

SUMMER 2013

# SOLAR COMPONENTS



**BORDER STATES**  
Supply Chain Solutions™

## TABLE OF CONTENTS

|                                     |    |
|-------------------------------------|----|
| Solar modules .....                 | 3  |
| Mounting structures .....           | 3  |
| Inverters .....                     | 11 |
| Metering grounds and protection ... | 17 |
| Combiner boxes and disconnects ..   | 19 |
| Connector cables and tools .....    | 26 |
| Hydration and cooling .....         | 32 |
| Ergonomics .....                    | 33 |
| Eye protection .....                | 33 |
| Facility identification .....       | 36 |
| Fall protection .....               | 36 |
| First aid products .....            | 37 |
| Hand protection .....               | 38 |
| Head protection .....               | 39 |
| Hearing protection .....            | 40 |
| HI-VIS .....                        | 40 |
| Lockout tagout .....                | 41 |
| Respiratory protection .....        | 42 |
| Work clothing .....                 | 43 |
| Index .....                         | 44 |
| Abbreviations .....                 | 46 |
| Glossary .....                      | 47 |

## THE EXPERIENCE TO HELP

At Border States, we are committed to delivering total satisfaction with our products, services and solutions. From pre-construction to project close out—we provide the solar components you need to complete projects on time and on budget.

This catalog is intended as a handy reference and product selection guide for established solar contractors. We included our best product offerings in each category to help you get your project done.

To keep our promise of delivering total satisfaction, we work with our customers to get the items they need. This catalog not only lists our solar components items, it also includes safety products like hard hats, harnesses and HI-VIS. Providing a complete product offering allows you to consolidate your distribution supply chain and save time and money.

We also offer a SolarWorld Sunkits program. SolarWorld Sunkits program is a full service solution for contractors of all experience levels. Minimize your system design and grow your solar business faster with SolarWorld Sunkits program. For more information, turn to page 43.

Visit our website at [borderstates.com](http://borderstates.com) or talk to your Border States account manager for more solar power solutions.







## SOLAR MODULES

### Sunmodules 60-Cell Mono-Crystalline Version 2.5 Frame

Plus-Sorting guarantees highest system efficiency.

- Clear anodized aluminum frame
- 25-years of linear performance
- Compatible with “top-down” and “bottom” mounting methods



| Mfr. Model #  | Pmax   | Voc    | Isc    | BSE Part # |
|---------------|--------|--------|--------|------------|
| MONO-2.5-270W | 270 Wp | 38.3 V | 8.9 A  | 2899257    |
| MONO-2.5-265W | 265 Wp | 38.1 V | 8.82 A | 2916275    |

### Sunmodules 60-Cell Black Mono-Crystalline Version 2.5 Frame

Plus-Sorting guarantees highest system efficiency.

- Black anodized aluminum frame
- 25-years of linear performance
- Compatible with “top-down” and “bottom” mounting methods



| Mfr. Model #      | Pmax   | Voc    | Isc    | BSE Part # |
|-------------------|--------|--------|--------|------------|
| MONO-BLK-2.5-265W | 265 Wp | 38.1 V | 8.82 A | 2899259    |

## Note

Modules from additional manufacturers are available upon request.

Modules ● ● ● ● ●

## MOUNTING STRUCTURES

### SOLARMOUNT™ Standard Rails

Fast and easy way to install PV array.

- Flush, high profile or low profile configurations
- Minimized penetration with longer attachment spans
- Incorporated into other major product lines



| Mfr. Model # | Length | Finish | BSE Part # |
|--------------|--------|--------|------------|
| 310132C      | 132"   | Clear  | 2790879    |
| 310168C      | 168"   | Clear  | 2790880    |
| 310168D      | 168"   | Dark   | 2790881    |
| 310208C      | 208"   | Clear  | 2790882    |
| 310240C      | 240"   | Clear  | 2790883    |
| 310240D      | 240"   | Dark   | 2790884    |

### SOLARMOUNTi™ Standard Rails

I-beam design optimizes strength and eliminates excess material found in other systems.

- Engineered for flush mount applications
- Fast and easy attachment options



| Mfr. Model # | Length | Type     | Finish | BSE Part # |
|--------------|--------|----------|--------|------------|
| 010144M      | 144"   | 1 rail   | Milled | 2790889    |
| 011144M      | 144"   | 2.5 rail | Milled | 2790890    |
| 011192M      | 192"   | 2.5 rail | Milled | 2790891    |

### SUNFRAME™ Rails

Engineered to sit low to the roof without gaps and implements shared rails.

