



Relay Output Module
HE550DQM602 / HE559DQM602
16 Relay Outputs
2 Amp Maximum

SmartStix

For electronic information, see www.HornerOCS.com. Programming information is contained in the Control Station Hardware Manual (MAN0227).

HE550 denotes a non-removable terminal strip; HE559 denotes a removable terminal strip.

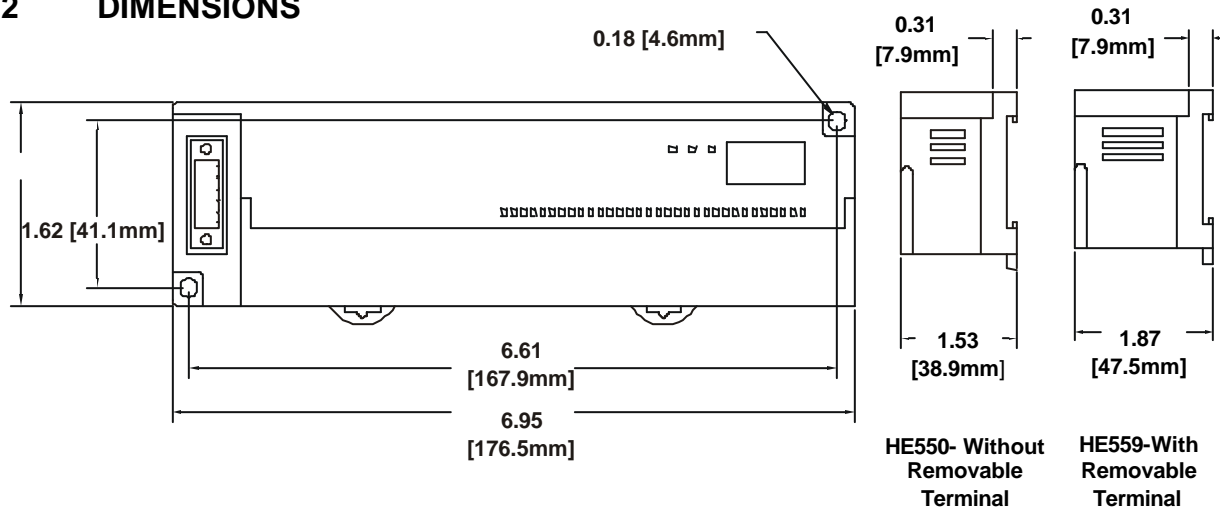
1 SPECIFICATIONS

DQM602 Relay Outputs			
Number of output points	16	Maximum Load Current (resistive)	2.0A per channel 5.0A per common
Commons per Module	2	OFF to ON Response	10ms. Max.
Rated Load Voltage	24VDC, 220VAC	ON to OFF Response	12ms. Max.
Minimum load voltage / current	5VDC / 1mA	Output Type	N.O.
Internal power Consumption (mA)	550mA	Weight	9.91oz. (281 g)
General			
Storage Temperature	-25° to 70° C	Pollution degree	2 or lower
Operating Temperature	0° to 55° C	Internal power Consumption (mA)	550mA
Atmosphere	Free from corrosive gases and excessive dust	Cooling method	Self-cooling
Operating and Storage Humidity	5 to 95% Non-condensing	Weight	9.91oz. (281 g)

