

Plastic Case (Standard)



Size: 0.86 x 0.44 x 0.36 inches

Metal Case (Suffix "M")



Size: 0.86 x 0.44 x 0.36 inches

**FEATURES**

- 0.86" x 0.44" x 0.36" SIP Package
- High Efficiency up to 87%
- Remote ON/OFF Control
- 4:1 Ultra Wide Input Voltage Ranges
- 6 Watts Maximum Output Power
- Fixed Switching Frequency
- 1600VDC I/O Isolation (Optional 3000VDC Isolation)
- Continuous Short Circuit Protection
- Plastic (Standard) & Metal (Suffix "M") Case Types Available
- CE Mark Meets 2006/95/EC, 93/68/EEC, & 2004/108/EC
- UL60950-1, EN60950-1, & IEC60950-1 Safety Approvals
- Compliant to RoHS EU Directive 2011/65/EU

**DESCRIPTION**

The DCPDLW06 series of DC/DC power converters provides 6 watts of output power in a 0.86 x 0.44 x 0.36 inch SIP package. This series has single and dual output models with 4:1 ultra wide input voltage ranges of 9-36VDC and 18-75VDC. Some features include high efficiency up to 87%, 1600VDC (standard) or 3000VDC (suffix "H") I/O isolation, remote ON/OFF control, and continuous short circuit protection. Both plastic (standard) and metal (suffix "M") case types are available for this series. All models are RoHS compliant and have UL60950-1, EN60950-1, and IEC60950-1 safety approvals. This series is best suited for use in industry control systems, wireless networks, measurement equipment, telecom/datacom, and semiconductor equipment.

**MODEL SELECTION TABLE**

**SINGLE OUTPUT MODELS**

Model Number	Input Voltage Range	Output Voltage	Output Current		Output Ripple & Noise	No Load <sup>(2)</sup> Input Current	Output Power	Efficiency	Maximum Capacitive Load
			Min Load	Max Load					
DCPDLW06-24S3.3	24 VDC (9 - 36 VDC)	3.3 VDC	0mA	1500mA	50mVp-p	4mA	5W	81%	4700µF
DCPDLW06-24S05		5 VDC	0mA	1200mA	50mVp-p	4mA	6W	84%	2200µF
DCPDLW06-24S09		9 VDC	0mA	666mA	50mVp-p	4mA	6W	86%	1400µF
DCPDLW06-24S12		12 VDC	0mA	500mA	50mVp-p	4mA	6W	87%	1100µF
DCPDLW06-24S15		15 VDC	0mA	400mA	50mVp-p	4mA	6W	88%	1000µF
DCPDLW06-24S24		24 VDC	0mA	250mA	50mVp-p	4mA	6W	87%	470µF
DCPDLW06-48S3.3	48 VDC (18 - 75 VDC)	3.3 VDC	0mA	1500mA	50mVp-p	4mA	5W	81%	4700µF
DCPDLW06-48S05		5 VDC	0mA	1200mA	50mVp-p	4mA	6W	84%	2200µF
DCPDLW06-48S09		9 VDC	0mA	666mA	50mVp-p	4mA	6W	85%	1400µF
DCPDLW06-48S12		12 VDC	0mA	500mA	50mVp-p	4mA	6W	87%	1100µF
DCPDLW06-48S15		15 VDC	0mA	400mA	50mVp-p	4mA	6W	87%	1000µF
DCPDLW06-48S24		24 VDC	0mA	250mA	50mVp-p	4mA	6W	87%	470µF

**DUAL OUTPUT MODELS**

Model Number	Input Voltage Range	Output Voltage	Output Current		Output Ripple & Noise	No Load Input Current	Output Power	Efficiency	Maximum Capacitive Load
			Min Load	Max Load					
DCPDLW06-24D05	24 VDC (9 - 36 VDC)	±5 VDC	0mA	±600mA	50mVp-p	6mA	6W	84%	±1400µF
DCPDLW06-24D12		±12 VDC	0mA	±250mA	50mVp-p	6mA	6W	87%	±660µF
DCPDLW06-24D15		±15 VDC	0mA	±200mA	50mVp-p	8mA	6W	87%	±470µF
DCPDLW06-48D05	48 VDC (18 - 75 VDC)	±5 VDC	0mA	±600mA	50mVp-p	6mA	6W	84%	±1400µF
DCPDLW06-48D12		±12 VDC	0mA	±250mA	50mVp-p	6mA	6W	87%	±660µF
DCPDLW06-48D15		±15 VDC	0mA	±200mA	50mVp-p	8mA	6W	87%	±470µF

