



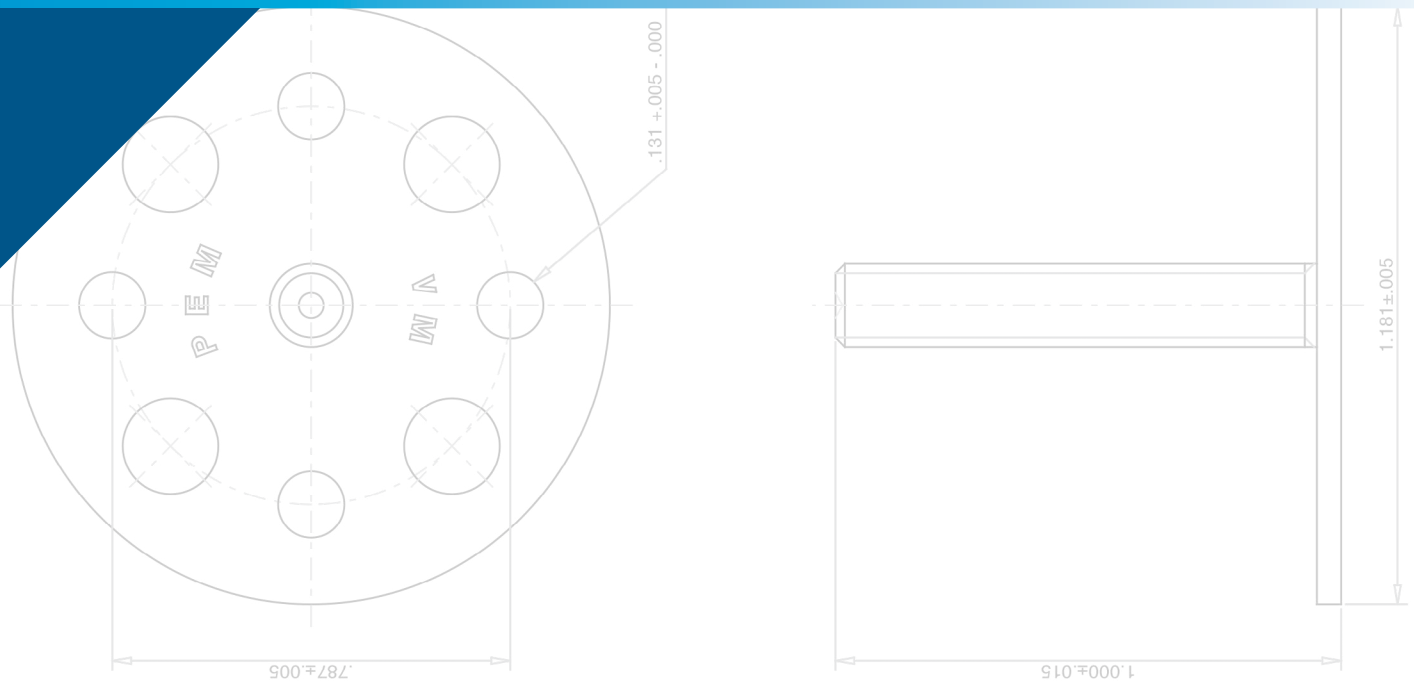
PEM® VariMount® bonding fasteners are assemblies comprised of standard PEM® fasteners mounted permanently into base plates.



VM™

PEM® VARIMOUNT® BONDING FASTENERS

Now Available! 20mm Diameter Base Plate



PEM® VARIMOUNT® BONDING FASTENERS

The PEM® VariMount® fastening system eliminates issues associated with welding. The assembly is comprised of a standard PEM® nut, stud or standoff mounted permanently into a base plate. The assembly can then be fastened or bonded to assorted panel types in a variety of ways:

Mounting Methods:

- Mold-in
- Laminate within composite layers
- Surface bonding
- Rivets
- Loose hardware (nuts, bolts, screws)
- Self-clinching fasteners
- Blind threaded rivets
- Adhesives or adhesive tape
- Hollow wall anchors
- Spot welding

