



Size:  
3.5 x 2.5 x 1.06 inches  
89.0 x 63.5 x 27.0 mm

## FEATURES

- RoHS Compliant
- Isolation Class II
- 40 Watts Output Power
- Low Ripple and Noise
- Single, Dual, and Triple Outputs
- Fully Encapsulated Plastic Case
- UL/cUL, CE, and CB Approval
- PCB Mountable Switching Power Supply
- -25°C to +70°C Operating Temperature Range
- Optional -40°C~+71°C Operating Temperature Range
- Universal Input Voltage Range: 90-264VAC (100-375VDC)
- Short Circuit, Over Current, Over Voltage, and Over Temperature Protection
- Screw Terminal Mechanical Options Available

## DESCRIPTION

The PSMSC series of medical AC/DC switching power supplies provides 40 watts of output power in a 3.5" x 2.5" x 1.06" encapsulated PCB mountable package. This series consists of single, dual, and triple output models with a universal input range of 90-264VAC (100-375VDC). Some features include low ripple and noise, -25°C to +70°C operating temperature range, and short circuit, over current, over voltage, and over temperature protection. The PSMSC series also has two types of screw terminal mechanical options and an extended operating temperature option available. All models are RoHS compliant and have UL/cUL, CE, and CB safety approvals.

## MODEL SELECTION TABLE

### SINGLE OUTPUT MODELS

| Model Number | Input Voltage               | Output Voltage | Output Current          |          | Voltage Accuracy | Line Regulation | Load Regulation (1% - 100%) | Output Power | Efficiency | Maximum Capacitive Load |
|--------------|-----------------------------|----------------|-------------------------|----------|------------------|-----------------|-----------------------------|--------------|------------|-------------------------|
|              |                             |                | Min Load <sup>(1)</sup> | Max Load |                  |                 |                             |              |            |                         |
| PSMSC-3.3S   | 90~264 VAC<br>(100~375 VDC) | 3.3 VDC        | 1%                      | 8000mA   | ±2%              | 0.5%            | 1%                          | 26.4W        | 76%        | 70,000µF                |
| PSMSC-5S     |                             | 5 VDC          | 1%                      | 8000mA   | ±2%              | 0.5%            | 1%                          | 40W          | 79%        | 33,000µF                |
| PSMSC-9S     |                             | 9 VDC          | 1%                      | 4444mA   | ±2%              | 0.5%            | 1%                          | 40W          | 82%        | 10,000µF                |
| PSMSC-12S    |                             | 12 VDC         | 1%                      | 3333mA   | ±2%              | 0.5%            | 1%                          | 40W          | 83%        | 4000µF                  |
| PSMSC-15S    |                             | 15 VDC         | 1%                      | 2666mA   | ±2%              | 0.5%            | 1%                          | 40W          | 83%        | 3000µF                  |
| PSMSC-24S    |                             | 24 VDC         | 1%                      | 1667mA   | ±2%              | 0.5%            | 1%                          | 40W          | 83%        | 1200µF                  |

