



125VDC Input Module

HE200DIM420

Positive Logic / Dry Contact

32 Channels In

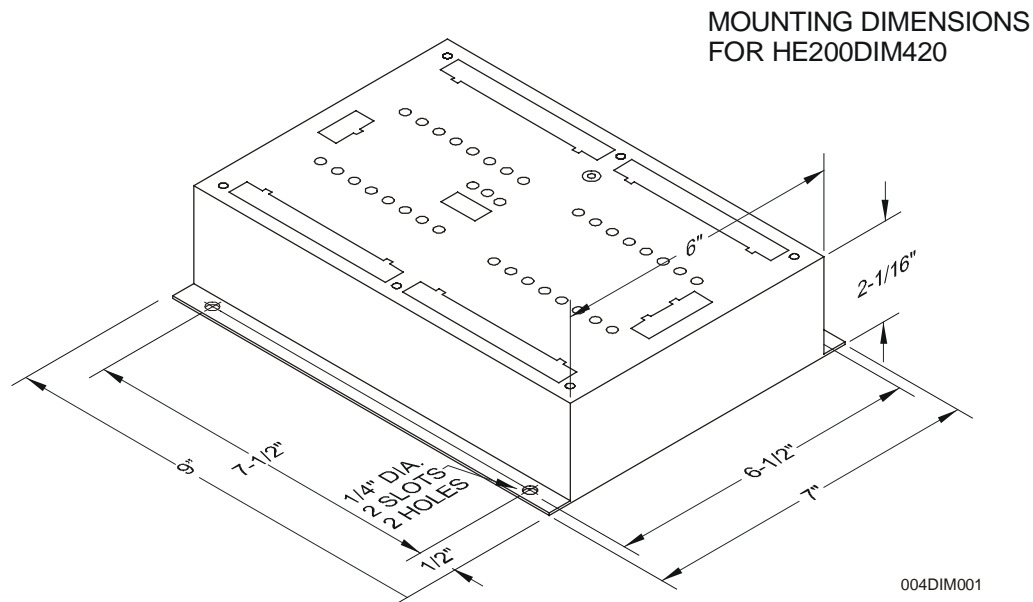
Network I/O

Other manuals related to the HE200DIM420 (DIM420) are located in the *Additional References* section in this document.

1 SPECIFICATIONS

INPUTS			
Number of input points	32	Number of contact power terminals	32
Rated Input Current	10mA @ 125VDC CHAN 8,16,24,32 2.5mA @ 125VDC All other channels	OFF to ON Response	10 ms + I/O Scan Rate
ON Voltage Level	90 VDC minimum	ON to OFF Response	10 ms + I/O Scan Rate
OFF Voltage Level	40 VDC maximum	Operating Indicator	LED turns on during ON state of input
Maximum Input	145 VDC	External Connections	Removable connector
Isolation Voltage	1500 V	AC Rejection	60 VAC 50/60Hz
Isolation Method	Magnetic	Diagnostics	contact power
General			
Storage Temperature	-25° to 70° C	Pollution degree	2 or lower
Operating Temperature	0° to 60° C	Internal power Consumption	150 mA
Cooling method	Self-cooling	Atmosphere	Free from corrosive gases and excessive dust
Operating and Storage Humidity	5 to 95% Non-condensing	Weight	3.30 lb. / 1.48 kg

2 DIMENSIONS

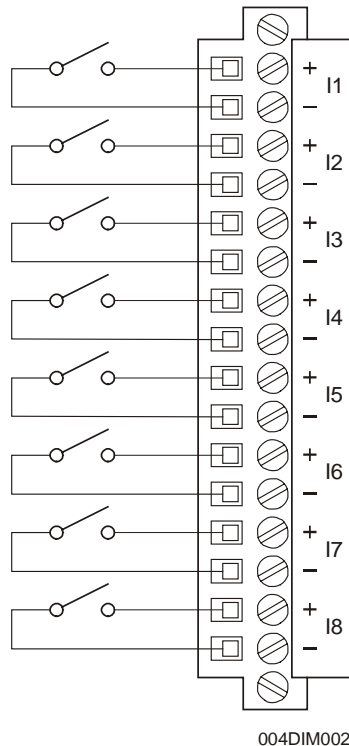


3 WIRING

The HE200DIM420 is designed to sense dry contact inputs. It provides internal contact excitation power connections on the I/O terminal strip. For normal operation a DC voltage in the range of 105VDC to 135VDC must be applied to the two pin PWR connector. This input is polarity sensitive. Since it is isolated from the control network, the +65V and -65V labels are nominal. To use a +125VDC supply, connect the 0 volt potential to -65V and the +125 volt potential to +65V. This contact power input should be externally fused with a 1 amp fuse to guard against field side faults in the contact wiring.