- System spacing allows convection cooling
- Minimized penetration with longer attachment spans



| Mfr. Model # | Length | Type     | Finish | BSE Part # |
|--------------|--------|----------|--------|------------|
| 210192C      | 192"   | Threaded | Clear  | 2790892    |
| 210192D      | 192"   | Threaded | Dark   | 2790893    |

# SOLAR COMPONENTS

## U-LA™ Rail Mounting and Pipe Structure Components for Large Arrays

Available to fit 2 or 3" inside-diameter pipe.



| Mfr. Model # | Type             | Size        | Material          | BSE Part # |
|--------------|------------------|-------------|-------------------|------------|
| 403200C      | Brace            | 2" at 7'    | Milled aluminum   | 2790894    |
| 403201C      | Brace            | 2" at 10.5' | Milled aluminum   | 2790895    |
| 403202C      | Brace            | 2" at 14'   | Milled aluminum   | 2790896    |
| 403203C      | Brace            | 2" at 21'   | Milled aluminum   | 2790897    |
| 403301C      | Brace            | 3" at 7'    | Milled aluminum   | 2790907    |
| 403302C      | Brace            | 3" at 10.5' | Milled aluminum   | 2790908    |
| 403303C      | Brace            | 3" at 14'   | Milled aluminum   | 2790909    |
| 403211C      | Front cap        | 2"          | Milled aluminum   | 2790899    |
| 403211G      | Front cap        | 2"          | Zinc-plated steel | 2790900    |
| 403311G      | Front cap        | 3"          | Zinc-plated steel | 2790910    |
| 403210P      | Pipe cap         | 2"          | Gray plastic      | 2790898    |
| 403213C      | Rail bracket     | 2"          | Milled aluminum   | 2790901    |
| 403313G      | Rail bracket     | 3"          | Milled aluminum   | 2790911    |
| 403214C      | Rear cap         | 2"          | Milled aluminum   | 2790902    |
| 403214G      | Rear cap         | 2"          | Zinc-plated steel | 2790903    |
| 403314G      | Rear cap         | 3"          | Zinc-plated steel | 2790912    |
| 403215C      | Slider           | 2"          | Milled aluminum   | 2790904    |
| 403215S      | Slider, 1 flange | 2"          | Zinc-plated steel | 2790905    |
| 403315S      | Slider, 1 flange | 3"          | Zinc-plated steel | 2790913    |
| 403216SULA   | Threaded foot    | 2"          | Zinc-plated steel | 2790906    |
| 403316S      | Threaded foot    | 3"          | Zinc-plated steel | 2790914    |

## SOLARMOUNT™ U-LA Top and Bottom Mounting Clamps

End, mid and bottom mount clamps.

- Hardware included
- End clamp type



| Mfr. Model # | Clamp Range                              | Finish | Includes  | Size  | BSE Part # |
|--------------|--|--------|-----------|-------|------------|
| 302001C      | 24 – 26 mm;<br>0.94 – 1.02"              | Clear  | 2" bolt   | A     | 2790915    |
| 302002C      | 30 – 32 mm;<br>1.18 – 1.26"              | Clear  | 2" bolt   | B     | 2790916    |
| 302003C      | 34 – 36 mm;<br>1.34 – 1.42"              | Clear  | 2" bolt   | C     | 2790917    |
| 302003D      | 34 – 36 mm;<br>1.34 – 1.42"              | Dark   | 2" bolt   | C     | 2790918    |
| 302004C      | 38 – 40 mm;<br>1.50 – 1.57"              | Clear  | 2.5" bolt | D     | 2790919    |
| 302004D      | 38 – 40 mm;<br>1.50 – 1.57"              | Dark   | 2.5" bolt | D     | 2790920    |
| 302005C      | 50 – 52 mm;<br>1.97 – 2.05"              | Clear  | 2.5" bolt | E     | 2790921    |
| 302005D      | 50 – 52 mm;<br>1.97 – 2.05"              | Dark   | 2.5" bolt | E     | 2790922    |
| 302006C      | 45 – 47 mm;<br>1.77 – 1.85"              | Clear  | 2.5" bolt | F     | 2790923    |
| 302006D      | 45 – 47 mm;<br>1.77 – 1.85"              | Dark   | 2.5" bolt | F     | 2790924    |
| 302007D      | Sharp lipped modules,<br>SOLARMOUNT only | Dark   | –         | G     | 2790925    |
| 302008C      | 41 – 43 mm;<br>1.61 – 1.69"              | Clear  | 2.5" bolt | J     | 2790926    |
| 302008D      | 41 – 43 mm;<br>1.61 – 1.69"              | Dark   | 2.5" bolt | J     | 2790927    |
| 302009C      | 39 – 41 mm;<br>1.54 – 1.61"              | Clear  | 2.5" bolt | K     | 2790928    |
| 302009D      | 39 – 41 mm;<br>1.54 – 1.61"              | Dark   | 2.5" bolt | K     | 2790929    |
| 302010C      | Sanyo lipped modules,<br>SOLARMOUNT only | Clear  | –         | L     | 2790930    |
| 302011C      | 47 – 49 mm;<br>1.85 – 1.93"              | Clear  | 2.5" bolt | M     | 2790931    |
| 302101C      | 24 – 41 mm;<br>0.94 – 1.61"              | Clear  | 2" bolt   | ABCDK | 2790932    |
| 302101D      | 24 – 41 mm;<br>0.94 – 1.61"              | Dark   | 2" bolt   | ABCDK | 2790933    |
| 302103C      | 41 – 52 mm;<br>1.61 – 2.05"              | Clear  | 2" bolt   | EFJ   | 2790934    |
| 302104D      | 41 – 52 mm;<br>1.61 – 2.05"              | Dark   | 2" bolt   | EFJ   | 2790935    |
| 302105D      | Sharp lipped modules,<br>SOLARMOUNT only | Dark   | –         | G     | 2790936    |
| 302106D      | Sanyo lipped modules,<br>SOLARMOUNT only | Dark   | –         | H     | 2790937    |
| 302000C      | –  | Clear  | –         | –     | 2790938    |

