

MIP / MIE - Standard Isolation Power Panels

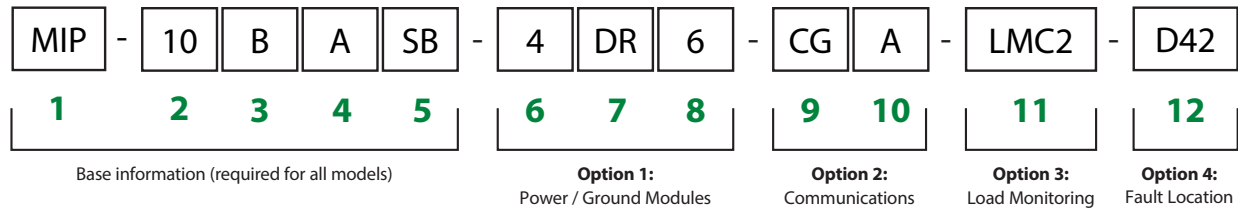
Bender's standard Modular Isolation Power Panel (MIP / MIE) provides power for a single-voltage system with standard features, as well as compatibility with advanced features including fault location and communications. Built-in power receptacles and ground jacks are also available upon request.



Standard Features

- Isolation transformer with corresponding main circuit breaker
- BENDER LIM2010 Line Isolation Monitor (LIM)
- Reference Ground Bus
- Bolt-on style load center
- 16, 2-pole 20A branch circuit breakers (consult factory for alternative configurations)
- Front trim with door in door concealed hinge

Consult factory for custom panel configurations



Step 1: Interior

1: Panel Type

MIP: 3, 5, 7.5, or 10 kVA

MIE: 15 or 25 kVA

2: System kVA Rating

03: 3 kVA **10:** 10 kVA

05: 5 kVA **15:** 15 kVA*

07: 7.5 kVA **25:** 25 kVA*

3: Primary Voltage Rating

A: 120 V **G:** 110 V

B: 208 V **H:** 220 V

C: 240 V **I:** 230 V

D: 277 V **J:** 380 V

E: 480 V

4: Secondary Voltage Rating

A: 120 V **G:** 110 V

B: 208 V **H:** 220 V

C: 240 V **I:** 230 V

5: Loadcenter Type

SB: Square-D, bolt-on

CB: Cutler-Hammer, bolt-on

GB: General Electric, bolt-on**

Option 1: Integrated Receptacles and Ground Jacks

6: Quantity of Ground Jacks (0 through 4)

0: Zero

4: Four

7: Receptacle Type

NN: No receptacles

SR: NEMA 5-20R Single, RED

SI: NEMA 5-20R Single, IVORY

DR: NEMA 5-20R Duplex, RED

DI: NEMA 5-20R Duplex, IVORY

TB: 2300HG, Twist-to-lock, BLACK

8: Quantity of Receptacles (0 through 6)

0: Zero

6: Six

*Must use MIE Panel Configuration

**Not Compatible with Options 3 or 4

Consult factory for alternative breaker rating configurations and quantities

MIP / MIE - Standard Isolation Power Panels

Option 2: Communications

Includes COM465IP communication gateway, featuring on-board web server monitoring connected devices, fieldbus communication, and more. Any combination / quantity of features shown below may be selected. Refer to COM465IP datasheet for additional information.

9: Communications

(Blank): No Communications

CG: COM465IP Gateway Module

10: Communications Function Packages

A: Custom device / alarm labels, e-mail notifications, reports

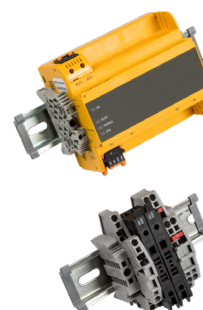
B: Modbus/TCP and SNMP support

C: Remote device configuration, reports

D: System visualizations

E: Virtual devices and alarms

F: Third party device / alarm integration



Option 3: Load monitoring

Provides load current monitoring at the main and/or individual branch circuits. Branch circuit monitoring uses Bender's CMS460 series modules. Refer to CMS460 datasheet for additional information.