Presence of contact excitation power (PWR) is reported to the master OCS in bit 14 of the Network I/O Status Register for the HE200DIM420. A bit value of 1 indicates presence of power.

To configure the HE200DIM420, add it as "SmartStix-Digital 32 in" under the Network I/O tab of the I/O Configuration window of the Controller Menu in Cscape.

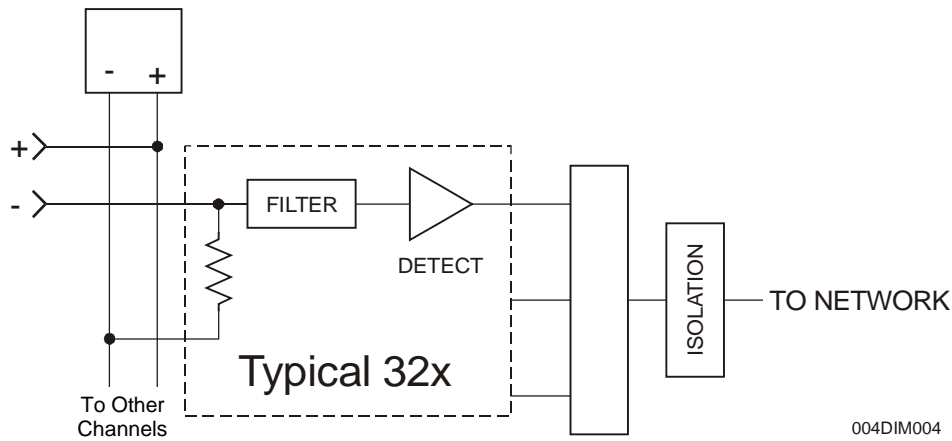


Pin	Signal DIM420	Pin	Signal DIM420	Pin	Signal DIM420	Pin	Signal DIM420
I1+	PWR+	I9+	PWR+	I17+	PWR+	I25+	PWR+
I1-	Input 1	I9-	Input 9	I17-	Input 17	I25-	Input 25
I2+	PWR+	I10+	PWR+	I18+	PWR+	I26+	PWR+
I2-	Input 2	I10-	Input 10	I18-	Input 18	I26-	Input 26
I3+	PWR+	I11+	PWR+	I19+	PWR+	I27+	PWR+
I3-	Input 3	I11-	Input 11	I19-	Input 19	I27-	Input 27
I4+	PWR+	I12+	PWR+	I20+	PWR+	I28+	PWR+
I4-	Input 4	I12-	Input 12	I20-	Input 20	I28-	Input 28
I5+	PWR+	I13+	PWR+	I21+	PWR+	I29+	PWR+
I5-	Input 5	I13-	Input 13	I21-	Input 21	I29-	Input 29
I6+	PWR+	I14+	PWR+	I22+	PWR+	I30+	PWR+
I6-	Input 6	I14-	Input 14	I22-	Input 22	I30-	Input 30
I7+	PWR+	I15+	PWR+	I23+	PWR+	I31+	PWR+
I7-	Input 7	I15-	Input 15	I23-	Input 23	I31-	Input 31
I8+	PWR+	I16+	PWR+	I24+	PWR+	I32+	PWR+
I8-	Input 8	I16-	Input 16	I24-	Input 24	I32-	Input 32

The above wiring diagram only depicts Inputs 1 – 8. There are actually four connectors with a total of 32 inputs. See **Switches** section in this data sheet for a view of all inputs.