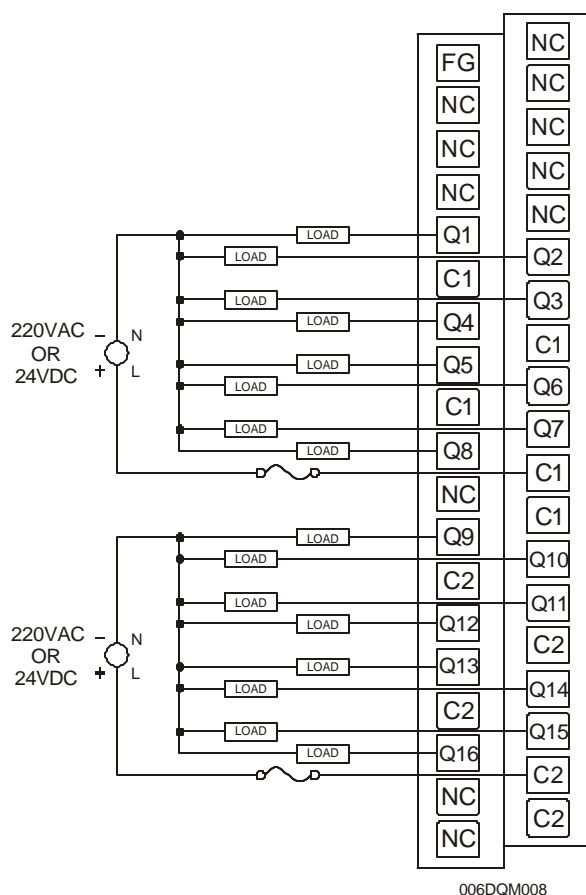
MAN0515-03

Vibration				
Occasional Vibration				
Frequency	Acceleration	Amplitude	Sweep Count	
$10 \leq f < 57$ Hz	-	0.075 mm	10 times in each direction for X,Y,Z	
$57 \leq f \leq 150$ Hz	$9.8 \text{ m/s}^2 \{1G\}$	-		
Continuous Vibration				
Frequency	Acceleration	Amplitude	Sweep Count	
$10 \leq f < 57$ Hz	-	0.035 mm	10 times in each direction for X,Y,Z	
$57 \leq f \leq 150$ Hz	$4.9 \text{ m/s}^2 \{0.5G\}$	-		
Shocks				
Maximum shock acceleration		$147 \text{ m/s}^2 \{15G\}$		
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: $\pm 1,500\text{VDC}$ DC: $\pm 900\text{VDC}$		
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 ($U_e \geq 24\text{V}$)	Digital I/Os ($U_e < 24 \text{ V}$) Analog I/Os Communication I/Os
	Voltage	2 kV	1 kV	0.25 kV

2 DIMENSIONS



3 WIRING



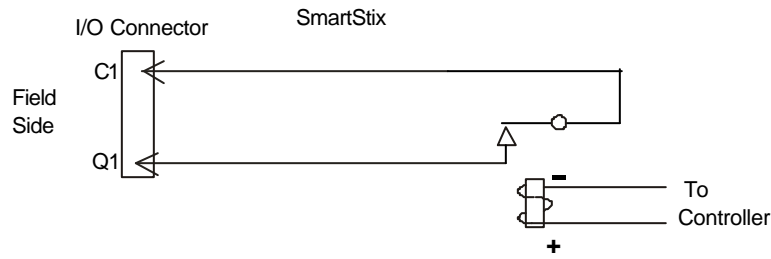
Pin	Signal DQM602
NC*	No Connection (*Do not Connect)
FG	Frame Ground
NC*	No Connection (*Do not Connect)
NC	No Connection
NC	No Connection
NC	No Connection
NC	No Connection
NC	No Connection
NC	No Connection
Q1	Output 1
Q2	Output 2
C1	Common 1
Q3	Output 3
Q4	Output 4
C1	Common 1
Q5	Output 5
Q6	Output 6
C1	Common 1
Q7	Output 7
Q8	Output 8
C1	Common 1
NC	No Connection
C1	Common 1
Q9	Output 9
Q10	Output 10
C2	Common 2
Q11	Output 11
Q12	Output 12
C2	Common 2
Q13	Output 13
Q14	Output 14
C2	Common 3
Q15	Output 15
Q16	Output 16
C2	Common 2
NC	No Connection
C2	Common 2
NC	No Connection

Warning: To protect the module and associated wiring from load faults, use external fuse (**5 A**) as shown.

Warning: Connecting high voltage to any I/O pin may cause high voltage to appear at other I/O pins.

Warning: Wiring the line side of the AC source to loads connected to outputs 0 through 15 and the neutral side of the AC source to the output common(s) would create a Negative Logic condition, which may be considered an unsafe practice.