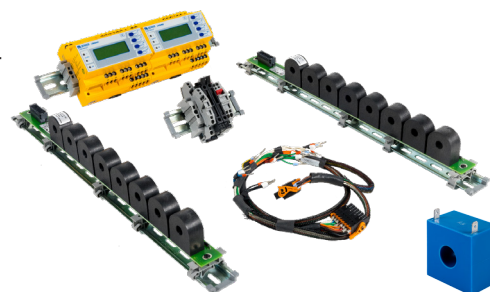
11: Load Monitoring

(Blank): No Load Monitoring

LM: System Load Monitoring

LMC1: System Load Monitoring + Branch Circuit Monitoring - up to 12 circuits

LMC2: System Load Monitoring + Branch Circuit Monitoring - up to 16 circuits



Option 4: Fault Location

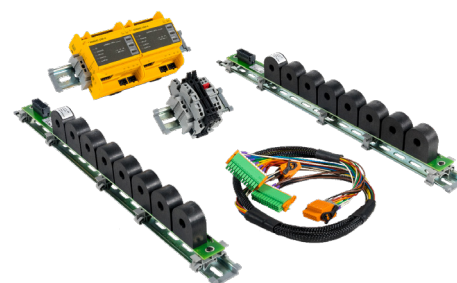
Provides integrated, automatic ground-fault location using Bender's EDS441 series modules. Refer to EDS441 datasheet for additional information.

12: Integrated Fault Location

(Blank): No Fault Location

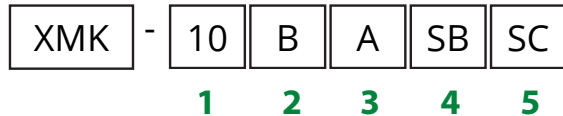
D41: Branch Ground Fault Location - up to 12 circuits

D42: Branch Ground Fault Location - up to 16 circuits



Step 2: Transformer Kits for for MIP/MIE Panels

Modular Hospital Grade Isolation Transformer Kits, for Modular Isolated Power Systems, include a transformer which provides isolation between configured primary and secondary voltages and its' corresponding Main Breaker arrangement along with all nessccary mounting hardware. Options for a Secondary Main breaker and/or Selection Cordination are also available upon request.



1: System kVA Rating

- 03:** 3 kVA **10:** 10 kVA
- 05:** 5 kVA **15:** 15 kVA*
- 07:** 7.5 kVA **25:** 25 kVA*

2: Primary Voltage Rating

- A:** 120 V **G:** 110 V
- B:** 208 V **H:** 220 V
- C:** 240 V **I:** 230 V
- D:** 277 V **J:** 380 V
- E:** 480 V

3: Secondary Voltage Rating

- A:** 120 V **G:** 110 V
- B:** 208 V **H:** 220 V
- C:** 240 V **I:** 230 V

4: Loadcenter Type

- SB:** Square-D, bolt-on
- CB:** Cutler-Hammer, bolt-on
- GB:** General Electric, bolt-on

5: Selective Cordination*

- [] (Blank):** No Selective Cordination
- SC:** Selective Cordination

**Selective Coordination only available on select configurations
Consult factory for 50 Hz options and alternative ratings*

Step 3: Backboxes and Front Trims

System kVA Rating	Mounting Style	Backbox Part Number	Backbox Dimensions (H" x W" x D")	Front Trim Part Number	Front Trim Dimensions (H" x W")
Up to 5 kVA	Flush	B662406F	66" x 24" x 6"	T6826R	68" x 26"
Up to 10 kVA	Flush	B662408F	66" x 24" x 8"	T6826R	68" x 26"
Up to 15 kVA	Flush	B723012F	72" x 30" x 12"	T7432R	74" x 32"
Up to 25 kVA	Flush	B723014F	72" x 30" x 14"	T7432R	74" x 32"
Up to 5 kVA	Surface	B662406S	66" x 24" x 6"	T6624R	66" x 24"
Up to 10 kVA	Surface	B662408S	66" x 24" x 8"	T6624R	66" x 24"
Up to 15 kVA	Surface	B723012S	72" x 30" x 12"	T7230R	72" x 30"
Up to 25 kVA	Surface	B723014S	72" x 30" x 14"	T7230R	72" x 30"