### DUAL OUTPUT MODELS

| Model Number | Output Voltage  |         | Output Current          |          | Voltage Accuracy | Line Regulation | Load Regulation (10% - 100%) | Cross Regulation | Output Power | Efficiency | Maximum Capacitive Load |
|--------------|-----------------|---------|-------------------------|----------|------------------|-----------------|------------------------------|------------------|--------------|------------|-------------------------|
|              |                 |         | Min Load <sup>(1)</sup> | Max Load |                  |                 |                              |                  |              |            |                         |
| PSMSC-5D     | Vo <sub>1</sub> | +5 VDC  | 10%                     | 4000mA   | ±2%              | 0.5%            | 1% (sym. load)               | 5%               | 40W          | 80%        | 6000µF                  |
|              | Vo <sub>2</sub> | -5 VDC  |                         | 4000mA   | ±2%              | 0.5%            | 1% (sym. load)               | 5%               |              |            | 6000µF                  |
| PSMSC-12D    | Vo <sub>1</sub> | +12 VDC | 10%                     | 1666mA   | ±2%              | 0.5%            | 1% (sym. load)               | 5%               | 40W          | 83%        | 1000µF                  |
|              | Vo <sub>2</sub> | -12 VDC |                         | 1666mA   | ±2%              | 0.5%            | 1% (sym. load)               | 5%               |              |            | 1000µF                  |
| PSMSC-15D    | Vo <sub>1</sub> | +15 VDC | 10%                     | 1333mA   | ±2%              | 0.5%            | 1% (sym. load)               | 5%               | 40W          | 83%        | 2000µF                  |
|              | Vo <sub>2</sub> | -15 VDC |                         | 1333mA   | ±2%              | 0.5%            | 1% (sym. load)               | 5%               |              |            | 2000µF                  |
| PSMSC-5S12S  | Vo <sub>1</sub> | 5 VDC   | 25%                     | 5000mA   | ±3%              | 0.5%            | 2% (sym. load)               | 1%               | 40W          | 80%        | 15,000µF                |
|              | Vo <sub>2</sub> | 12 VDC  |                         | 1250mA   | ±5%              | 5%              | 6% (sym. load)               | 7%               |              |            | 750µF                   |
| PSMSC-5S24S  | Vo <sub>1</sub> | 5 VDC   | 25%                     | 5000mA   | ±3%              | 0.5%            | 2% (sym. load)               | 1%               | 40W          | 80%        | 15,000µF                |
|              | Vo <sub>2</sub> | 24 VDC  |                         | 625mA    | ±5%              | 5%              | 6% (sym. load)               | 7%               |              |            | 200µF                   |

### TRIPLE OUTPUT MODELS

| Model Number | Output Voltage  | Output Current          |          | Voltage Accuracy | Line Regulation | Load Regulation (25% - 100%) | Cross Regulation | Output Power | Efficiency | Maximum Capacitive Load |
|--------------|-----------------|-------------------------|----------|------------------|-----------------|------------------------------|------------------|--------------|------------|-------------------------|
|              |                 | Min Load <sup>(1)</sup> | Max Load |                  |                 |                              |                  |              |            |                         |
| PSMSC-5S12D  | Vo <sub>1</sub> | 5 VDC                   | 5000mA   | ±3%              | 0.5%            | 3% (sym. load)               | 3%               | 40W          | 79%        | 18,000µF                |
|              | Vo <sub>2</sub> | +12 VDC                 | 600mA    | ±5%              | 5%              | 7% (sym. load)               | 7%               |              |            | 150µF                   |
|              | Vo <sub>3</sub> | -12 VDC                 | 600mA    | ±5%              | 5%              | 7% (sym. load)               | 7%               |              |            | 150µF                   |
| PSMSC-5S15D  | Vo <sub>1</sub> | 5 VDC                   | 5000mA   | ±3%              | 0.5%            | 3% (sym. load)               | 3%               | 40W          | 79%        | 18,000µF                |
|              | Vo <sub>2</sub> | +15 VDC                 | 500mA    | ±5%              | 5%              | 7% (sym. load)               | 7%               |              |            | 400µF                   |
|              | Vo <sub>3</sub> | -15 VDC                 | 500mA    | ±5%              | 5%              | 7% (sym. load)               | 7%               |              |            | 400µF                   |

## NOTES

1. All models require a minimum loading on the output to maintain specified regulations. Operation under no-load conditions will not damage these devices; however, they may not meet all listed specifications.
2. For -40°C to +71°C extended operating temperature range please add the suffix -E1 to the model number (Ex: PSMSC-12S-E1).
3. Screw terminal mechanical options available (see page 4). Please call factory for ordering details.

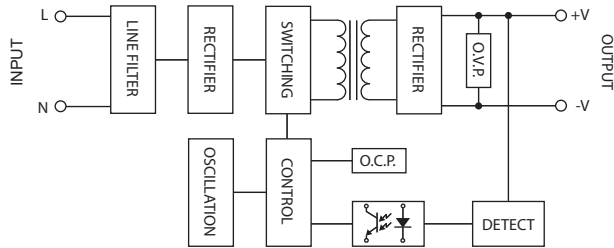
**SPECIFICATIONS: PSMSC SERIES**

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.  
We reserve the right to change specifications based on technological advances.