Notes ● ● ● ● ●



### SOLARMOUNT™ Top Mounting Clamps

- Hardware included
- End clamp type



| Mfr. Model # | Clamp Range                 | Finish | Includes  | Size | BSE Part # |
|--------------|-----------------------------|--------|-----------|------|------------|
| 002001C      | 24 – 26 mm;<br>0.94 – 1.02" | Clear  | 2" bolt   | A    | 2790939    |
| 002002C      | 30 – 32 mm;<br>1.18 – 1.26" | Clear  | 2" bolt   | B    | 2790940    |
| 002003C      | 34 – 36 mm;<br>1.34 – 1.42" | Clear  | 2" bolt   | C    | 2790941    |
| 002004C      | 38 – 40 mm;<br>1.50 – 1.57" | Clear  | 2.5" bolt | D    | 2790942    |
| 002005C      | 50 – 52 mm;<br>1.97 – 2.05" | Clear  | 2.5" bolt | E    | 2790943    |
| 002006C      | 45 – 47 mm;<br>1.77 – 1.85" | Clear  | 2.5" bolt | F    | 2790944    |
| 002007C      | 41 – 43 mm;<br>1.61 – 1.69" | Clear  | 2.5" bolt | J    | 2790945    |
| 002008C      | 39 – 41 mm;<br>1.54 – 1.61" | Clear  | 2.5" bolt | K    | 2790946    |
| 002009C      | 47 – 49 mm;<br>1.85 – 1.93" | Clear  | 2.5" bolt | M    | 2790947    |
| 002012C      | 47 – 49 mm;<br>1.85 – 1.93" | Clear  | 2.5" bolt | M    | 2790948    |
| 002101C      | 24 – 26 mm;<br>0.94 – 1.02" | Clear  | 2" bolt   | A    | 2790949    |
| 002102C      | 30 – 36 mm;<br>1.18 – 1.42" | Clear  | 2" bolt   | BC   | 2790950    |
| 002103C      | 39 – 41 mm;<br>1.54 – 1.61" | Clear  | 2.5" bolt | DK   | 2790951    |
| 002104C      | 41 – 52 mm;<br>1.61 – 2.05" | Clear  | 2.5" bolt | EFJ  | 2790952    |

### SOLARMOUNT™ Splice Plates

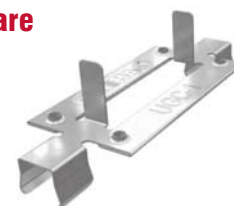
Use one splice plate whenever two rail segments are joined.

- SOLARMOUNT™ and SOLARMOUNT™ heavy duty only



| Mfr. Model # | Finish | BSE Part # |
|--------------|--------|------------|
| 303003C      | Clear  | 2790953    |

### SOLARMOUNT™ Grounding Hardware



| Mfr. Model # | Description               | Material          | BSE Part # |
|--------------|---------------------------|-------------------|------------|
| 308001S      | UGC-1 ground WEEB clip #1 | Stainless steel   | 2790954    |
| 008002S      | Ground WEEB lug #1        | Tin coated copper | 2790955    |

### SOLARMOUNT™ Adjustable Tilt Legs — Single Leg Kit

Each leg contains a square tube, a strut insert and fasteners.