MIX -Dual System Isolation Power Panels

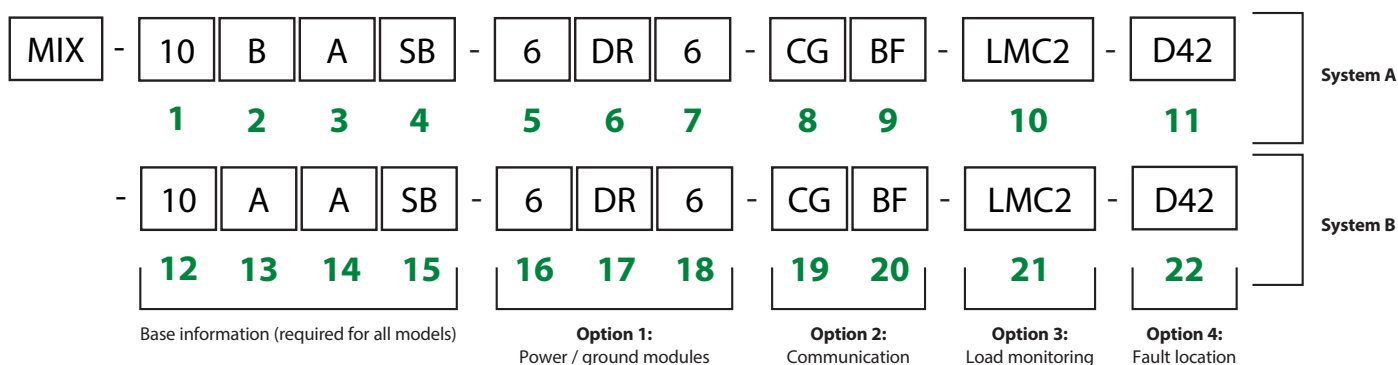
Bender's Dual System Isolation Panels (MIX) provide two separate voltage outputs from two isolation transformers, separated by a barrier. This system is equivalent to two independent MIP standard isolation power panels in one enclosure. A standard dual system panel consists of the following:



Standard Features

- 2 x Isolation transformer with corresponding main circuit breaker
- 2 x BENDER LIM2010 Line Isolation Monitor (LIM)
- 2 x Reference Ground Bus
- 2 x Bolt-on style load center
- 2 x, 16, 2-pole 20A branch circuit breakers (consult factory for alternative configurations)
- Front trim with door in door concealed hinge

Consult factory for custom panel configurations



Step 1: Interior

1 & 12: System kVA Rating

03: 3 kVA **07:** 7.5 kVA
05: 5 kVA **10:** 10 kVA

2 & 13: Primary Voltage Rating

A: 120 V **G:** 110 V
B: 208 V **H:** 220 V
C: 240 V **I:** 230 V
D: 277 V **J:** 380 V
E: 480 V

3 & 14: Secondary Voltage Rating

A: 120 V **G:** 110 V
B: 208 V **H:** 220 V
C: 240 V **I:** 230 V

4 & 15: Loadcenter Type

SB: Square-D, bolt-on
CB: Cutler-Hammer, bolt-on
GB: General Electric, bolt-on*

Option 1: Integrated Receptacles and Ground Jacks

5 & 16: Quantity of Ground Jacks (0 through 4)

0: Zero **4:** Four

6 & 17: Receptacle Type

NN: No receptacles
SR: NEMA 5-20R Single, RED
SI: NEMA 5-20R Single, IVORY
DR: NEMA 5-20R Duplex, RED
DI: NEMA 5-20R Duplex, IVORY
TB: 2300HG, Twist-to-lock, BLACK

7 & 18: Quantity of Receptacles (0 through 6)

0: Zero **6:** Six

*Not Compatible with Options 3 or 4

Consult factory for alternative breaker rating configurations and quantities

MIX - Dual System Isolation Power Panels

Option 2: Communications

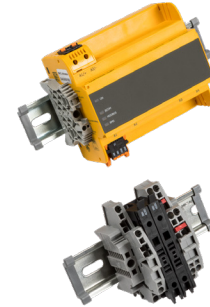
Includes COM465IP communication gateway, featuring on-board web server monitoring connected devices, fieldbus communication, and more. Any combination / quantity of features shown below may be selected. Refer to COM465IP datasheet for additional information.

8 & 19: Communications

- (Blank): No Communications
- CG:** COM465IP Gateway Module

9 & 20: Communications Function Packages

- A:** Custom device / alarm labels, e-mail notifications, reports
- B:** Modbus/TCP and SNMP support
- C:** Remote device configuration, reports
- D:** System visualizations
- E:** Virtual devices and alarms
- F:** Third party device / alarm integration



Option 3: Load monitoring

Provides load current monitoring at the main and/or individual branch circuits. Branch circuit monitoring uses Bender's CMS460 series modules. Refer to CMS460 datasheet for additional information.