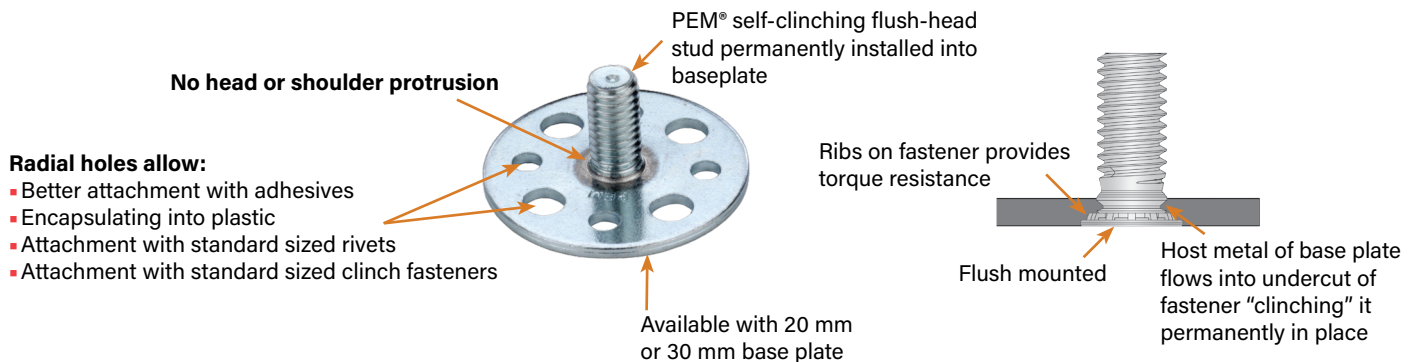
Mounts on or in:

- Composites (Carbon fiber, fiberglass)
- Plastics
- Metal
- Wall board
- Any rigid material or panel

VariMount® assemblies are available with either steel or stainless steel base plates depending on the fastener that is selected. The VariMount® base plate's radial holes provide various mounting options.

Base plates can also be purchased separately. See page 5 for dimensional data and part numbers.

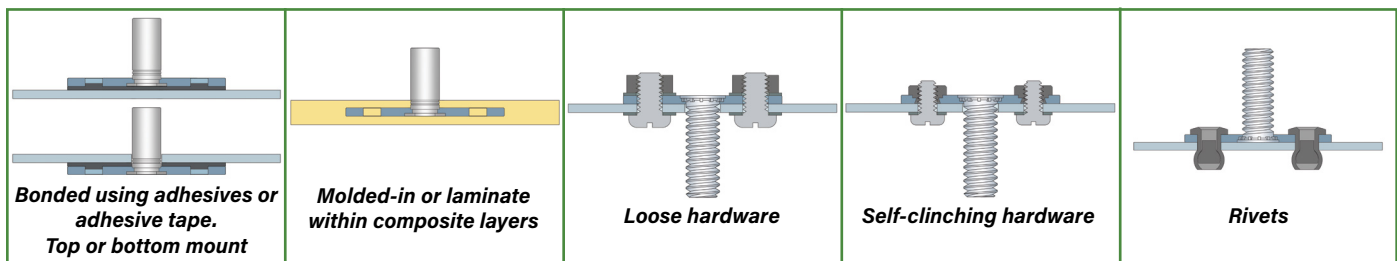
VARIMOUNT® ASSEMBLY USING SELF-CLINCHING TECHNOLOGY



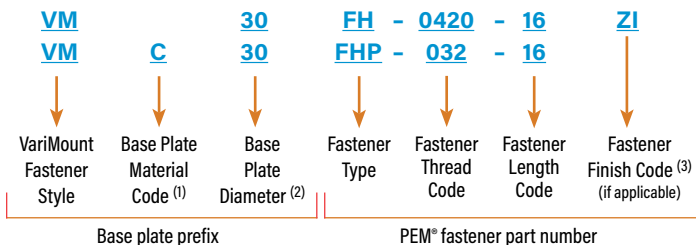
Radial holes allow:

- Better attachment with adhesives
- Encapsulating into plastic
- Attachment with standard sized rivets
- Attachment with standard sized clinch fasteners

TYPICAL MOUNTING METHODS



ASSEMBLY PART NUMBER DESIGNATION



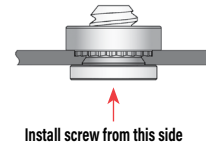
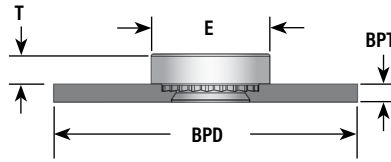
A VariMount® assembly part number includes a base plate prefix paired with a standard PEM® fastener part number.