4 INTERNAL WIRING

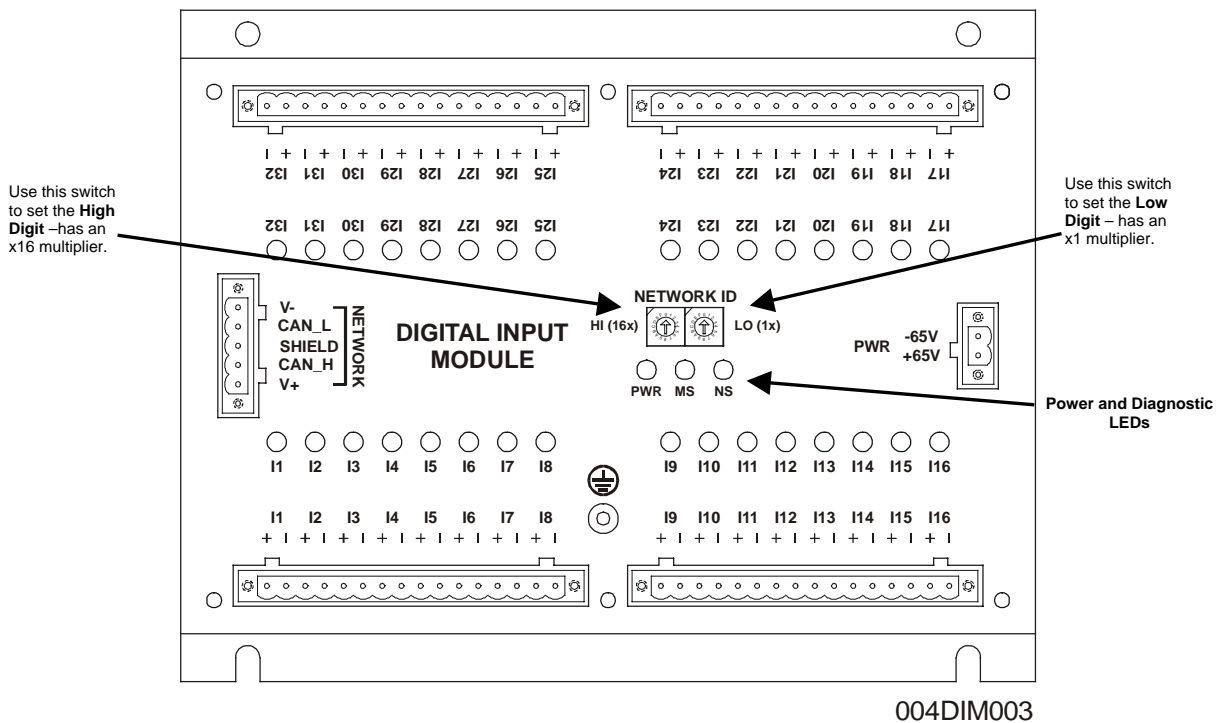
CONTACT EXCITATION



6 SWITCHES

CsCAN Network IDs are set using the hexadecimal number system from 01 to FD. The decimal equivalent is 1-253. **Refer to the following table**, which shows the decimal equivalent of hexadecimal numbers. Set a unique Network ID using a small flat screwdriver.

Note: The CsCAN Baud Rate for SmartStix I/O is fixed at 125KBaud



Decimal (Dec) to Hexadecimal (Hex) Conversion																
Dec	Hex		Dec	Hex		Dec	Hex		Dec	Hex	Dec	Hex		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	248	F	8		
33	2	1	87	5	7	141	8	D	195	C	3	249	F	9		
34	2	2	88	5	8	142	8	E	196	C	4	250	F	A		
35	2	3	89	5	9	143	8	F	197	C	5	251	F	B		
36	2	4	90	5	A	144	9	0	198	C	6	252	F	C		
37	2	5	91	5	B	145	9	1	199	C	7	253	F	D		
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

DIM420 Modules provide diagnostic and status LED indicators.

a. Diagnostic LED Indicators

Diagnostic LED	State	Meaning
MS (Module Status)	Solid Red	Initializing
	Blinking Red	I/O test failed, internal hardware fault
	Blinking Green	Module is in power-up state *
	Solid Green	Module is running normally
NS (Network Status)	Solid Red	Network Ack or Dup ID test failed **
	Blinking Red	Network ID test failed: ID not in the range of 1..253
	Blinking Green	Life Expectancy timeout, outputs are in default state ***
	Solid Green	Network is running normally

* If a blinking green Module Status persists for more than a few seconds the module has not received the expected configuration from the OCS. This may be due to no Network I/O configuration created in Cscape, not having downloaded the Network I/O configuration to the master OCS, an unpowered master OCS, or the wrong Network ID number set on the HE200DIM420 rotary switches.

** **Network Ack** means that no other node is active on the network. **Dup ID test failed** means that another node with the same ID switch setting is already on the network.

