICAL ASSISTANCE

For assistance, contact Technical Support at the following locations:

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

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