**NOTES**

1. The DCPDLW06 series standard models can only meet EMI Class A and Class B with external components added. Please contact factory for more information.
2. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5. We recommend connecting an aluminum electrolytic capacitor (Nippon chemi-con KY series, 220µF/100V) in parallel.
3. Two case types are available for this series. Plastic case is standard; for the metal case add the suffix "M" to the model number. See the model number setup on page 7 for ordering details.
4. 1600VDC I/O isolation is standard; for 3000VDC I/O isolation add the suffix "H" to the model number (Ex: DCPDLW06-24S12H). 3000VDC I/O isolation is only available for plastic case models.

**CAUTION:** This power module is not internally fused. An input line fuse must always be used.

*\*Due to advances in technology, specifications subject to change without notice.*

**SPECIFICATIONS: DCPDLW06 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.

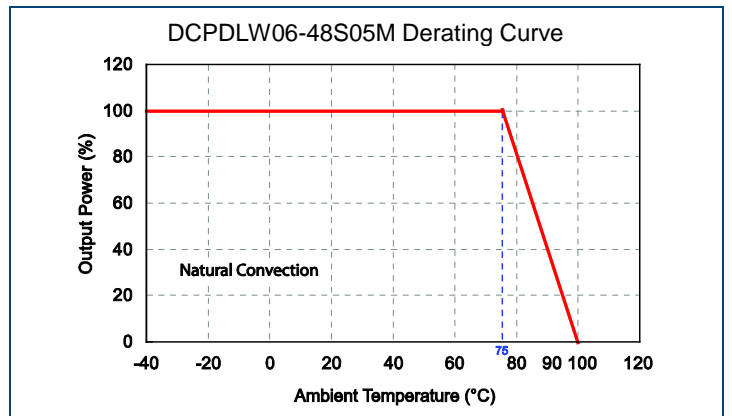
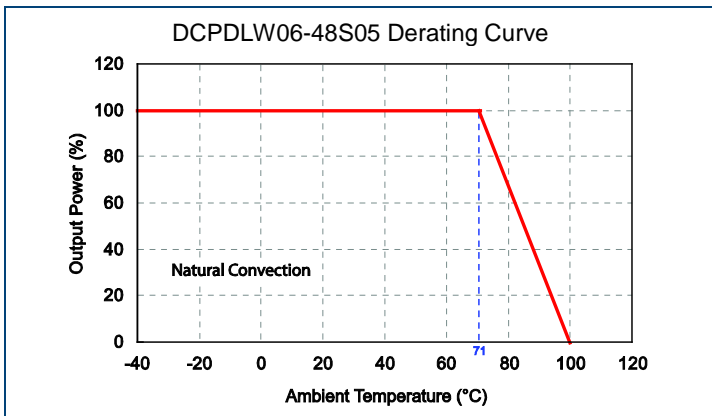
SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
<b>INPUT SPECIFICATIONS</b>						
Input Voltage Range	24VDC nominal input models		9	24	36	VDC
	48VDC nominal input models		18	48	75	
Input Surge Voltage (1 sec)	24VDC nominal input models				50	VDC
	48VDC nominal input models				100	
Input Current	No Load		See Table			
Input Reflected Ripple Current (See Note 1)	24VDC nominal input models			20		mAp-p
	48VDC nominal input models			40		
Input Filter			Capacitor type			
<b>OUTPUT SPECIFICATIONS</b>						
Output Voltage			See Table			
Voltage Accuracy	Full load an nominal Vin		-1.0		+1.0	%
Line Regulation	Low line to high line at full load		-0.2		+0.2	%
Load Regulation	No load to full load	Single Output Models	-0.5		+0.5	%
		Dual Output Models	-1.0		+1.0	
Cross Regulation (Dual Output Models)	Asymmetrical load 25% / 100% FL		-5.0		+5.0	%
Output Power			See Table			
Output Current			See Table			
Minimum Load			0			%
Maximum Capacitive Load	Minimum input and constant resistive load		See Table			
Ripple & Noise	20MHz Bandwidth	3.3V output model		50		mVp-p
		5V & 9V output models		75		
		12V & 15V output models		100		
		24V output model		100		
Transient Response Recovery Time	25% load step change			250		µs
Start-Up Time	Power Up	Nominal input and constant resistive load		30		ms
	Remote On/Off			30		
Temperature Coefficient			-0.02		+0.02	%/°C
<b>REMOTE ON/OFF</b>						
Positive Logic	DC/DC ON	Referenced to -INPUT pin and CTRL pin applied current (See Application Circuits on page 4)	Open or high impedance			
	DC/DC OFF		2	3	4	mA
Negative Logic	DC/DC ON	Referenced to -INPUT pin and CTRL pin applied current (See Application Circuits on page 4)	2	3	4	mA
	DC/DC OFF		Open or high impedance			
Remote Off Input Current				2.5		mA
<b>PROTECTION</b>						
Short Circuit Protection			Continuous, automatic recovery			
Over Load Protection	% of rated Iout; hiccup mode			180		%
<b>GENERAL SPECIFICATIONS</b>						
Efficiency	Nominal input voltage and full load		See Table			
Switching Frequency			522	580	638	KHz
Isolation Voltage (1 min)	Input to Output	Standard models	1600			VDC
		Suffix "M" models	1600			
		Suffix "H" models (only available with plastic case)	3000			
	Input to Case	Suffix "M" models	1000			VDC
	Output to Case	Suffix "M" models	1000			VDC
Isolation Resistance	500VDC		1			GΩ
Isolation Capacitance	Standard models				50	pF
	Suffix "M" models				50	
	Suffix "H" models (only available with plastic case)				50	