- Usable lengths are 2" less than stated because holes are drilled 1" from ends



| Mfr. Model # | Length | BSE Part # |
|--------------|--------|------------|
| 307107M      | 12"    | 2790956    |
| 307115M      | 30"    | 2790957    |
| 307120M      | 44"    | 2790958    |
| 307134M      | 72"    | 2790959    |

### SOLARMOUNT™ Fixed Tilt Leg Kit

Each leg kit contains fixed length leg and fasteners.

- Usable lengths are 2" less than stated because holes are drilled 1" from ends



| Mfr. Model # | Length | BSE Part # |
|--------------|--------|------------|
| 307007M      | 7"     | 2790960    |
| 307015M      | 15"    | 2790961    |
| 307020M      | 20"    | 2790962    |
| 307034M      | 34"    | 2790963    |

Notes ● ● ● ● ●

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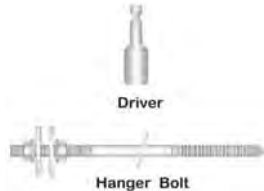
MOUNTING STRUCTURES

# SOLAR COMPONENTS

## SOLARMOUNT™ and SUNFRAME™ Hanger Bolts

Hanger bolts support SOLARMOUNT™ rails above tile or corrugated metal roofs.

- Driver allows insertion into 3/16" pilot holes in the rafters



| Mfr. Model # | Description  | Length | Size | BSE Part # |
|--------------|--|--------|------|------------|
| 030021C      | Hanger bolt used with tile or corrugated metal roofs | 8"     | 3/8" | 2790969    |
| 030022C      | Hanger bolt driver                                   | –      | 3/8" | 2790970    |

## SOLARMOUNT™ and SUNFRAME™ Splice Bars

Serrated splice bars.

- Order one splice bar whenever two rail segments are joined



| Mfr. Model # | Finish | BSE Part # |
|--------------|--------|------------|
| 303001C      | Clear  | 2790971    |
| 303002D      | Dark   | 2790972    |

## SOLARMOUNTi™ Splice Kits

Available with or without grounding solution.

- Hardware included



| Mfr. Model # | Description                          | BSE Part # |
|--------------|--------------------------------------|------------|
| 003000S      | –                                    | 2790973    |
| 003001S      | Includes WEEB 9.5 grounding solution | 2790974    |

## SOLARMOUNTi™ Grounding Clips and Endphase Mounting Kit

Two will mount one enphase inverter.



| Mfr. Model # | Description                       | BSE Part # |
|--------------|-----------------------------------|------------|
| 008005S      | Stainless steel UGC-2 ground clip | 2790975    |
| 008000C      | Enphase mounting kit              | 2790976    |

## SUNFRAME™ Cap Strips

Screws sold separately.

- Length: 192"



| Mfr. Model # | Clamp Range                   | Finish | Size | BSE Part # |
|--------------|-------------------------------|--------|------|------------|
| 202001C      | 34 – 36 mm/1.34 – 1.42"       | Clear  | C    | 2790977    |
| 202001D      | 34 – 36 mm/1.34 – 1.42"       | Dark   | C    | 2790978    |
| 202002C      | 38 – 40 mm/1.5 – 1.57"        | Clear  | D    | 2790979    |
| 202002D      | 38 – 40 mm/1.5 – 1.57"        | Dark   | D    | 2790980    |
| 202003C      | 50 – 52 mm/1.97 – 2.05"       | Clear  | E    | 2790981    |
| 202003D      | 50 – 52 mm/1.97 – 2.05"       | Dark   | E    | 2790982    |
| 202004C      | 45 – 47 mm/1.77 – 1.85"       | Clear  | F    | 2790983    |
| 202004D      | 45 – 47 mm/1.77 – 1.85"       | Dark   | F    | 2790984    |
| 202005D      | Sharp lipped modules          | Dark   | G    | 2790985    |
| 202006D      | Sanyo lipped modules          | Dark   | H    | 2790986    |
| 202007C      | Sanyo lipped bifacial modules | Clear  | L    | 2790987    |
| 202007D      | Sanyo lipped bifacial modules | Dark   | L    | 2790988    |
| 202008D      | 41 – 33 mm/1.61 – 1.69"       | Dark   | J    | 2790989    |

## SUNFRAME™ Cap Strip Screws

Clear or dark finish available.



| Mfr. Model # | Finish | Size         | BSE Part # |
|--------------|--------|--------------|------------|
| 209000C      | Clear  | 1/4 x 3/4"   | 2790990    |
| 209000D      | Dark   | 1/4 x 3/4"   | 2790991    |
| 209001C      | Clear  | 1/4 x 1"     | 2790992    |
| 209001D      | Dark   | 1/4 x 1"     | 2790993    |
| 209002C      | Clear  | 1/4 x 1-1/4" | 2790994    |
| 209002D      | Dark   | 1/4 x 1-1/4" | 2790995    |
| 209003C      | Clear  | 1/4 x 1-1/2" | 2790996    |
| 209003D      | Dark   | 1/4 x 1-1/2" | 2790997    |