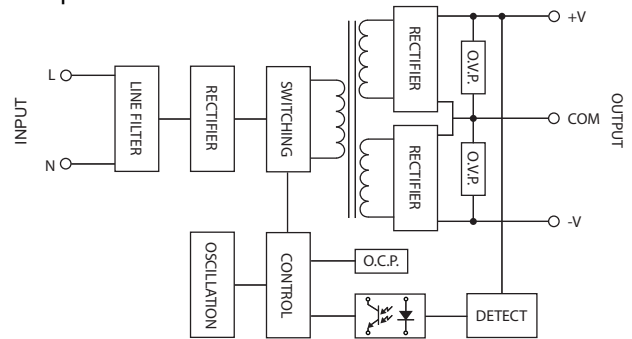
| SPECIFICATION                       |                     | TEST CONDITIONS                                                                                             | Min                                                   | Typ   | Max     | Unit     |
|-------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------|---------|----------|
| INPUT SPECIFICATIONS                |                     |                                                                                                             |                                                       |       |         |          |
| Input Voltage                       |                     | AC input voltage range                                                                                      | 90                                                    |       | 264     | VAC      |
|                                     |                     | DC input voltage range                                                                                      | 100                                                   |       | 375     | VDC      |
| Input Frequency                     |                     |                                                                                                             | 47                                                    |       | 440     | Hz       |
| Input Current                       |                     | At 115VAC and full load                                                                                     |                                                       |       | 860     | mA       |
|                                     |                     | At 230VAC and full load                                                                                     |                                                       |       | 460     |          |
| Inrush Current (<2ms)               |                     | Standard Models                                                                                             | At 115VAC                                             |       | 10      | A        |
|                                     |                     |                                                                                                             | At 230VAC                                             |       | 20      |          |
|                                     |                     | -E1 Suffix Models                                                                                           | At 115VAC                                             |       | 23      | A        |
|                                     | At 230VAC           |                                                                                                             | 46                                                    |       |         |          |
| External Fuse (recommended)         |                     |                                                                                                             | 3.15A slow blow type                                  |       |         |          |
| OUTPUT SPECIFICATIONS               |                     |                                                                                                             |                                                       |       |         |          |
| Output Voltage                      |                     |                                                                                                             | See Table                                             |       |         |          |
| Voltage Accuracy                    |                     |                                                                                                             | See Table                                             |       |         |          |
| Line Regulation                     |                     | Low Line to High Line                                                                                       | See Table                                             |       |         |          |
| Load Regulation                     |                     |                                                                                                             | See Table                                             |       |         |          |
| Cross Regulation                    |                     |                                                                                                             | See Table                                             |       |         |          |
| Output Power                        |                     |                                                                                                             |                                                       |       | 40      | W        |
| Output Current                      |                     |                                                                                                             | See Table                                             |       |         |          |
| Minimum Load                        |                     |                                                                                                             | See Table                                             |       |         |          |
| Ripple & Noise                      | 3.3VDC Output Model | Measured at 20MHz BW with 0.1µF and 47µF capacitors in parallel                                             |                                                       | 50    |         | mV of Vo |
|                                     | Others              |                                                                                                             |                                                       | 1     |         | % of Vo  |
| Max Capacitive Load                 |                     |                                                                                                             | See Table                                             |       |         |          |
| Hold-Up Time                        |                     |                                                                                                             | 18                                                    |       |         | ms       |
| Temperature Coefficient             |                     |                                                                                                             |                                                       | ±0.01 |         | %/°C     |
| PROTECTION                          |                     |                                                                                                             |                                                       |       |         |          |
| Short Circuit Protection            |                     |                                                                                                             | Hiccup mode, indefinite (auto-recovery)               |       |         |          |
| Over Voltage Protection             |                     |                                                                                                             | Zener diode clamp                                     |       |         |          |