10 & 21: Load Monitoring

- (Blank): No Load Monitoring
- LM:** System Load Monitoring
- LMC1:** System Load Monitoring + Branch Circuit Monitoring - up to 12 circuits
- LMC2:** System Load Monitoring + Branch Circuit Monitoring - up to 16 circuits



Option 4: Fault Location

Provides integrated, automatic ground-fault location using Bender's EDS441 series modules. Refer to EDS441 datasheet for additional information.

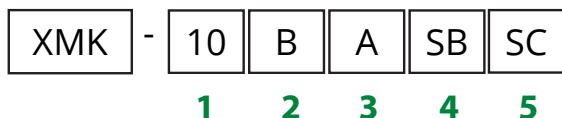
11 & 22: Integrated Fault Location

- (Blank): No Fault Location
- D41:** Branch Ground Fault Location - up to 12 circuits
- D42:** Branch Ground Fault Location - up to 16 circuits



Step 2: Transformer Kits for for MIX Panels

Modular Hospital Grade Isolation Transformer Kits, for Modular Isolated Power Systems, include a transformer which provides isolation between configured primary and secondary voltages and its' corresponding Main Breaker arrangement along with all necessary mounting hardware. Options for a Secondary Main breaker and/or Selection Cordination are also available upon request.



1: System kVA Rating

03: 3 kVA **10:** 10 kVA
05: 5 kVA
07: 7.5 kVA

2: Primary Voltage Rating

A: 120 V **G:** 110 V
B: 208 V **H:** 220 V
C: 240 V **I:** 230 V
D: 277 V **J:** 380 V
E: 480 V

3: Secondary Voltage Rating

A: 120 V **G:** 110 V
B: 208 V **H:** 220 V
C: 240 V **I:** 230 V

4: Loadcenter Type

SB: Square-D, bolt-on
CB: Cutler-Hammer, bolt-on
GB: General Electric, bolt-on

5: Selective Cordination

[] (Blank): No Selective Cordination
SC: Selective Cordination

**Selective Cordination only available on select configurations
 Consult factory for 50 Hz options and alternative ratings*

Step 3: Backboxes and Front Trims

System kVA Rating	Mounting Style	Backbox Part Number	Backbox Dimensions (H" x W" x D")	Front Trim Part Number	Front Trim Dimensions (H" x W")
Up to 5 kVA	Flush	B803606F	80" x 36" x 6"	T8238R	82" x 38"
Up to 10 kVA	Flush	B803608F	80" x 36" x 8"	T8238R	82" x 38"
Up to 5 kVA	Surface	B803606S	80" x 36" x 6"	T8036R	80" x 36"
Up to 10 kVA	Surface	B803608S	80" x 36" x 8"	T8036R	80" x 36"

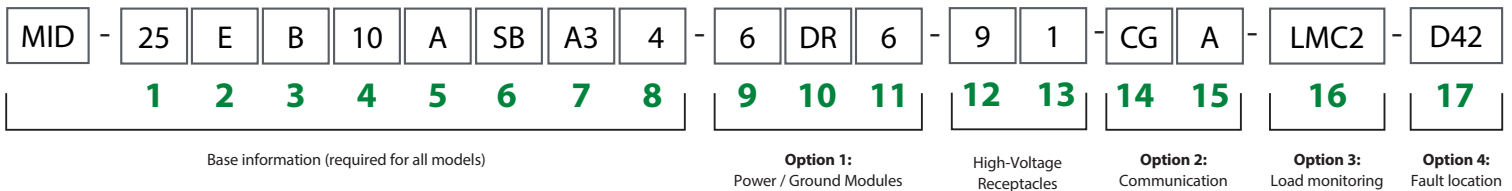
MID - Dual Voltage Isolation Power Panels

Dual Output Voltage Isolated Power Panels provide two separate voltage outputs using a single isolation transformer. A standard Dual Output Voltage Panel consists of the following:

Standard Features

- Dual Output Isolation transformer with main & secondary main circuit breakers
- 2 x BENDER LIM2010 Line Isolation Monitor (LIM)
- Up to 4 branch circuit breaker for high voltage (208 or 240V) side
- 2 x Reference Ground Bus
- Bolt-on style load center
- 16, 2-pole 20A branch circuit breakers (consult factory for alternative configurations)
- Front trim with door in door concealed hinge

