



**32 Digital Outputs**  
**HE450DQM701 / HE459DQM701**  
**24VDC Out, Negative Logic**  
**HE459DQM706**  
**24VDC Out , Positive Logic**

**SmartStix**

For electronic information including the GSD File, see [www.SmartStix.com](http://www.SmartStix.com). This product has a Programming Reference (SUP0552).

HE450 denotes a non-removable terminal strip; HE459 denotes a removable terminal strip.

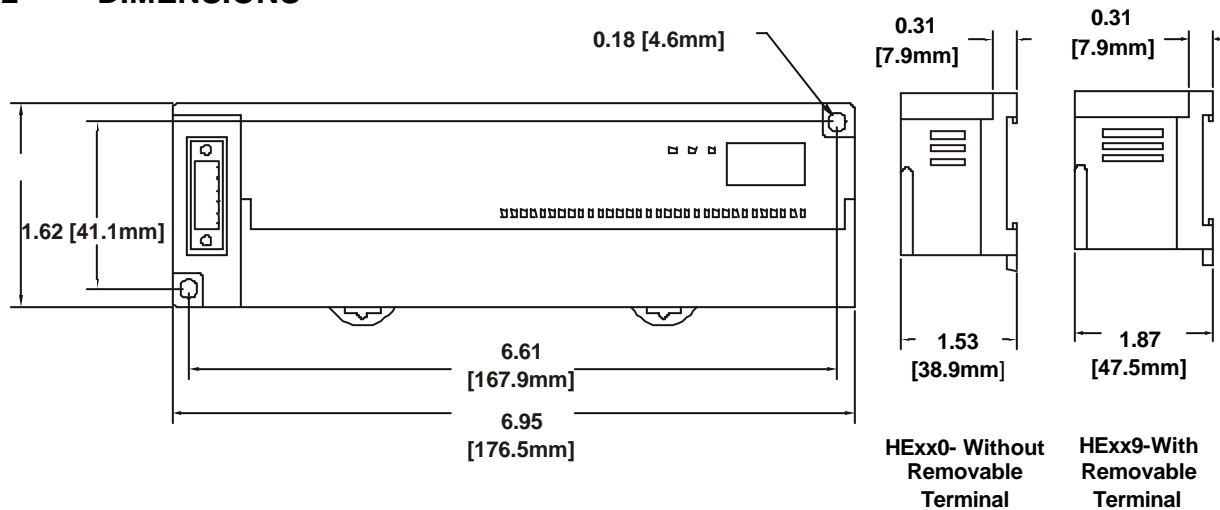
## 1 SPECIFICATIONS

| DQM701 / 706 Outputs                   |         |  |                                 |         |  |
|--|---------|--|---------------------------------|---------|--|
| Number of output points                |         | 32   | External Power Supply           | Voltage | 24VDC $\pm$ 10%(ripple voltage: 4Vp-p or less) |
| Commons per Module                     |         | 2  |                                 | Current | 30mA (TYP, All points ON)                      |
| Operating Voltage                      |         | 24VDC  | OFF to ON Response              |         | 0-3ms. or less                                 |
| Rated Load Voltage                     |         | 24VDC  | ON to OFF Response              |         | 0-3ms. or less                                 |
| Maximum Load Current per channel       |         | 0.1A Max. per output; 2A per common          | Output Type                     | DQM 701 | Sinking  |
|  |         |  |                                 | DQM 706 | Sourcing                                       |
| Max. Inrush Current per channel        | DQM 701 | 0.4A, 10ms.                                  | Operating Indicator             |         | LED turns on during ON state of output         |
|  | DQM 706 | 1A, 10ms                                     | External connections            |         | Terminal block connector (M3 x 6 screws)       |
| OFF Leakage Current                    |         | 0.1mA or less                                | Common Method                   |         | 16 points / COM                                |
| Maximum Voltage Drop during ON circuit |         | 1.5VDC(0.5A)                                 | Isolation methods               |         | Photo Coupler                                  |
| Internal power Consumption (mA)        |         | 380mA  | Weight                          | DQM701  | 8.9oz. (255g)                                  |
|  |         |  |                                 | DQM706  | 10.0oz. (285g)                                 |
| General                                |         |  |                                 |         |  |
| Storage Temperature                    |         | -25° to 70° C                                | Pollution degree                |         | 2 or lower                                     |
| Operating Temperature                  |         | 0° to 55° C                                  | Internal power Consumption (mA) |         | 380mA  |
| Atmosphere                             |         | Free from corrosive gases and excessive dust | Cooling method                  |         | Self-cooling                                   |
| Operating and Storage Humidity         |         | 5 to 95% Non-condensing                      | Weight                          |         | 8.4 (239G)                                     |