- (1) "Blank" equals steel base plate and "C" equals stainless steel base plate.
- (2) See page 5 for complete dimensional information.
- (3) Required on steel assemblies.



PEM® VARIMOUNT® BONDING FASTENERS

The charts below show PEM® fastener types/sizes that are offered as standard VariMount® assemblies.



STANDARD NUTS

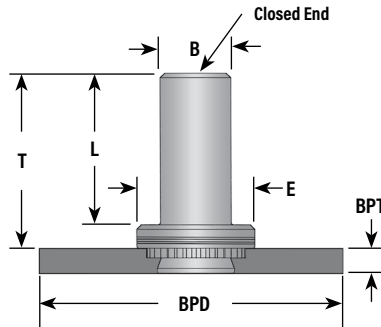
All dimensions are in inches.

UNIFIED	Thread Size	Type and Material		Thread Code	Shank Code	BPD ±.0165	BPT ±.004	E ±.010	T ±.010
		Steel	Stainless Steel						
	.112-40 (#4-40)	VM20S	VMC20SP	440	1	.787	.048	.250	.070
		VM30S	VMC30SP			1.181			
	.138-32 (#6-32)	VM20S	VMC20SP	632	1	.787	.048	.280	.070
		VM30S	VMC30SP			1.181			
	.164-32 (#8-32)	VM20S	VMC20SP	832	1	.787	.048	.310	.090
		VM30S	VMC30SP			1.181			
	.190-32 (#10-32)	VM20SS	VMC20SP	032	2	.787	.071	.340	.090
		VM30SS	VMC30SP			1.181			

All dimensions are in millimeters.

METRIC	Thread Size x Pitch	Type and Material		Thread Code	Shank Code	BPD ±.042	BPT ±.01	E ±.025	T ±.025
		Steel	Stainless Steel						
	M3 x 0.5	VM20S	VMC20SP	M3	1	20	1.2	6.35	1.5
		VM30S	VMC30SP			30			
	M4 x 0.7	VM20S	VMC20SP	M4	1	20	1.2	7.87	2
		VM30S	VMC30SP			30			
	M5 x 0.8	VM20SS	VMC20SP	M5	2	20	1.8	8.64	2
		VM30SS	VMC30SP			30			

For more information on PEM® standard nuts, see [Bulletin CL](#) on our website.



BLIND NUTS

All dimensions are in inches.

UNIFIED	Thread Size	Type and Material	Thread Code	Shank Code	BPD ±.0165	BPT ±.004	B Max.	E ±.010	L Max.	T ±.010
		Steel								
	.112-40 (#4-40)	VM20B	440	1	.787	.048	.150	.250	.335	.380
		VM30B			1.181					
	.138-32 (#6-32)	VM20B	632	1	.787	.048	.169	.280	.335	.380
		VM30B			1.181					
	.164-32 (#8-32)	VM20B	832	1	.787	.048	.204	.310	.385	.440
		VM30B			1.181					
	.190-32 (#10-32)	VM20B	032	2	.787	.071	.235	.340	.385	.440
		VM30B			1.181					

All dimensions are in millimeters.

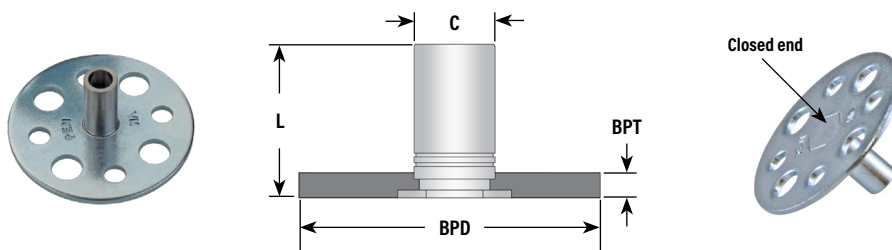
METRIC	Thread Size x Pitch	Type and Material	Thread Code	Shank Code	BPD ±.042	BPT ±.01	B Max.	E ±.025	L Max.	T ±.025
		Steel								
	M3 x 0.5	VM20B	M3	1	20	1.2	3.84	6.35	8.5	9.6
		VM30B			30					
	M4 x 0.7	VM20B	M4	1	20	1.2	5.2	7.95	9.8	11.2
		VM30B			30					
	M5 x 0.8	VM20B	M5	2	20	1.8	6.02	8.75	9.8	11.2
		VM30B			30					

For more information on PEM® blind nuts, see [Bulletin B](#) on our website.