Consult factory for custom panel configurations



Step 1: Interior

1: Total System kVA Rating

10: 10 kVA 25: 5 kVA
15: 15 kVA

2: Primary Voltage Rating

B: 208 V H: 220 V
C: 240 V I: 230 V
D: 277 V J: 380 V
E: 480 V
G: 110 V

3: High-Voltage Secondary (output) Voltage

A: 120 V H: 220 V
B: 208 V I: 230 V
C: 240 V

4: Low-Voltage kVA Rating

05: 5 kVA 10: 10 kVA
07: 7.5 kVA

5: Low-Voltage Secondary (output) Voltage

A: 120 V G: 110 V
B: 208 V H: 220 V
C: 240 V I: 230 V

6: Loadcenter Type

SB: Square-D, bolt-on
CB: Cutler-Hammer, bolt-on
GB: General Electric, bolt-on

7: High-Voltage Branch Circuit Breaker Rating

A2: 20 A A5: 50 A
A3: 30 A A6: 60 A

8: High-Voltage Branch Circuit Breaker Quantity

1: One 3: Three
2: Two 4: Four

Option 1: Integrated Receptacles and Ground Jacks

9: Quantity of Ground Jacks (0 through 6)

0: Zero 6: Six

10: Receptacle Type

NN: No receptacles
SR: NEMA 5-20R Single, RED
SI: NEMA 5-20R Single, IVORY
DR: NEMA 5-20R Duplex, RED
DI: NEMA 5-20R Duplex, IVORY
TB: 2300HG, Twist-to-lock, BLACK

11: Quantity of Receptacles (0 through 6)

0: Zero 6: Six

12: High-Voltage Receptacle #1

N: No Receptacle 5: NEMA 6-50R
1: IN16494 60A 6: NEMA L6-15R
2: NEMA 6-15R 7: NEMA L6-20R
3: NEMA 6-20R 8: NEMA L6-30R
4: NEMA 6-30R 9: CS8269 50A

13: High-Voltage Receptacle #2

N: No Receptacle 5: NEMA 6-50R
1: IN16494 60A 6: NEMA L6-15R
2: NEMA 6-15R 7: NEMA L6-20R
3: NEMA 6-20R 8: NEMA L6-30R
4: NEMA 6-30R 9: CS8269 50A

Consult factory for alternative breaker rating configurations and quantities

MID - Dual Voltage Isolation Power Panels

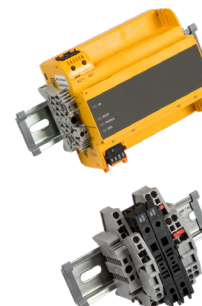
Option 2: Communications

Includes COM465IP communication gateway, featuring on-board web server monitoring connected devices, fieldbus communication, and more. Any combination / quantity of features shown below may be selected. Refer to COM465IP datasheet for additional information.

14: Communications

[] **(Blank):** No Communications

CG: COM465IP Gateway Module



15: Communications Function Packages

A: Custom device / alarm labels, e-mail notifications, reports

B: Modbus/TCP and SNMP support

C: Remote device configuration, reports

D: System visualizations

E: Virtual devices and alarms

F: Third party device / alarm integration

Following options only available of Low-Voltage side of Power Panel

Option 3: Load monitoring

Provides load current monitoring at the main and/or individual branch circuits. Branch circuit monitoring uses Bender's CMS460 series modules. Refer to CMS460 datasheet for additional information.

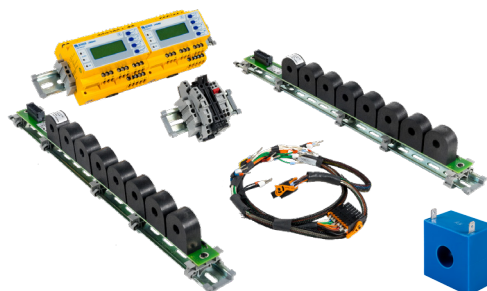
11: Load Monitoring

[] **(Blank):** No Load Monitoring

LM: System Load Monitoring

LMC1: System Load Monitoring + Branch Circuit Monitoring - up to 12 circuits

LMC2: System Load Monitoring + Branch Circuit Monitoring - up to 16 circuits



Option 4: Fault Location

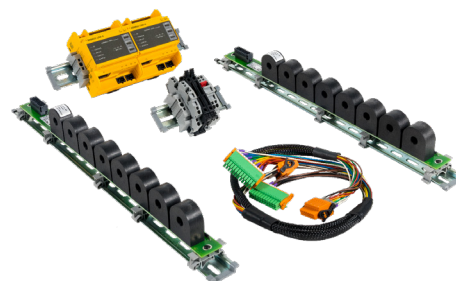
Provides integrated, automatic ground-fault location using Bender's EDS441 series modules. Refer to EDS441 datasheet for additional information.