**SPECIFICATIONS: DCPDLW06 SERIES**

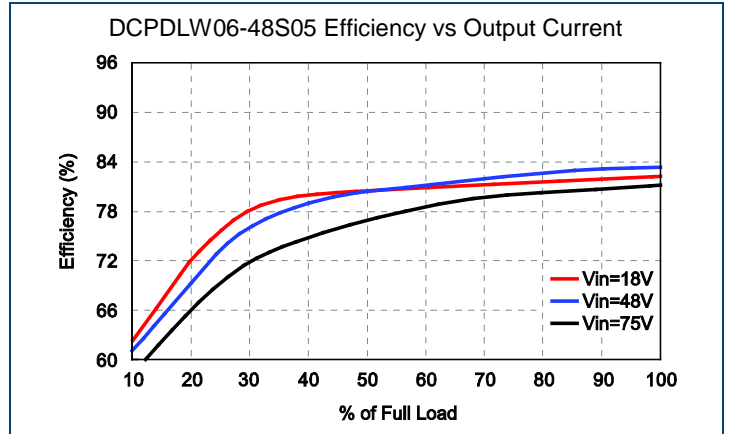
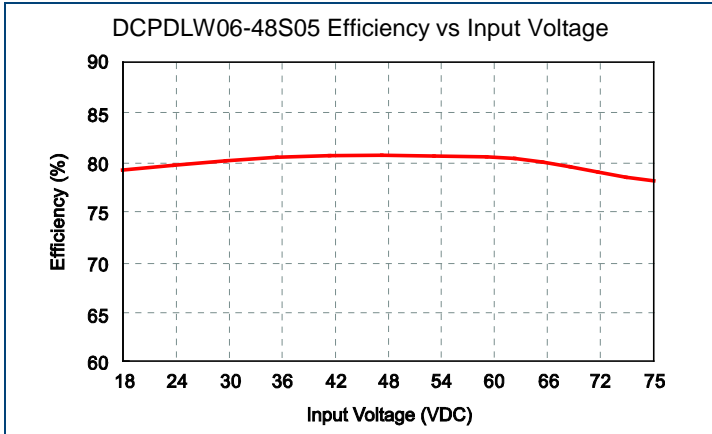
All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.  
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
<b>ENVIRONMENTAL SPECIFICATIONS</b>						
Operating Ambient Temperature	Without derating	Standard models	-40		+71	°C
		Suffix "M" models	-40		+75	°C
		Suffix "H" models	-40		+71	°C
Storage Temperature				+125	°C	
Relative Humidity			5		95	% RH
Thermal Shock					MIL-STD-810F	
Vibration					MIL-STD-810F	
MTBF	BELLCORE TR-NWT-000332. Case 1: 50% Stress, Ta = 40°C				3,381,000 hours	
	MIL-HDBK-217F, Ta=25°C, Full load (G/B controlled environment)	Standard models			840,800 hours	
		Suffix "M" models			940,400 hours	
		Suffix "H" models			840,800 hours	
<b>PHYSICAL SPECIFICATIONS</b>						
Weight	Standard models				0.17oz (4.8g)	
	Suffix "M" models				0.21oz (5.9g)	
	Suffix "H" models				0.17oz (4.8g)	
Dimensions (L x W x H)	Standard models				0.86x0.36x0.44 inch (21.8x9.1x11.2 mm)	
	Suffix "M" models				0.86x0.36x0.44 inch (21.8x9.1x11.2 mm)	
	Suffix "H" models				0.86x0.36x0.44 inch (21.8x9.1x11.2 mm)	
Case Material	Standard models				Non-conductive black plastic	
	Suffix "M" models				Copper	
	Suffix "H" models				Non-conductive black plastic	
Base Material					none	
Potting Material					Silicon (UL94-V0)	
<b>SAFETY &amp; EMC CHARACTERISTICS</b>						
Safety Approvals					IEC60950-1, UL60950-1, EN60950-1	
EMI (See Note 1)	EN55022				Class A, Class B	
ESD	EN61000-4-2	Air ±8KV Contact ±6KV			Perf. Criteria A	
Radiated Immunity	EN61000-4-3	20 V/m			Perf. Criteria A	
Fast Transient (See Note 2)	EN61000-4-4	±2KV			Perf. Criteria A	
Surge (See Note 2)	EN61000-4-5	±2KV			Perf. Criteria A	
Conducted Immunity	EN61000-4-6	10 Vrms			Perf. Criteria A	