| Over Current Protection             |                     |                                                                                                             | Above 105% rated output power                         |       |         |          |
| Over Temperature Protection         |                     |                                                                                                             |                                                       | 100   |         | °C       |
| GENERAL SPECIFICATIONS              |                     |                                                                                                             |                                                       |       |         |          |
| Efficiency                          |                     |                                                                                                             | See Table                                             |       |         |          |
| Switching Frequency                 |                     |                                                                                                             |                                                       | 132   |         | KHz      |
| Isolation Voltage (Input to Output) |                     |                                                                                                             | 4000                                                  |       |         | VAC      |
| Leakage Current                     |                     | At 115VAC and full load                                                                                     |                                                       |       | 0.1     | mA       |
|                                     |                     | At 230VAC and full load                                                                                     |                                                       |       | 0.2     |          |
| ENVIRONMENTAL SPECIFICATIONS        |                     |                                                                                                             |                                                       |       |         |          |
| Operating Temperature               |                     | Standard Models                                                                                             | -25                                                   |       | +70     | °C       |
|                                     |                     | -E1 Suffix Models                                                                                           | -40                                                   |       | +71     |          |
| Case Temperature                    |                     |                                                                                                             |                                                       |       | +95     | °C       |
| Storage Temperature                 |                     |                                                                                                             | -40                                                   |       | +85     | °C       |
| Humidity                            |                     |                                                                                                             |                                                       |       | 95      | % RH     |
| Cooling                             |                     |                                                                                                             | Free air convection                                   |       |         |          |
| MTBF                                |                     | At 25°C                                                                                                     | 200,000                                               |       | 400,000 | hours    |
| PHYSICAL SPECIFICATIONS             |                     |                                                                                                             |                                                       |       |         |          |
| Weight                              |                     |                                                                                                             | 9.88oz (280g)                                         |       |         |          |
| Case Material                       |                     |                                                                                                             | Plastic resin + fiberglass (Flammability to UL 94V-0) |       |         |          |
| Dimensions (L x W x H)              |                     |                                                                                                             | 3.5 x 2.5 x 1.06 inches (89.0 x 63.5 x 27.0 mm)       |       |         |          |
| SAFETY & EMC                        |                     |                                                                                                             |                                                       |       |         |          |
| Class II                            |                     |                                                                                                             | To IEC / EN 60536                                     |       |         |          |
| EMI                                 |                     |                                                                                                             | EN55011 Class B                                       |       |         |          |
| EMC Standards                       |                     |                                                                                                             | EN60601-1-2                                           |       |         |          |
| ESD Susceptibility                  |                     |                                                                                                             | EN60601-1-2                                           |       |         |          |
| Radiated Susceptibility             |                     |                                                                                                             | EN60601-1-2                                           |       |         |          |
| EFT / Burst                         |                     |                                                                                                             | EN60601-1-2                                           |       |         |          |
| Surge                               |                     |                                                                                                             | EN60601-1-2                                           |       |         |          |
| Conducted Susceptibility            |                     |                                                                                                             | EN60601-1-2                                           |       |         |          |
| Safety Approvals                    |                     | UL/cUL, CE, CB, ANSI/AAMI ES 60601-1: 2005, 1st Edition and CAN/CSA-C22.2 No. 60601-1:08, 2nd Edition, MOPP |                                                       |       |         |          |