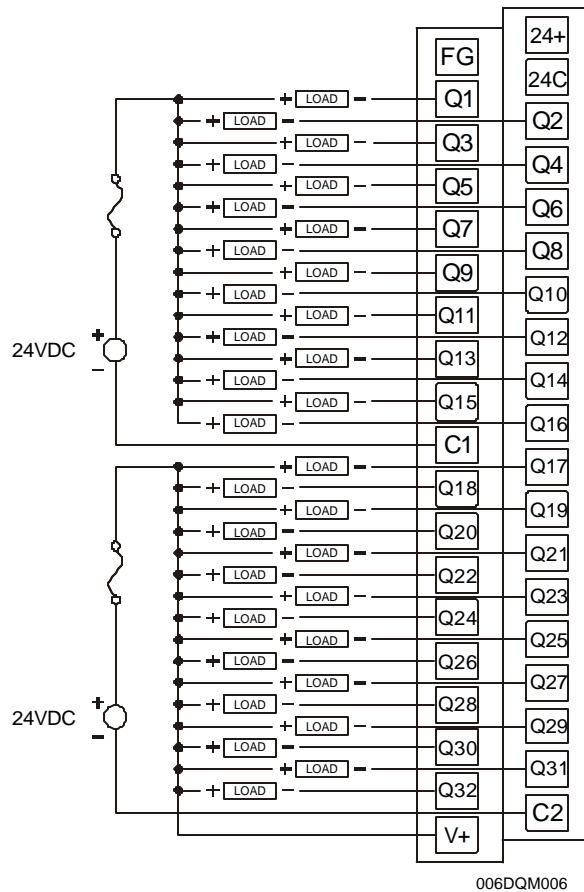
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| Vibration                      |                             |  |                                      |   |
|--------------------------------|-----------------------------|--|--------------------------------------|---|
| Occasional Vibration           |                             |  |                                      |   |
| 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 <sup>2</sup> {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 <sup>2</sup> {0.5G} | -  |                                      |   |
| Shocks                         |                             |  |                                      |   |
| Maximum shock acceleration     |                             | 147 m/s <sup>2</sup> {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<br>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)<br>Analog I/Os<br>Communication I/Os |
|                                | Voltage                     | 2 kV   | 1 kV                                 | 0.25 kV   |