**DERATING CURVES**



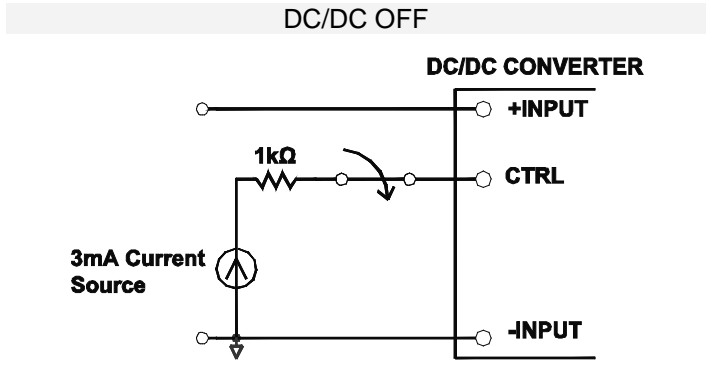
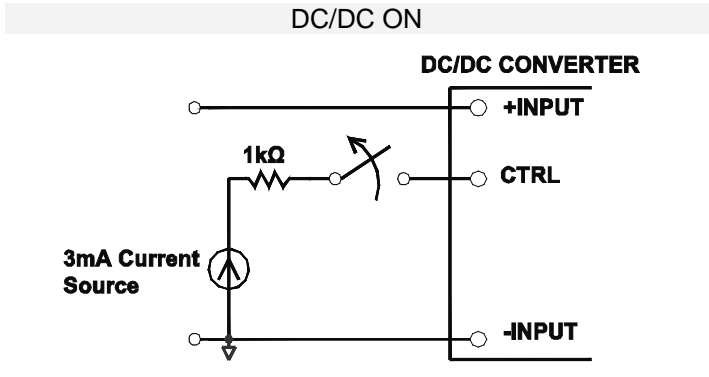
**EFFICIENCY CURVES**