### SUNFRAME™ L-Foot Adjusting Slider

Includes 2 lag bolts with flat washers and stainless steel footing bolt with flange nut.



| Mfr. Model # | Finish | BSE Part # |
|--------------|--------|------------|
| 204001C      | Milled | 2790998    |

### SUNFRAME™ End Cap

UV resistant plastic, with matching screws.



| Mfr. Model # | Type     | Finish | BSE Part # |
|--------------|----------|--------|------------|
| 202000D      | Threaded | Dark   | 2790999    |

### Multi-Solution Wire Management Clips

Can be used with any module and Unirac mounting system.

- Stainless steel



| Mfr. Model # | Type     | Includes      | BSE Part # |
|--------------|----------|---------------|------------|
| 008003S      | DCS 1306 | One wire clip | 2791000    |
| 008004S      | DCS 1307 | Two wire clip | 2791001    |

### Cable Ties

Cable ties fit into 1/4" holes drilled along rails.

- Push mount cable tie



| Mfr. Model # | Color | BSE Part # |
|--------------|-------|------------|
| 309001D      | Black | 2791002    |

### Shims

Level or raise standoffs and L-feet and precisely align rails.

- Tapered shim is useful in leveling



| Mfr. Model # | Type      | Color | Size              | BSE Part # |
|--------------|-----------|-------|-------------------|------------|
| 009001D      | Horseshoe | Blue  | 1-1/2 x 2 x 1/16" | 2791003    |
| 009003D      | Horseshoe | Red   | 1-1/2 x 2 x 1/8"  | 2791004    |
| 009002D      | Horseshoe | Black | 1-1/2 x 2 x 1/4"  | 2791005    |
| 009004D      | Tapered   | Black | 1.5 x 3-3/8"      | 2791006    |

### Standard Fasteners and Washers

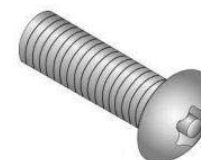
Stainless steel hardware.



| Mfr. Model # | Type           | Finish | For Use With       | Size          | BSE Part # |
|--------------|----------------|--------|--------------------|---------------|------------|
| 330001C      | T-bolt and nut | Clear  | Mid and end clamps | 1/4 x 2"      | 2791007    |
| 330002D      | T-bolt and nut | Dark   | Mid and end clamps | 1/4 x 2"      | 2791008    |
| 330003C      | T-bolt and nut | Clear  | Mid and end clamps | 1/4 x 2-1/2"  | 2791009    |
| 330004D      | T-bolt and nut | Dark   | Mid and end clamps | 1/4 x 2-1/2"  | 2791010    |
| 030020C      | Flat washer    | -      | -                  | 5/16"         | 2791011    |
| 030023C      | Lag bolt       | -      | -                  | 5/16 x 3-1/2" | 2791012    |

### Security Hardware

Increases the difficulty and time required for a thief to dismantle a PV array and steal its components.



| Mfr. Model # | Type          | Size            | BSE Part # |
|--------------|---------------|-----------------|------------|
| 030002C      | Breakaway nut | 3/8-16          | 2791013    |
| 030003C      | Breakaway nut | 1/4-20          | 2791014    |
| 030024C      | Star bolt     | 3/8-16 x 1-1/4" | 2791015    |
| 030025C      | Star key      | 1/4"            | 2791016    |
| 030026C      | Star key      | 3/8"            | 2791017    |

# SOLAR COMPONENTS

## Flashings

Fits standoff outside diameter of 1-5/8".

- No-Calk® collar
- By Oatey
- Not for hot mopped or built-up roofs



| Mfr. Model # | Size            | Type                | BSE Part # |
|--------------|-----------------|---------------------|------------|
| 004013C      | 18 x 18"        | Soft aluminum       | 2791018    |
| 004014C      | 12-1/2 x 8-3/4" | Galvanized aluminum | 2743826    |
| 004015C      | 12-1/2 x 8-3/4" | Aluminum            | 2791019    |

## Flat Flashings

Flashing, attached gasket, washer and square aluminum plate only.



| Mfr. Model # | Description                                   | Size    | BSE Part # |
|--------------|---|---------|------------|
| 004010D      | No lag bolt or rail attachment piece included | 12 x 8" | 2791020    |

## Roof Tile Hooks

For use with concrete tile or Spanish tile roofs.