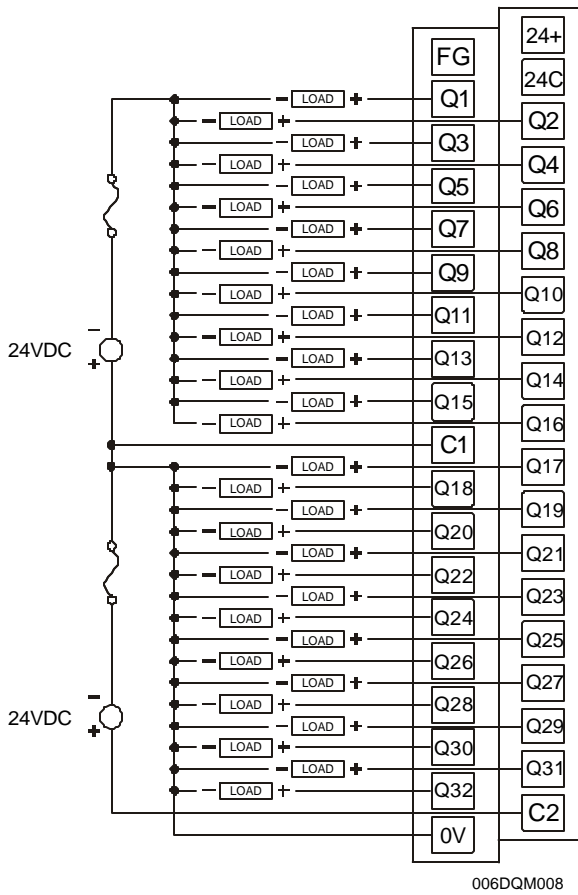
## 2 DIMENSIONS



### 3 WIRING



| Pin | Signal<br>DQM701    |
|-----|---------------------|
| 24+ | 24V Power Supply    |
| FG  | Frame Ground        |
| 24C | Power Supply Return |
| 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 1   |
| Q17 | Output 17           |
| Q18 | Output 18           |
| Q19 | Output 19           |
| Q20 | Output 20           |
| Q21 | Output 21           |
| Q22 | Output 22           |
| Q23 | Output 23           |
| Q24 | Output 24           |
| Q25 | Output 25           |
| Q26 | Output 26           |
| Q27 | Output 27           |
| Q28 | Output 28           |
| Q29 | Output 29           |
| Q30 | Output 30           |
| Q31 | Output 31           |
| Q32 | Output 32           |
| C2  | Isolated Common 2   |
| V+  | Isolator Power      |