**REMOTE ON/OFF APPLICATION CIRCUITS**

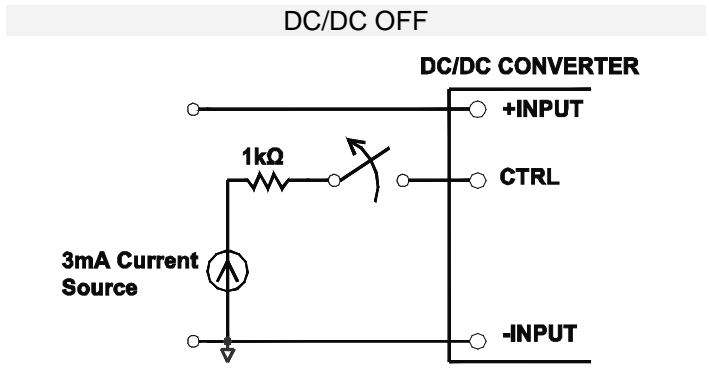
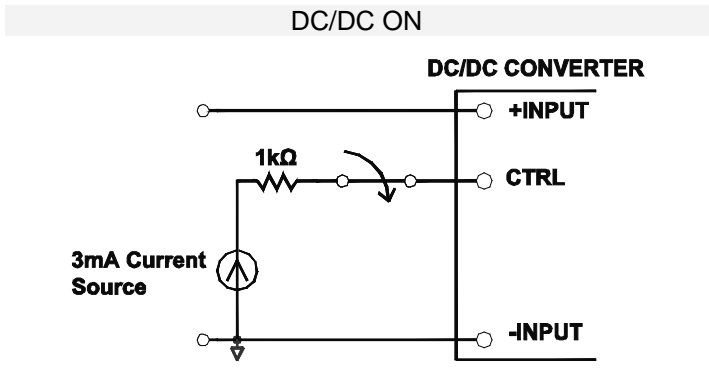
**Positive Logic**

The positive logic structure turns the DC/DC module ON during a logic High on the CTRL pin and turns the DC/DC module OFF during a logic low on the CTRL pin. The CTRL pin is an open collector/drain logic input signal (Von/off) that is referenced to GND. When not using the remote ON/OFF feature please open circuit between the CTRL pin and input pin to turn the module ON.



**Negative Logic**

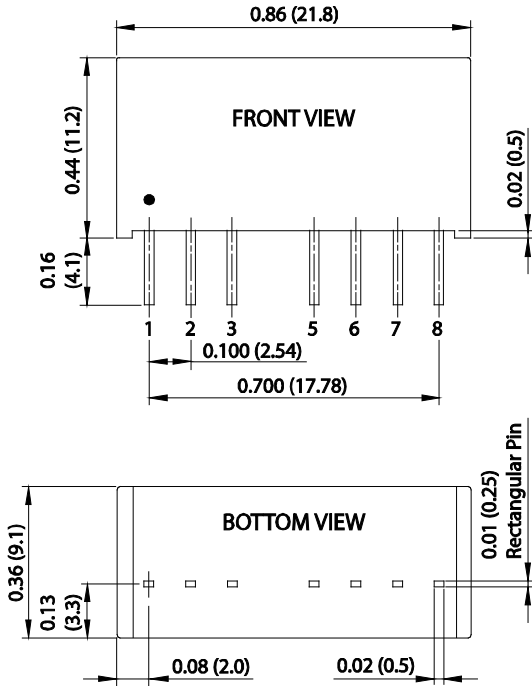
The negative logic structure turns the DC/DC module OFF during a logic High on the CTRL pin and turns the DC/DC module ON during a logic low on the CTRL pin. The CTRL pin is an open collector/drain logic input signal (Von/off) that is referenced to GND. When not using the remote ON/OFF feature please open circuit between the CTRL pin and input pin to turn the module ON.



MECHANICAL DRAWINGS

Plastic Case (Standard)

Unit: inches (mm)



PIN CONNECTIONS (Standard Models)		
PIN	SINGLE	DUAL
1	-INPUT	-INPUT
2	+INPUT	+INPUT
3	CTRL	CTRL
5	NC	NC
6	+OUTPUT	+OUTPUT
7	-OUTPUT	COMMON
8	NC	-OUTPUT