- Aluminum



| Mfr. Model # | Type        | BSE Part # |
|--------------|-------------|------------|
| 004006C      | Front mount | 2791021    |
| 004007C      | Side mount  | 2791022    |
| 004008C      | Top mount   | 2791023    |

## Two Piece Standoffs

Includes stainless steel hardware, except roof mounting lag bolts.

- Shaft outside diameter is 1-5/8"

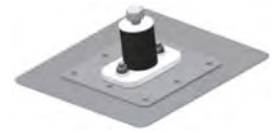


| Mfr. Model # | Size | Type     | Finish | BSE Part # |
|--------------|------|----------|--------|------------|
| 004300C      | 3"   | Aluminum | Clear  | 2791024    |
| 004400C      | 4"   | Aluminum | Clear  | 2791025    |
| 004600C      | 6"   | Aluminum | Clear  | 2791026    |
| 004700C      | 7"   | Aluminum | Clear  | 2791027    |
| 004300D      | 3"   | Aluminum | Dark   | 2791028    |
| 004400D      | 4"   | Aluminum | Dark   | 2791029    |
| 004600D      | 6"   | Aluminum | Dark   | 2791030    |
| 004700D      | 7"   | Aluminum | Dark   | 2791031    |

## FastFoot Hardware and Accessories

FastFoot assembly does not include flashings, concealer screws, anchors or ferrules.

- Hardware available



| Mfr. Model # | Size   | Type                         | For Use With                | BSE Part # |
|--------------|--------|------------------------------|-----------------------------|------------|
| 004003C      | 3"     | FastFoot assembly            | –                           | 2791048    |
| 004004C      | 4"     | FastFoot assembly            | –                           | 2791049    |
| 004005C      | 7"     | FastFoot assembly            | –                           | 2791050    |
| 004012C      | –      | Flashing #1 galvalume        | –                           | 2791051    |
| 004017D      | –      | Flashing peel and stick EPDM | FastFoot and RapidFoot      | 2791052    |
| 030001C      | –      | Anchor, #14                  | FastFoot                    | 2791053    |
| 030004C      | 1-1/2" | Concealer screw, DP1         | FastFoot wood penetrations  | 2791054    |
| 030005C      | 2"     | Concealer screw, DP1         | FastFoot wood penetrations  | 2791055    |
| 030006C      | 2-3/4" | Concealer screw, DP4         | FastFoot metal penetrations | 2791056    |
| 030007C      | 3"     | Concealer screw, DP1         | FastFoot wood penetrations  | 2791057    |
| 030008C      | 3-3/4" | Concealer screw, DP4         | FastFoot metal penetrations | 2791058    |
| 030009C      | 1-3/8" | Concealer screw, DP4         | FastFoot metal penetrations | 2791059    |
| 030010C      | 4"     | Concealer screw, DP1         | FastFoot wood penetrations  | 2791060    |
| 030011C      | 4-1/2" | Concealer screw, DP1         | FastFoot wood penetrations  | 2791061    |
| 030012C      | 4-3/4" | Concealer screw, DP4         | FastFoot metal penetrations | 2791062    |
| 030013C      | 5"     | Concealer screw, DP1         | FastFoot wood penetrations  | 2791063    |
| 030014C      | 5-3/4" | Concealer screw, DP4         | FastFoot metal penetrations | 2791064    |
| 030015C      | 6"     | Concealer screw, DP1         | FastFoot wood penetrations  | 2791065    |
| 030016C      | 6-3/4" | Concealer screw, DP4         | FastFoot metal penetrations | 2791066    |
| 030017C      | 7"     | Concealer screw, DP1         | FastFoot wood penetrations  | 2791067    |
| 030018C      | 7-3/4" | Concealer screw, DP4         | FastFoot metal penetrations | 2791068    |
| 030019C      | 48"    | Ferrule, #1                  | FastFoot                    | 2791069    |

**Minimize your system design and grow your solar business faster with SolarWorld Sunkits program.**

For more information, turn to page 43.

Sunkits ● ● ● ● ●





### Serrated L-Feet

Lag bolts are not included.



| Mfr. Model # | Finish | Includes                  | BSE Part # |
|--------------|--------|---------------------------|------------|
| 304000C      | Clear  | S/s bolts and flange nuts | 2730747    |
| 304000D      | Dark   | S/s bolts and flange nuts | 2791070    |

### Flashed Composition Shingle Mounts

Easy and fast watertight mount for composition roofs, hardware included.