PEM® VARIMOUNT® BONDING FASTENERS

The charts below show PEM® fastener types/sizes that are offered as standard VariMount® assemblies.



STANDOFFS

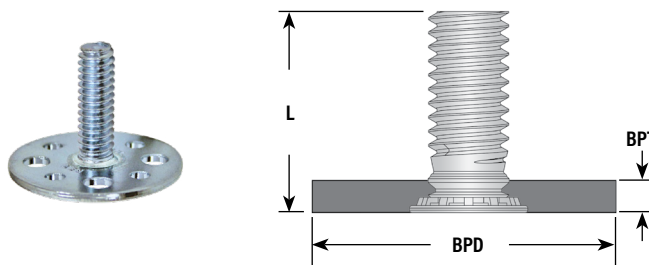
All dimensions are in inches.

UNIFIED	Thread Size	Type and Material		Thread Code	Length Code "L" +.002 -.005 (Length code in 32nds of an inch)						BPD ±.0165	BPT ±.004	C +.000 -.005	
		Steel			.375	.437	.500	.562	.625	.687				.750
	.112-40 (#4-40)	VM20BSO	VM20BSO		440	12	14	16	18	20	22	24	.787	.048
VM30BSO				12		14	16	18	20	22	24	1.181		
.138-32 (#6-32)	VM20BSO	VM20BSO		632	12	14	16	18	20	22	24	.787	.048	.212
		VM30BSO			12	14	16	18	20	22	24			

All dimensions are in millimeters.

METRIC	Thread Size x Pitch	Type and Material		Thread Code	Length Code "L" +0.05 -0.13 (Length code in millimeters)				BPD ±0.42	BPT ±0.1	C -0.13
		Steel			12	14	16	18			
	M3 x 0.5	VM20BSO	VM20BSO		M3	12	14	16	18	20	1.2
VM30BSO				12		14	16	18	30		
M3.5 x 0.6	VM20BSO	VM20BSO		M3.5	12	14	16	18	20	1.2	5.39
		VM30BSO			12	14	16	18			

For more information on PEM® standoff, see [Bulletin SQ](#) on our website.



STUDS

All dimensions are in inches.

UNIFIED	Thread Size	Type and Material		Thread Code	Length Code "L" ±.015 (Length code in 16ths of an inch)						BPD ±.0165	BPT ±.004
		Steel	Stainless Steel		.500	.625	.750	.875	1.00	1.25		
	.164-32 (#8-32)	VM20FH	VM20FH	VMC20FHP	832	8	10	12	14	16	20	.787
VM30FH			VMC30FHP	8		10	12	14	16	20	1.181	
.190-32 (#10-32)	VM20FH	VM20FH	VMC20FHP	032	8	10	12	14	16	20	.787	.048
		VM30FH	VMC30FHP		8	10	12	14	16	20		
.250-20 (1/4-20)	VM20FH	VM20FH	—	0420	8	10	12	14	16	20	.787	.071
		VM30FH	—		8	10	12	14	16	20		

All dimensions are in millimeters.