4 INTERNAL WIRING



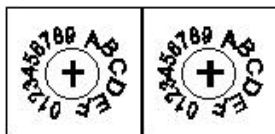
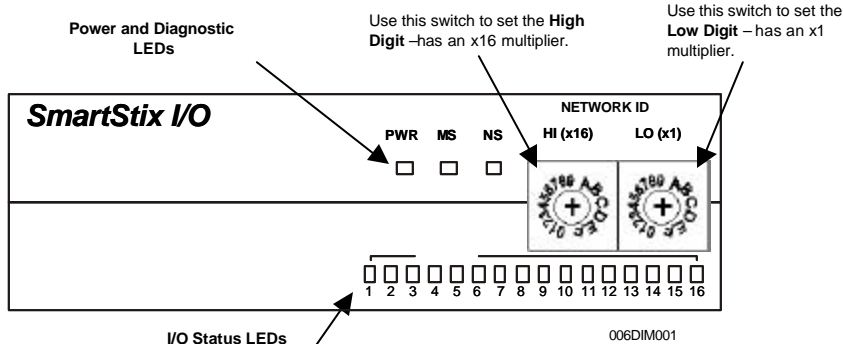
Specification for transient voltage suppressors (transorbs) used on output circuitry is 400VDC, bi-directional 400 watts.

Electro-mechanical relays comply with IEC1131-2.

5 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 by inserting a small Phillips screwdriver into the two *identical* switches.

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



Close-up of Switches

Decimal (Dec) to Hexadecimal (Hex) Conversion														
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

SmartStix I/O Modules provide diagnostic and status LED indicators.

a. Diagnostic LED Indicators

Diagnostic LED	State	Meaning
MS (indicates fault status of the Module)	Solid Red	RAM or ROM test failed
	Blinking Red	I/O test failed
	Blinking Green	Module is in power-up state
	Solid Green	Module is running normally
NS (indicates fault status of the Network)	Solid Red	Network Ack or Dup ID test failed
	Blinking Red	Network ID test failed
	Blinking Green	Module is in Life Expectancy default state
	Solid Green	Network is running normally

b. Status LED Indicators

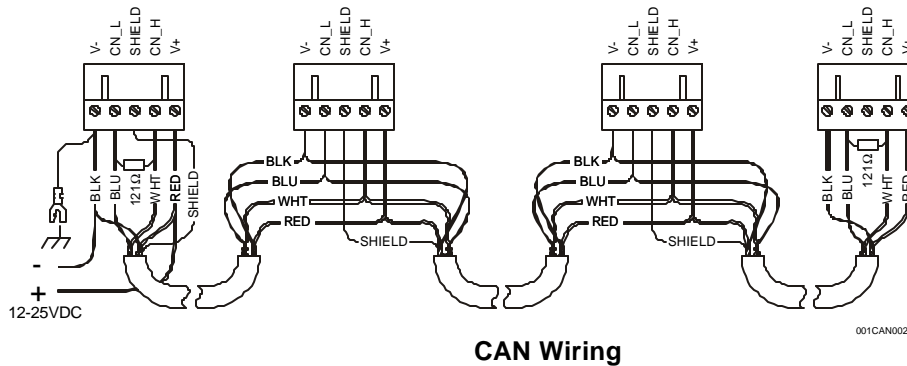
The Power Status LED illuminates Red when power is applied to the module. There are I/O Status LED indicators for each of the Digital I/O points, which illuminate Red when an I/O point is ON.

7 NETWORK CABLE

For detailed wiring information, refer to Chapter Two in the **Control Station Hardware Manual** (MAN0227). A handy checklist is provided that covers panel box layout requirements and minimum clearances.

Pin	Description
1	V+
2	CAN_H
3	Shield
4	CAN_L
5	V-

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



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

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.
- c. For detailed installation information, refer to Chapter Two in the Control Station Hardware Manual (MAN0227). A handy checklist is provided that covers panel box layout requirements and minimum clearances.



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

NOTE