- One bolt installation
- No trimming shingles
- Patented elevated water seal
- Works with all leading racks
- IBC compliant, ICC-ES certified



### Quick Mount PV

| Mfr. Model # | Type        | Finish          | Size     | BSE Part # |
|--------------|-------------|-----------------|----------|------------|
| QMSC-A-1     | Quick mount | Milled          | 12 x 12" | 2790805    |
| QMSC-B-1     | Quick mount | Bronze anodized | 12 x 12" | 2790806    |

### Flattop (One-Piece) and Flanged Standoffs

Outside diameter of 1-5/8", fasteners not included.

- Zinc-plated steel



| Mfr. Model # | Type                         | Size | BSE Part # |
|--------------|------------------------------|------|------------|
| 004301G      | Flattop (one-piece) standoff | 3"   | 2791071    |
| 004401G      | Flattop (one-piece) standoff | 4"   | 2791072    |
| 004601G      | Flattop (one-piece) standoff | 6"   | 2791073    |
| 004701G      | Flattop (one-piece) standoff | 7"   | 2791074    |
| 004302G      | Flanged standoff             | 3"   | 2791075    |
| 004402G      | Flanged standoff             | 4"   | 2791076    |
| 004602G      | Flanged standoff             | 6"   | 2791077    |
| 004702G      | Flanged standoff             | 7"   | 2791078    |

### Flashed Shake Mounts

Easy and fast watertight mount for wood shake roofs, hardware included.

- One bolt installation
- No trimming shingles
- Patented elevated water seal
- Works with all leading racks
- IBC compliant, ICC-ES certified



### Quick Mount PV

| Mfr. Model # | Type        | Finish          | Size     | BSE Part # |
|--------------|-------------|-----------------|----------|------------|
| QMLC-A-1     | Quick mount | Milled          | 18 x 18" | 2790807    |
| QMLC-B-1     | Quick mount | Bronze anodized | 18 x 18" | 2790808    |

### SOLARMOUNTi™ and SOLARMOUNT™ (E)volution Connectors

Hardware not included.



| Mfr. Model # | Description   | Type                 | BSE Part # |
|--------------|---------------|----------------------|------------|
| 004000M      | Without butyl | One flange connector | 2791079    |
| 004001M      | Without butyl | Two flange connector | 2791080    |
| 004002C      | With butyl    | Two flange connector | 2791081    |

### RapidFoot Assembly

Used to anchor Rapid Rac.



| Mfr. Model # | BSE Part # |
|--------------|------------|
| 622069C      | 2791082    |

### Accessories for Composition and Shake Mounts

Shingle ripper, hanger bolts and extensions.



### Quick Mount PV

| Mfr. Model #  | Description   | Length | BSE Part # |
|---------------|---|--------|------------|
| QMEXT-2.5-A-1 | Mill finish, extensions for composition and shake mounts to provide better airflow and clear obstructions - Clear anodized  | 2-1/2" | 2790809    |
| QMEXT-2.5-B-1 | Mill finish, extensions for composition and shake mounts to provide better airflow and clear obstructions - Bronze anodized | 2-1/2" | 2790810    |
| QMHS-6-1      | Hanger bolt to span gaps where insulation is installed over roof structure, includes hardware                               | 6"     | 2790811    |
| QMHS-8-1      | Hanger bolt to span gaps where insulation is installed over roof structure, includes hardware                               | 8"     | 2790812    |
| QMHS-10-1     | Hanger bolt to span gaps where insulation is installed over roof structure, includes hardware                               | 10"    | 2790813    |
| QMRB-1        | Dasco shingle ripper makes installations faster and more efficient, no damage to shingles                                   | 24"    | 2790814    |

MOUNTING STRUCTURES

# SOLAR COMPONENTS

## Q-Base Universal Tile Mount

Flashes all tile roofs, curved or flat.

- Two spun aluminum cone flashings to keep out of the rain
- 3,031 lb average pullout
- All fasteners and hardware included
- IBC compliant



### Quick Mount PV®

| Mfr. Model # | Finish          | Size     | BSE Part # |
|--------------|-----------------|----------|------------|
| QMUTM-A-1    | Milled          | 18 x 18" | 2790815    |
| QMUTM-B-1    | Bronze anodized | 18 x 18" | 2790816    |

## SmartFlash Roof Flashing

- Single lag penetration
- Waterproof robotic weld
- No shingle cutting
- Exceeds all applicable codes
- Fits all racking systems
- Minimum 600 lb pull out



### TERRASMART BETTER SOLUTIONS. SMARTER PRODUCTS.

| Mfr. Model # | Finish         | Size     | BSE Part # |
|--------------|----------------|----------|------------|
| TS-1-A       | Clear          | 10 x 13" | 2790868    |
| TS-1-B       | Black anodized | 10 x 13" | 2790869    |
| TS-905       | Lag screw      | 6" long  | 2790870    |

## Flat Jack® Composition Shingle Mount

Easily installed and requires no shingle trimming or sealants.