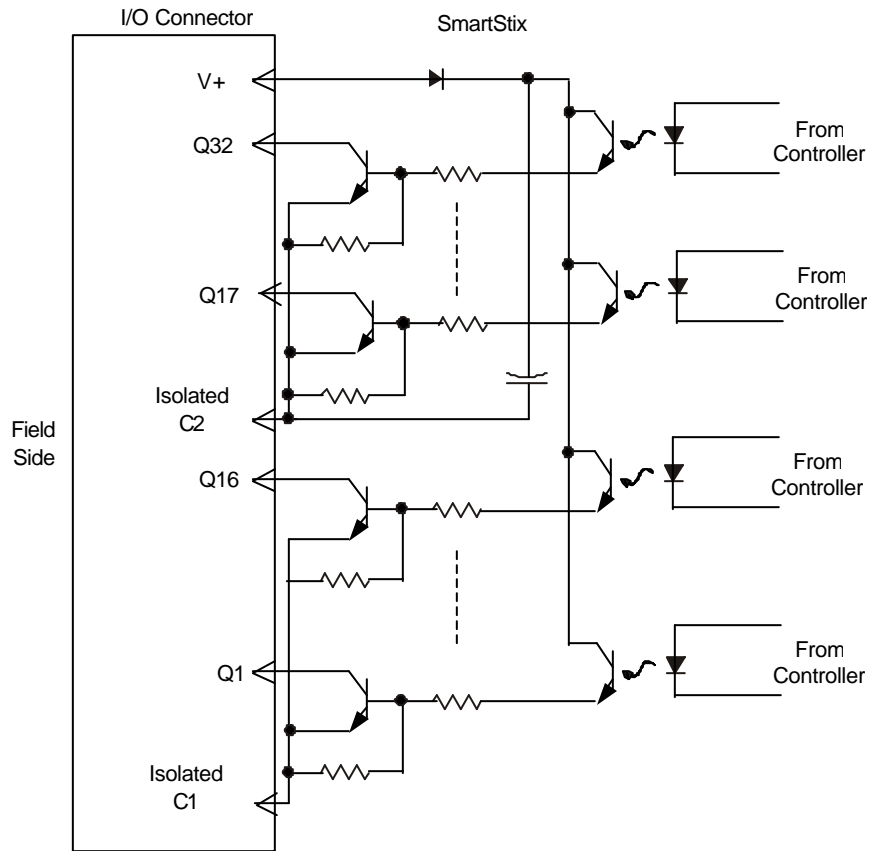


**Note:** For proper operation, C1 and C2 must be tied together.

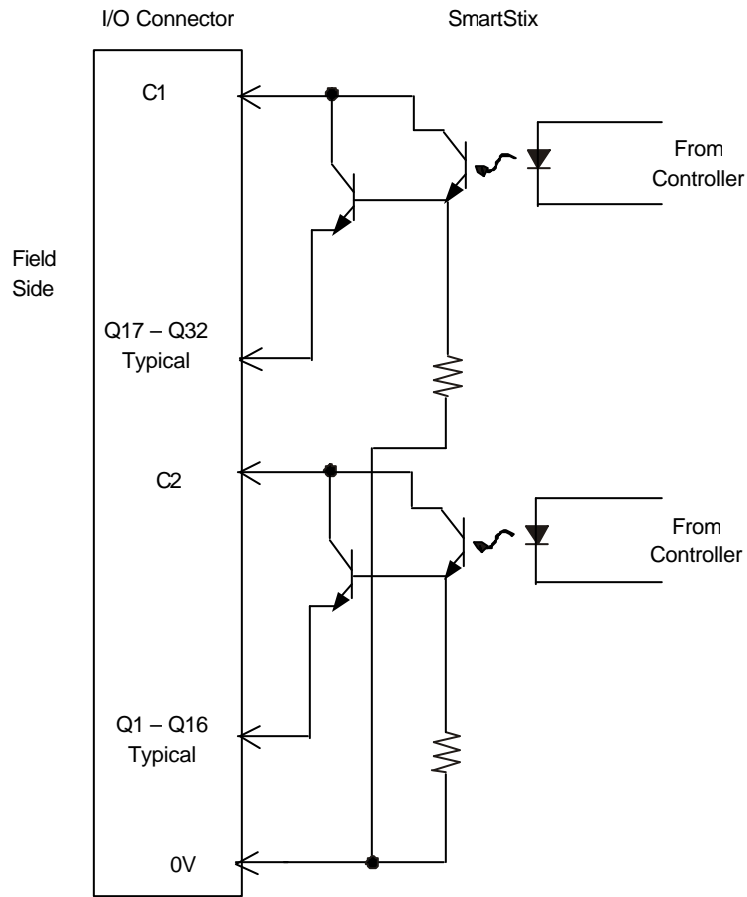
| Pin  | Signal<br>DQM706                |
|------|---------------------------------|
| 24   | 24V +                           |
| FG   | Frame Ground                    |
| 24C* | 24V Common<br>(*Do not Connect) |
| Q1   | Output 1                        |
| Q2   | Output 2                        |
| 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 1               |
| Q17  | Output 17                       |
| Q18  | Output 18                       |
| Q19  | Output 19                       |
| Q20  | Output 20                       |
| Q21  | Output 21                       |
| Q22  | Output 22                       |
| Q23  | Output 23                       |
| Q24  | Output 24                       |
| Q25  | Output 25                       |
| Q26  | Output 26                       |
| Q27  | Output 27                       |
| Q28  | Output 28                       |
| Q29  | Output 29                       |
| Q30  | Output 30                       |
| Q31  | Output 31                       |
| Q32  | Output 32                       |
| C2   | Isolated Common 2               |
| 0V   | Isolated Power<br>Negative      |

## 4 INTERNAL WIRING

### a. DQM701



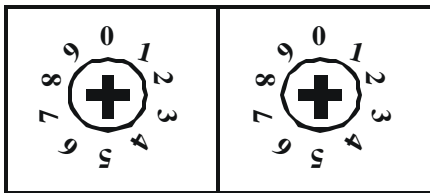
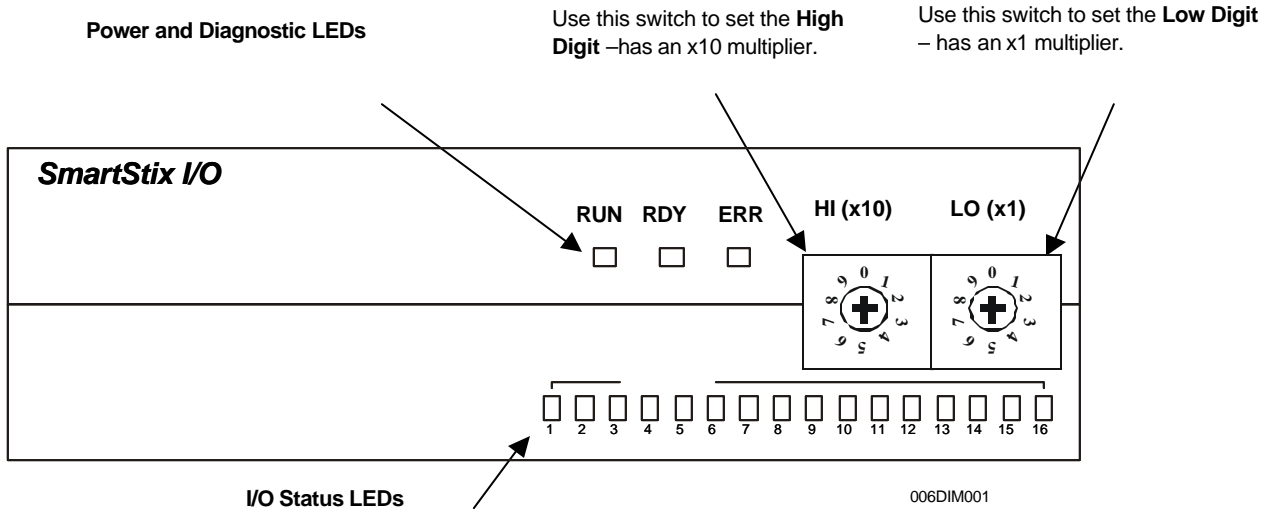
b. DQM706