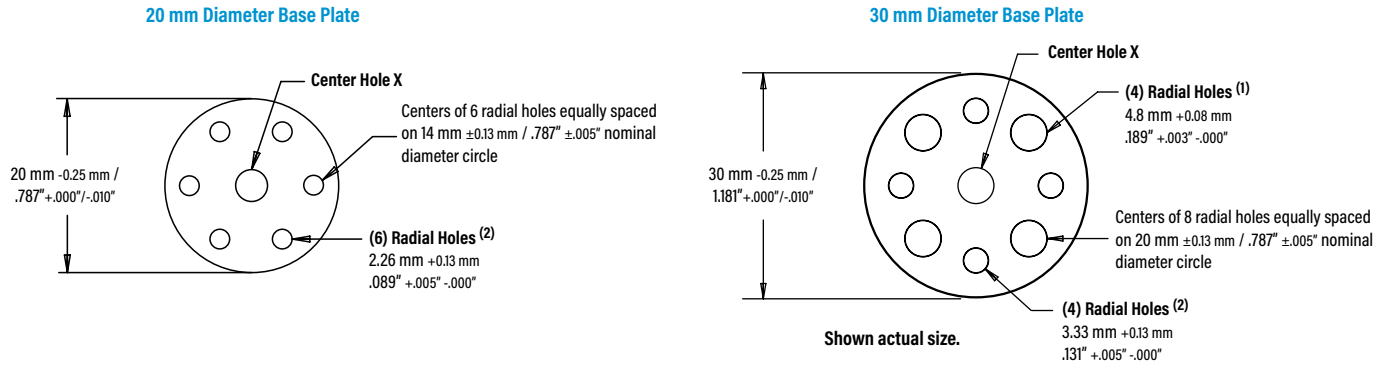
METRIC	Thread Size x Pitch	Type and Material		Thread Code	Length Code "L" ±0.4 (Length code in millimeters)					BPD ±0.42	BPT ±0.1	
		Steel	Stainless Steel		10	12	15	18	20			25
	M4 x 0.7	VM20FH	VM20FH	VMC20FHP	M4	10	12	15	18	20	25	20
VM30FH			VMC30FHP	10		12	15	18	20	25	30	
M5 x 0.8	VM20FH	VM20FH	VMC20FHP	M5	10	12	15	18	20	25	20	1.2
		VM30FH	VMC30FHP		10	12	15	18	20	25		
M6 x 1	VM20FH	VM20FH	—	M6	10	12	15	18	20	25	20	1.8
		VM30FH	—		10	12	15	18	20	25		

For more information on PEM® studs, see [Bulletin FH](#) on our website.



PEM® VARIMOUNT® BONDING FASTENERS

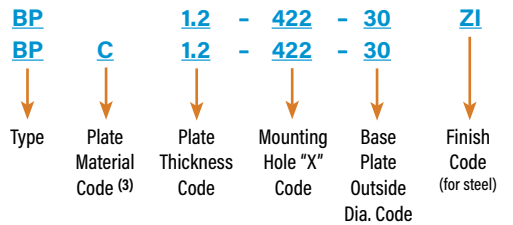
BASE PLATE PART NUMBER, DIMENSIONS AND MATERIAL GUIDE



Base Plate Part Number (4)				Thickness ±0.1 mm / ±.004"	Center Hole X Diameter +0.08 mm / +.003" -.000"
Steel (5)		Stainless Steel (6)			
20 mm Dia.	30 mm Dia.	20 mm Dia.	30 mm Dia.		
BP1.2-422-20ZI	BP1.2-422-30ZI	BPC1.2-422-20	BPC1.2-422-30	1.2 mm / .048"	4.22 mm / .166"
BP1.2-480-20ZI	BP1.2-480-30ZI	BPC1.2-480-20	BPC1.2-480-30	1.2 mm / .048"	4.8 mm / .189"
BP1.2-541-20ZI	BP1.2-541-30ZI	BPC1.2-541-20	BPC1.2-541-30	1.2 mm / .048"	5.41 mm / .213"
—	BP1.6-635-30ZI	—	BPC1.6-635-30	1.6 mm / .063"	6.35 mm / .250"
BP1.2-400-20ZI	BP1.2-400-30ZI	BPC1.2-400-20	BPC1.2-400-30	1.2 mm / .048"	4 mm / .1575"
BP1.2-500-20ZI	BP1.2-500-30ZI	BPC1.2-500-20	BPC1.2-500-30	1.2 mm / .048"	5 mm / .1969"
—	BP1.6-600-30ZI	—	BPC1.6-600-30	1.6 mm / .063"	6 mm / .2362"
BP1.8-600-20ZI	—	BPC1.8-600-20	—	1.8 mm / .071"	6 mm / .2362"
BP1.8-635-20ZI	—	BPC1.8-635-20	—	1.8 mm / .071"	6.35 mm / .250"

- (1) Accepts standard M3.5 / #6-32 self-clinching nuts. Also flush-head studs #10-24 / #10-32 sizes. May also accept 4.8 mm / 3/16" rivet.
- (2) 30mm OD parts include standard holes sized for 3.2 mm / 1/8" rivets. 20mm OD parts include standard holes sized for 2 mm / 5/64" rivets
- (3) "Blank" equals steel base plate and "C" equals stainless steel base plate.
- (4) Use this part number if ordering base plate separately. Minimum quantities may apply.
- (5) Base plate is carbon steel, zinc plated per ASTM B633, SC1, Type III.
- (6) Base plate is 300 series stainless steel, passivated and/or tested per ASTM A380.