17: Integrated Fault Location

[] **(Blank):** No Fault Location

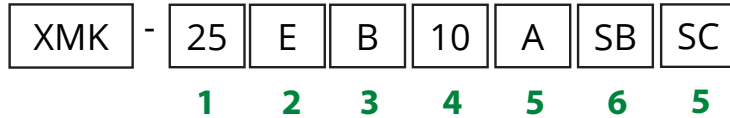
D41: Branch Ground Fault Location - up to 12 circuits

D42: Branch Ground Fault Location - up to 16 circuits



Step 2: Transformer Kits for for MID Panels

Modular Hospital Grade Isolation Transformer Kits, for Modular Isolated Power Systems, include a transformer which provides isolation between configured primary and secondary voltages and its' corresponding Main Breaker arrangement along with all nessccary mounting hardware. Options for a Secondary Main breaker and/or Selection Cordination are also available upon request.



1: Total System kVA Rating

10: 10 kVA **25:** 25 kVA
15: 15 kVA

2: Primary Voltage Rating

B: 208 V **H:** 220 V
C: 240 V **I:** 230 V
D: 277 V **J:** 380 V
E: 480 V
G: 110 V

3: High-Voltage Secondary (output) Voltage

A: 120 V **H:** 220 V
B: 208 V **I:** 230 V
C: 240 V

4: Low-Voltage kVA Rating

05: 5 kVA **10:** 10 kVA
07: 7.5 kVA

5: Low-Voltage Secondary (output) Voltage

A: 120 V **G:** 110 V
B: 208 V **H:** 220 V
C: 240 V **I:** 230 V

6: Loadcenter Type

SB: Square-D, bolt-on
CB: Cutler-Hammer, bolt-on
GB: General Electric, bolt-on

7: Selective Cordination

[] (Blank): No Selective Cordination
SC: Selective Cordination

**Selective Cordination only available on select configurations
 Consult factory for 50 Hz options and alternative ratings*

Step 3: Backbox and Front Trim

System kVA Rating	Mounting Style	Backbox Part Number	Backbox Dimensions (H" x W" x D")	Front Trim Part Number	Front Trim Dimensions (H" x W")
Up to 15 kVA	Flush	B723012F	72" x 30" x 12"	T7432DR	74" x 32"
Up to 25 kVA	Flush	B723014F	72" x 30" x 14"	T7432DR	74" x 32"
Up to 15 kVA	Surface	B723012S	72" x 30" x 12"	T7230DR	72" x 30"
Up to 25 kVA	Surface	B723014S	72" x 30" x 14"	T7230DR	72" x 30"

MIC - X-Ray / Laser Control Isolation Power Panels

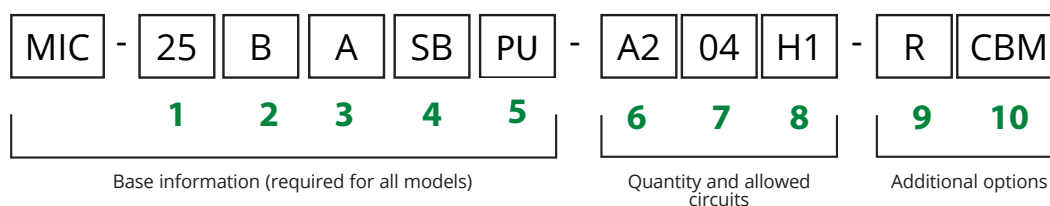
Bender's X-Ray / Laser Control Isolation Power Panels (MIC) are designed to feed X-Ray and Laser receptacles at interface of up to 60A (within the power rating of the panel). The system utilizes a PLC to lock-out circuits to ensure power consumption remains within the ratings of the system



Standard Features

- Isolation transformer with corresponding main circuit breaker
- BENDER LIM2010 Line Isolation Monitor (LIM)
- Circuit control lockout via PLC
- Control Transformer for PLC
- Reference Ground Bus
- Bolt-on style load center
- Up to 12, 2-pole 20-60A circuit breakers
- Front trim with door in door concealed hinge

Consult factory for custom panel configurations



Step 1: Interior

1: System kVA Rating

- 10: 10 kVA
- 15: 15 kVA
- 25: 25 kVA

2: Primary Voltage Rating

- | | |
|----------|----------|
| A: 120 V | G: 110 V |
| B: 208 V | H: 220 V |
| C: 240 V | I: 230 V |
| D: 277 V | J: 380 V |
| E: 480 V | N: 600V |