## BLOCK DIAGRAMS

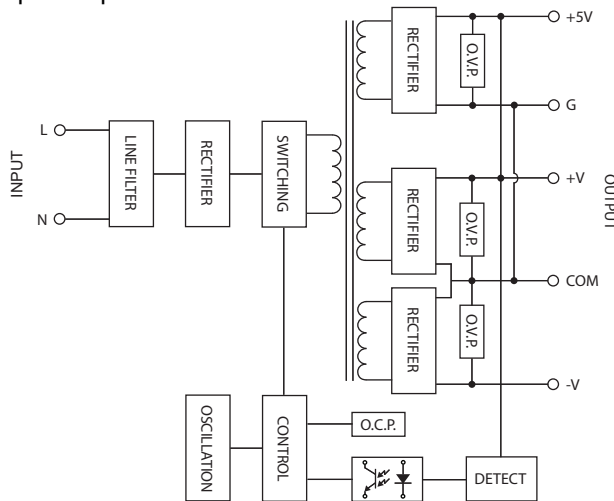
Single Output



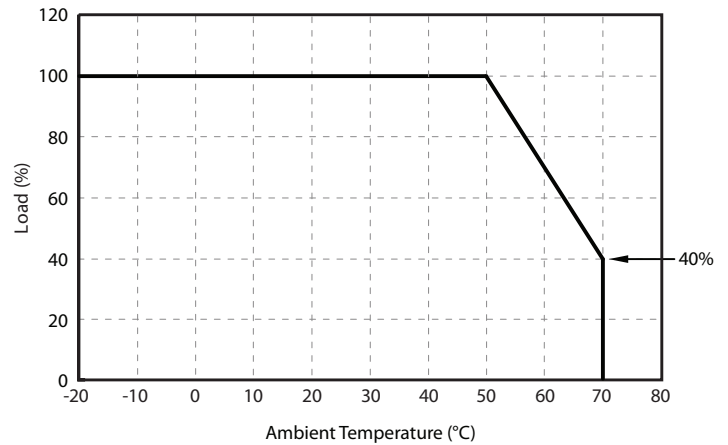
Dual Output



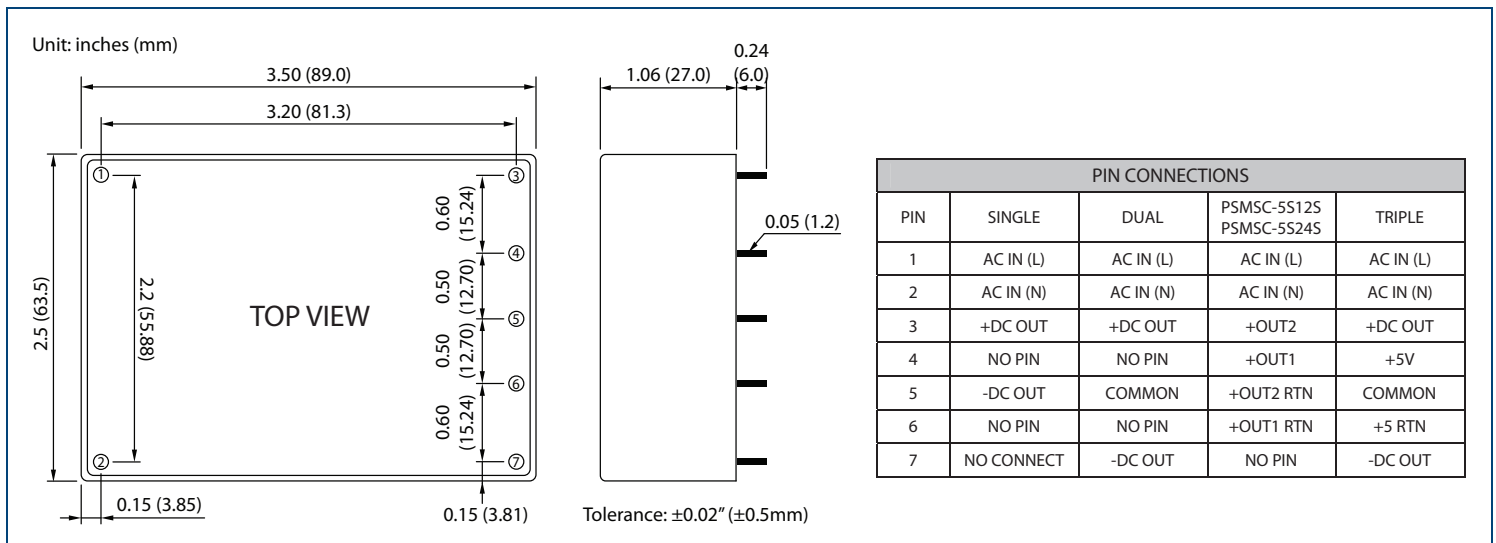
Triple Output



## DERATING CURVE



## MECHANICAL DRAWING



## SCREW TERMINAL OPTIONS

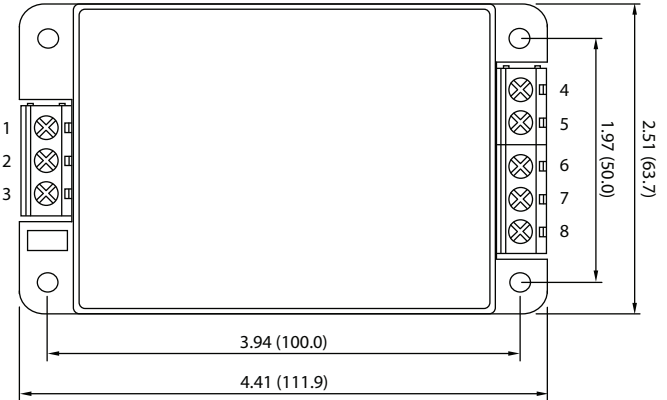
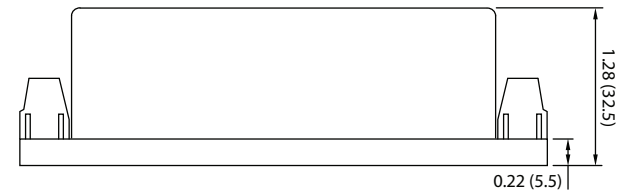
### PSMSC-A2