BASE PLATE PART NUMBER DESIGNATION



NOTE ABOUT PERFORMANCE

General performance of PEM® fasteners in thin metal panels can be found in their respective PEM® Bulletins. Performance of the assembly (fastener and base plate) mounted to your specific material, in your application will have to be determined by testing. We recommend that you perform testing to be sure it is ideally suited to your application. We will be happy to provide technical assistance and/or samples to you for this purpose.

Look for the trademarks to identify genuine PEM® fasteners.



Drawings and models for parts listed on pages 3, 4 & 5 are available at www.pemnet.com



PEM® VARIMOUNT® BONDING FASTENERS

OTHER PEM® FASTENER TYPES AND SIZES AVAILABLE *

While we have listed the standard offering of assemblies on the charts (pages 3 and 4), other PEM® fasteners can be provided pre-installed into one of the base plates listed on page 5. The charts below give a review of these fastener types. To choose an assembly using one of these fasteners, simply create a part number as described on page 2.

PEM® Fastener Types	Standard Size Codes
Self-clinching Nuts	
BS	440 / 632 / 832 / 032 / M3 / M4 / M5
CLS	256 / 348 / 440 / 632 / 832 / M2 / M2.5 / M3 / M3.5 / M4
CLSS	024 / 032 / M5
LK, LKS	440 / M3
PL, PLC	M3
S	256 / 348 / M2 / M2.5 / M3.5
SL	440 / 632 / 832 / 032 / M3 / M3.5 / M4 / M5
SP	256 / 024
SS	024
Self-clinching Studs	
FH	024 / Non-threaded
FH4	832 / 032 / 0420 / M4 / M5 / M6
FHS	832 / 024 / 032 / 0420 M4 / M5 / M6 / Non-threaded
HFE	032 / 0420 / M5 / M6
HFH, HFHS	0420 / M6

PEM® Fastener Types	Standard Size Codes
Self-clinching Standoffs	
BS0, BS0S, BS04	440 / 632 / 6440 / M3 / 3.5M3 / M3.5
DS0, DS0S	440 / M3
SO, S04	6440 / 3.5M3 / M3.5 / Non-threaded
SOS	440 / 632 / 6440 / 3.5M3 / M3 / M3.5 / Non-threaded
SOSG	6440 / 3.5M3
SSC, SSS	156 / 4MM
Panel Fasteners	
N10	440 / 632 / 832 / M3
PF11, PF12, PF11M, PF12M	632
PF11MF, PF12MF	440 / M3
PF11MW, PF12MW	440 / M3
PF11PM	632
PF30	832
PF31, PF32	832 / M4
PF50, PF51, PF52, PF60, PF61, PF62	832 / M4
PF7M	632
PF7MF	440 / M3
SCB, SCBJ	M4
SCBR	832 / M4

Types shown in bold italics can be installed into stainless steel base plates. Other types are not recommended for installation into stainless steel base plates.



* Other fasteners, base plate configurations and assemblies are available on special order. For questions, please contact our global technical support team using the contact information listed at the bottom of this page. Appropriate minimum quantities may apply.

All PEM® products meet our stringent quality standards. If you require additional industry or other specific [quality certifications](#), special procedures and/or part numbers are required. Please contact your local sales office or representative for further information.

Regulatory [compliance information](#) is available in Technical Support section of our website. Specifications subject to change without notice. See our website for the most current version of this bulletin.

PennEngineering®



North America: Danboro, Pennsylvania USA ▪ E-mail: info@pemnet.com ▪ Tel: +1-215-766-8853 ▪ 800-237-4736 (USA)

Europe: Galway, Ireland ▪ E-mail: europa@pemnet.com ▪ Tel: +353-91-751714

Asia/Pacific: Singapore ▪ E-mail: singapore@pemnet.com ▪ Tel: +65-6-745-0660

Shanghai, China ▪ E-mail: china@pemnet.com ▪ Tel: +86-21-5868-3688

Visit our PEMNET™ Resource Center at www.pemnet.com ▪ Technical support e-mail: techsupport@pemnet.com