3: Secondary Voltage Rating

- | | |
|----------|----------|
| A: 120 V | G: 110 V |
| B: 208 V | H: 220 V |
| C: 240 V | I: 230 V |

4: Loadcenter Type

- SB: Square-D, bolt-on
- CB: Cutler-Hammer, bolt-on
- GB: General Electric, bolt-on

5: Circuit Lockout Method

- PU: PLC interlock - door contactor controlled with in-use lamps located at each individual receptacle module

NOTE: Repeat this section for any additional branch circuit configurations. The total ampere rating and quantity of simultaneously active circuits must be rated in accordance with the secondary voltage and total kVA of the system.

6: Branch Circuit Ampere Rating

- | | |
|----------|----------|
| A2: 20 A | A5: 50 A |
| A3: 30 A | A6: 60 A |
| A4: 40 A | |

7: Total Quantity of Circuits

- | | |
|---------|------------|
| 01: One | 12: Twelve |
|---------|------------|

8: Quantity of Simultaneously Active Circuits

- | | |
|---------|-----------|
| H1: One | H3: Three |
| H2: Two | H4: Four |

9: Provisions for "In-Use" Light Relays

- | | |
|------------------------------|------------|
| [] (Blank) : Do not include | R: Include |
|------------------------------|------------|

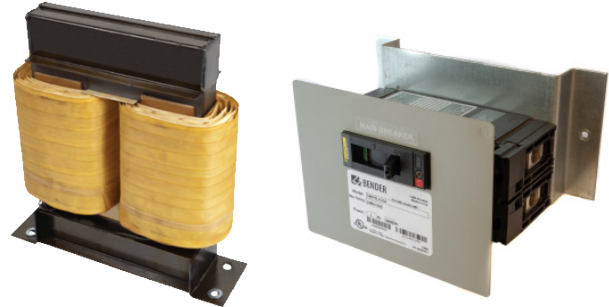
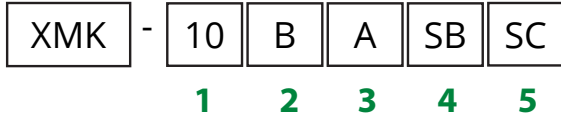
10: MK2000CBM Provisions

- | | |
|------------------------------|--------------|
| [] (Blank) : Do not include | CBM: Include |
|------------------------------|--------------|

Consult factory for alternative breaker rating configurations and quantities

Step 2: Transformer Kits for for MIC Panels

Modular Hospital Grade Isolation Transformer Kits, for Modular Isolated Power Systems, include a transformer which provides isolation between configured primary and secondary voltages and its' corresponding Main Breaker arrangement along with all necessary mounting hardware. Options for a Secondary Main breaker and/or Selection Coordination are also available upon request.



1: System kVA Rating

- 10: 10 kVA
- 15: 15 kVA
- 25: 25 kVA

2: Primary Voltage Rating

- A: 120 V
- B: 208 V
- C: 240 V
- D: 277 V
- E: 480 V
- G: 110 V
- H: 220 V
- I: 230 V
- J: 380 V

3: Secondary Voltage Rating

- A: 120 V
- B: 208 V
- C: 240 V
- G: 110 V
- H: 220 V
- I: 230 V

4: Loadcenter Type

- SB: Square-D, bolt-on
- CB: Cutler-Hammer, bolt-on
- GB: General Electric, bolt-on