PIN CONNECTIONS

| PIN | SINGLE     | DUAL       | PSMSC-5S12S<br>PSMSC-5S24S | TRIPLE     |
|-----|------------|------------|----------------------------|------------|
| 1   | NO CONNECT | NO CONNECT | NO CONNECT                 | NO CONNECT |
| 2   | AC IN (L)  | AC IN (L)  | AC IN (L)                  | AC IN (L)  |
| 3   | AC IN (N)  | AC IN (N)  | AC IN (N)                  | AC IN (N)  |
| 4   | +DC OUT    | +DC OUT    | +OUT2                      | +DC OUT    |
| 5   | NO CONNECT | NO CONNECT | +OUT1                      | +5V OUT    |
| 6   | -DC OUT    | COMMON     | +OUT2 RTN                  | COMMON     |
| 7   | NO CONNECT | NO CONNECT | +OUT1 RTN                  | +5V RTN    |
| 8   | NO CONNECT | -DC OUT    | NO CONNECT                 | -DC OUT    |

Unit: inches (mm)



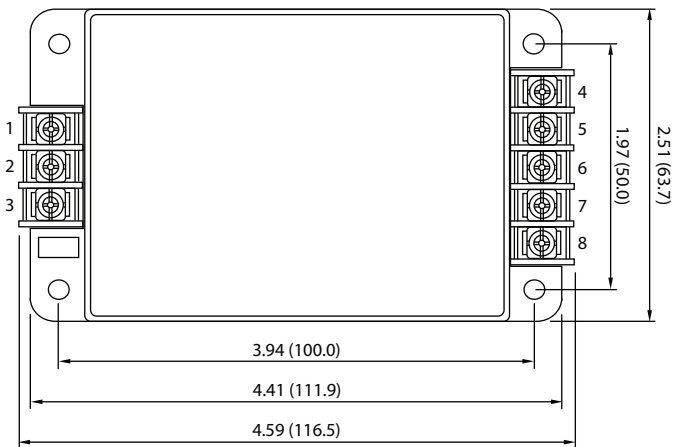
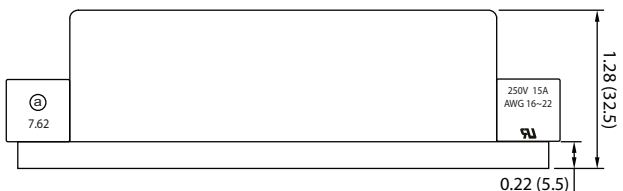
### PSMSC-A5



PIN CONNECTIONS

| PIN | SINGLE     | DUAL       | PSMSC-5S12S<br>PSMSC-5S24S | TRIPLE     |
|-----|------------|------------|----------------------------|------------|
| 1   | NO CONNECT | NO CONNECT | NO CONNECT                 | NO CONNECT |
| 2   | AC IN (L)  | AC IN (L)  | AC IN (L)                  | AC IN (L)  |
| 3   | AC IN (N)  | AC IN (N)  | AC IN (N)                  | AC IN (N)  |
| 4   | +DC OUT    | +DC OUT    | +OUT2                      | +DC OUT    |
| 5   | NO CONNECT | NO CONNECT | +OUT1                      | +5V OUT    |
| 6   | -DC OUT    | COMMON     | +OUT2 RTN                  | COMMON     |
| 7   | NO CONNECT | NO CONNECT | +OUT1 RTN                  | +5V RTN    |
| 8   | NO CONNECT | -DC OUT    | NO CONNECT                 | -DC OUT    |

Unit: inches (mm)



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## COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001-2008 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

Contact **Wall Industries** for further information:

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