## 5 SWITCHES

### Setting Address Switches:

Profibus addresses are set using the decimal number system from 1 to 99. Set a unique Network ID by inserting a small Phillips screwdriver into the two *identical* switches as shown in the example.



Close-up of Switches

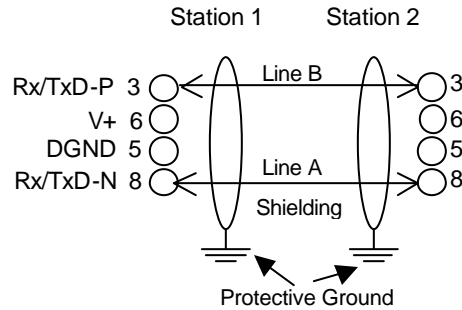
## 6 LEDs

| Communication LED | MEANING   |
|-------------------|---|
| RUN               | Displays the status of the power                              |
| RDY               | Displays the communication status of the communication module |
| ERR               | Displays abnormal condition of communication module           |

## 7 NETWORK CABLE

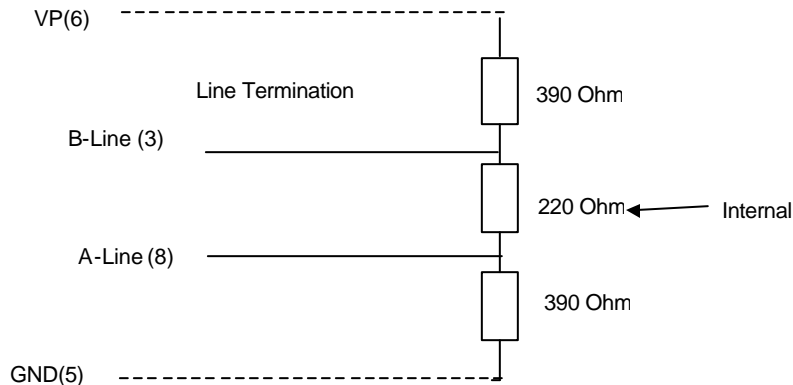
For detailed network information, refer to [www.profibus.org](http://www.profibus.org).

- a. A SmartStix module uses a 9-pin D-sub plug connector for its DP port. The pin assignment of the plug connector and the wiring are shown below.



- b. It is necessary to terminate both ends of the network. Both terminations must have power to them to insure proper operation of the network. The following diagram illustrates the correct connection for the termination resistors. The diagram is for illustrative purposes only.

**Note: Cabling and connectors need to be PTO-approved to achieve the desired performance results.**



- c. The shield braiding (and if present, the shield foil) must be connected to protective ground on both sides and must have good conductivity via shield clamps that cover as large an area as possible. In addition, it is recommended that the data lines be kept separate from all high-voltage cables.

## 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 [www.profibus.org](http://www.profibus.org).



**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](http://www.heapg.com)

**Europe:**

(+) 353-21-4321-266

[www.horner-apg.com](http://www.horner-apg.com)

NOTES