5: Selective Coordination

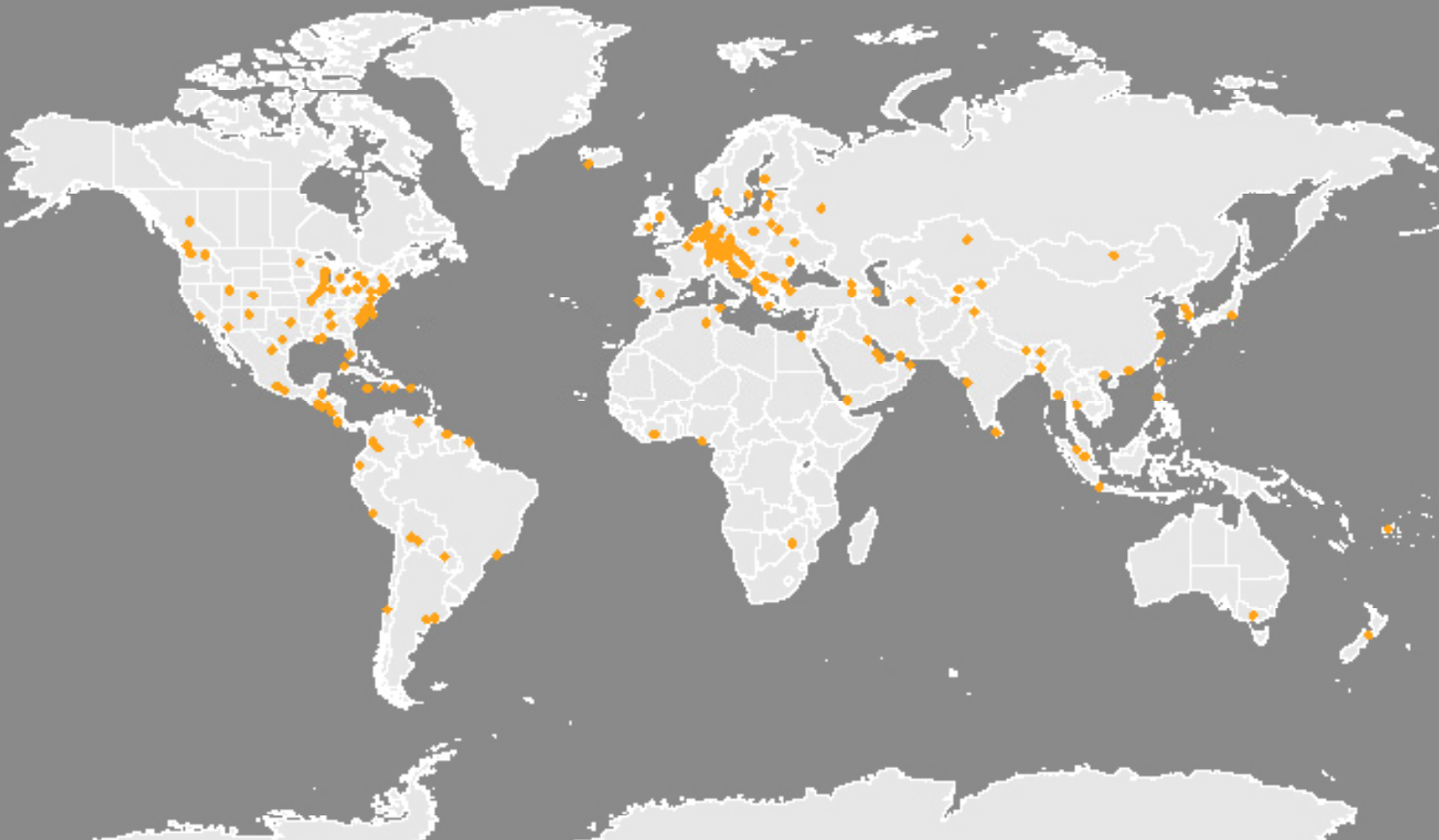
- [] (Blank): No Selective Coordination
- SC: Selective Coordination

**Selective Coordination only available on select configurations
Consult factory for 50 Hz options and alternative ratings*

Step 3: Backbox and Front Trim

System kVA rating	Mounting style	Backbox part number	Backbox dimensions (H" x W" x D")	Front trim part number	Front trim dimensions (H" x W")
Up to 15 kVA	Flush	B723012F	72" x 30" x 12"	T7432C	74" x 32"
Up to 25 kVA	Flush	B723014F	72" x 30" x 14"	T7432C	74" x 32"
Up to 15 kVA	Surface	B723012S	72" x 30" x 12"	T7230C	72" x 30"
Up to 25 kVA	Surface	B723014S	72" x 30" x 14"	T7230C	72" x 30"

Bender is located in 70 countries around the world.



USA • Exton, PA
800.356.4266 / 610.383.9200 • info@bender.org
www.benderinc.com

Canada • Mississauga, ON
800.243.2438 / 905.602.9990 • info@bender-ca.com
www.bender-ca.com

Mexico • Ciudad de Mexico
+972 517-7147 / + (55) 4955 1198 • info@bender.com.mx
www.bender.com.mx

South America, Central America, Caribbean
+1 (484) 288-7434 • info@bender-latinamerica.com
www.bender-latinamerica.com

Chile • Santiago de Chile
+56 2.2933.4211 • info@bender-cl.com
www.bender-cl.com