*** Life Expectancy timeout means that the module has not received a periodic message from the master OCS in the time specified in either the Life Expectancy directed data message or the Comm timeout of the Network I/O Configuration window in Cscape.

b. Status LED Indicators

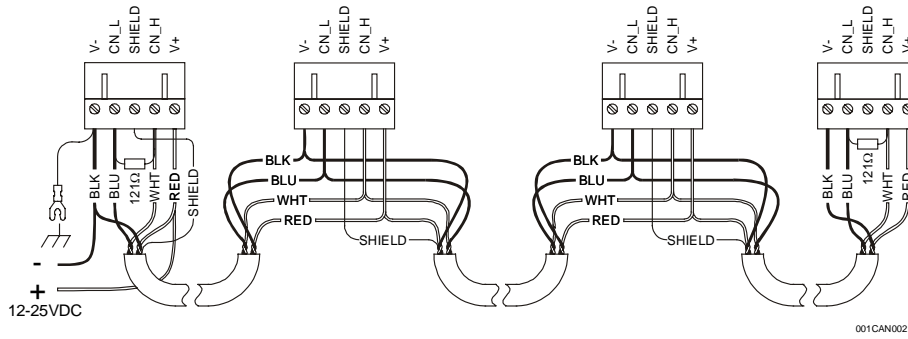
The Power Status LED illuminates Red when power is applied to the module. There are I/O Status LED indicators for each of the Digital I/O points, which illuminate Red when the associated I/O point is ON.

7 NETWORK CABLE

For detailed wiring information, refer to Chapter Two in the hardware manual of the controller you are using. A handy checklist is also provided that covers panel box layout requirements and minimum clearances. See the **Technical Support** section in this document for the web site address to download references and to obtain revised editions.

	Pin	Description
⊖	RED	1 V+
⊖	WHT	2 CAN_H
⊖	SHD	3 Shield
⊖	BLU	4 CAN_L
⊖	BLK	5 V-

Recommended Cable	
Thick: (Max Distance = 500m)	Belden 3082A
Thin: (Max Distance = 100m)	Belden 3084A



CAN Wiring

Note: 12 - 24VDC must be supplied to the network.

8 INSTALLATION / SAFETY

All applicable codes and standards need to be followed in the installation of this product. When found on the product, the following symbols specify:



Warning: Consult user documentation.



Warning: Electrical Shock Hazard.

WARNING: To avoid the risk of electric shock or burns, always connect the safety (or earth) ground before making any other connections.

WARNING: To reduce the risk of fire, electrical shock, or physical injury it is strongly recommended to fuse the voltage measurement inputs. Be sure to locate fuses as close to the source as possible.

WARNING: Replace fuse with the same type and rating to provide protection against risk of fire and shock hazards.

WARNING: In the event of repeated failure, do not replace the fuse again as a repeated failure indicates a defective condition that will not clear by replacing the fuse.

WARNING: Only qualified electrical personnel familiar with the construction and operation of this equipment and the hazards involved should install, adjust, operate, or service this equipment. Read and understand this manual and other applicable manuals in their entirety before proceeding. Failure to observe this precaution could result in severe bodily injury or loss of life.

For detailed installation and a handy checklist that covers panel box layout requirements and minimum clearances, refer to the hardware manual of the controller you are using. (See the **Additional References** section in this document.)

Adhere to the following safety precautions whenever any type of connection is made to the module.

- For I/O wiring (discrete), use the following wire type or equivalent: Belden 9918, 18 AWG or larger.
- Connect the green safety (earth) ground first before making any other connections.
- When connecting to electric circuits or pulse-initiating equipment, open their related breakers. Do not make connections to live power lines.

Safety Precautions continued...

- Make connections to the module first; then connect to the circuit to be monitored.
- Route power wires in a safe manner in accordance with good practice and local codes.
- Wear proper personal protective equipment including safety glasses and insulated gloves when making connections to power circuits.
- Ensure hands, shoes, and floor are dry before making any connection to a power line.
- Make sure the unit is turned OFF before making connection to terminals. Make sure all circuits are de-energized before making connections.
- Before each use, inspect all cables for breaks or cracks in the insulation. Replace immediately if defective.

9 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
OCS NX Series Hardware e.g. HE-NX220, HE-NX221, HE-NX250, HE-NX251	MAN0781
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

10 TECHNICAL SUPPORT

For manual updates and 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

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