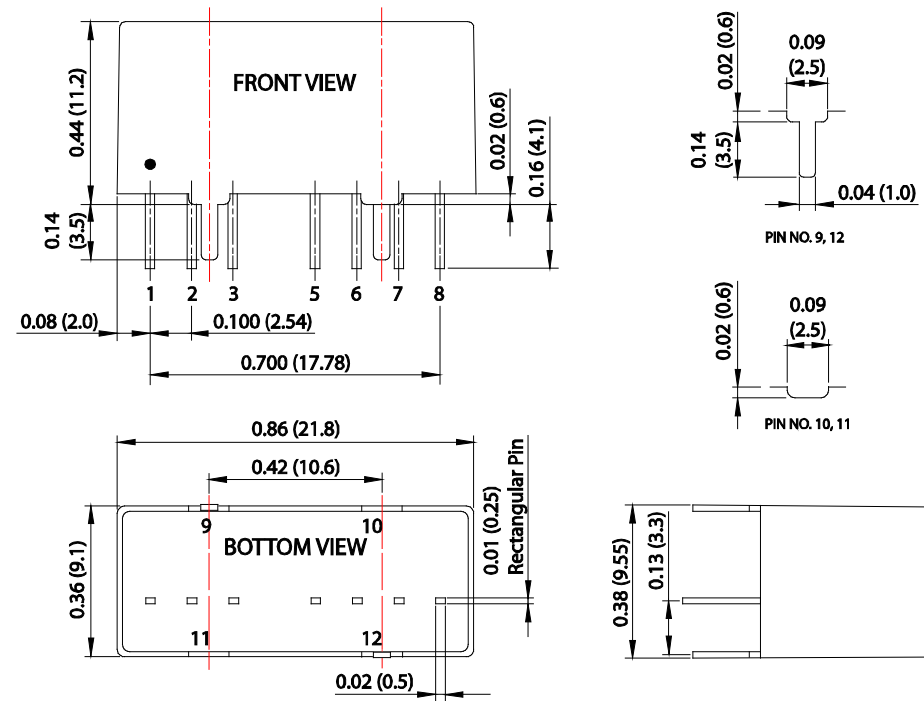
PIN CONNECTIONS (Suffix "H" Models)		
PIN	SINGLE	DUAL
1	-INPUT	-INPUT
2	+INPUT	+INPUT
3	CTRL	CTRL
5	NO PIN	NO PIN
6	+OUTPUT	+OUTPUT
7	-OUTPUT	COMMON
8	NC	-OUTPUT

NOTES

1. Tolerance: X.XX±0.02 (X.X±0.5)  
X.XXX±0.01 (X.XX±0.25)
2. Pin Pitch Tolerance: ±0.01 (±0.25)
3. Pin Dimension Tolerance: ±0.004 (±0.1)
4. All dimensions are for reference only

Metal Case (Suffix "M")

Unit: inches (mm)



PIN CONNECTIONS		
PIN	SINGLE	DUAL
1	-INPUT	-INPUT
2	+INPUT	+INPUT
3	CTRL	CTRL
5	NC	NC
6	+OUTPUT	+OUTPUT
7	-OUTPUT	COMMON
8	NC	-OUTPUT
9	CASE	CASE
10	STAND OFF	STAND OFF
11	STAND OFF	STAND OFF
12	CASE	CASE

NOTES

1. Tolerance: X.XX±0.02 (X.X±0.5)  
X.XXX±0.01 (X.XX±0.25)
2. Pin Pitch Tolerance: ±0.01 (±0.25)
3. Pin Dimension Tolerance: ±0.004 (±0.1)
4. All dimensions are for reference only

MODEL NUMBER SET \_\_\_\_\_

DCPDLW	06	-	48	S	12	M
Series Name	Output Power		Input Voltage	Output Quantity	Output Voltage	Assembly Options
	<b>6</b> : 6 Watts		<b>24:</b> 9-36 VDC <b>48:</b> 18-75 VDC	<b>S:</b> Single Output  <b>D:</b> Dual Output	<b>33:</b> 3.3 VDC <b>05:</b> 5 VDC <b>09:</b> 9 VDC <b>12:</b> 12 VDC <b>15:</b> 15 VDC <b>24:</b> 24 VDC <b>05:</b> ±5 VDC <b>12:</b> ±12 VDC <b>15:</b> ±15 VDC	<b>None:</b> Plastic Case w/ 1600VDC isolation <b>H:</b> Plastic Case w/ 3000VDC Isolation <b>M:</b> Metal Case w/ 1600VDC isolation

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:

Phone: ☎(603)778-2300  
 Toll Free: ☎(888)597-9255  
 Fax: ☎(603)778-9797  
 E-mail: [sales@wallindustries.com](mailto:sales@wallindustries.com)  
 Web: [www.wallindustries.com](http://www.wallindustries.com)  
 Address: 5 Watson Brook Rd.  
 Exeter, NH 03833