- Galvanized steel
- Stainless steel bracket
- Watertight
- Full flashing over roof penetrations
- IBC compliant



| Mfr. Model # | Size     | BSE Part # |
|--------------|----------|------------|
| FJ001BL      | 10 x 11" | 2790871    |

## Seamed Metal Roof Solar Attachment

Stainless steel mounting disk has twelve nodes designed to ensure the module-to-module conductivity of anodized aluminum module frames.

- Fits majority of solar panels
- Accommodates PV frame thickness 1.3 – 2.5"
- No rails required
- Hooks assist with wire management
- UL 2703, 1703 listed



### S-5!®

| Mfr. Model # | For Use With                | Size             | BSE Part # |
|--------------|-----------------------------|------------------|------------|
| S-5-PV-KIT   | Standing seam roof, no rail | 3" mounting disc | 2790827    |

## Seamed Metal Roof Clamps

Attach to seam by tightening of two setscrews against the seam.

- Variety of models for different applications



### S-5!®

| Mfr. Model # | Description   | Size                | BSE Part # |
|--------------|---|---------------------|------------|
| S-5-U        | Fits 85% of standing seam profiles manufactured in North America                  | 1.5 x 1.5 x 2"      | 2790828    |
| S-5-S        | For snap-together crimp profiles  | 1.5 x 1.5 x 2"      | 2790829    |
| S-5-E        | Designed for double folded standing seam  | 0.98 x 1.97 x 1.18" | 2790830    |
| S-5-U-MINI   | Fits 85% of standing seam profiles manufactured in North America, non-penetrating | 1.5 x 1.5 x 1.18"   | 2790831    |
| S-5-S-MINI   | For snap-together crimp profiles  | 1.5 x 1.5 x 1.18"   | 2790832    |
| S-5-E-MINI   | Designed for double folded standing seam  | 0.98 x 1.18 x 1.18" | 2790833    |
| S-5-T-MINI   | Designed to fit profiles having a "T" shaped seam configuration                   | 2 x 1.18 x 1.5"     | 2790834    |

Notes ● ● ● ● ●



### Exposed-Fastened Trapezoidal Metal Roof Bracket

Used to mount objects to an exposed-fastened roof system.

- Factory applied sealant
- Supports heavy duty application like snow retention
- Requires self tapping screws to attach ancillary items
- Quick and easy installation



| Mfr. Model #        | Size  | BSE Part # |
|---------------------|-------|------------|
| S-5-VERSABRACKET-67 | 2.65" | 2790835    |

### CorruBracket Corrugated Metal Roof Bracket

Compatible with 7/8 and 3/4" corrugated roofing.

- Factory applied sealant



| Mfr. Model #     | Size             | BSE Part # |
|------------------|------------------|------------|
| S-5-CORRUBRACKET | 2 x 2.67 x 1.68" | 2790836    |

### POWER-FAB® Top Pole Mounts

Provide fast install and a secure mounting structure for PV modules on a single pole.

- Maximum strength
- Seasonal elevation adjustment
- High strength welded steel



| Mfr. Model # | Description        | Pole Size | BSE Part # |
|--------------|--------------------|-----------|------------|
| DP-TPM6-X    | For 6 SW230 panels | 6" SCH40  | 2790705    |
| DP-TPM9-X    | For 9 panels       | 8" SCH40  | 2790706    |
| DP-TPM12-X   | For 12 panels      | 8" SCH80  | 2790707    |

Notes ● ● ● ● ●

### Active Trackers

Guided by an optical, sun-sensing device that dramatically outperforms passive tracking systems.

- Easy to install and operate



| Mfr. Model # | Description                        | Type        | BSE Part # |
|--------------|------------------------------------|-------------|------------|
| AZ-125-6     | Pole mount for 6 Canadian modules  | Single axis | 2791083    |
| AZ-225-9     | Pole mount for 9 modules           | Dual axis   | 2791084    |
| AZ-225-12    | Pole mount for 12 Canadian modules | Dual axis   | 2791085    |

### AZ Tracker Upgrade Options

Dual axis and manual control options for active trackers.



| Mfr. Model # | Description                           | BSE Part # |
|--------------|---------------------------------------|------------|
| WDA-OPTION   | Dual axis option for pole mount       | 2791086    |
| W-MANCON     | Manual controls for dual axis tracker | 2791087    |

## INVERTERS

### M215 Microinverters

Improves energy harvest, increases reliability and dramatically simplifies design, installation and management of solar power systems.

- Resilient to dust, debris and shading
- Performance monitoring per module
- System availability greater than 99.8%
- No single point of system failure
- 24/7 monitoring and analysis
- Low voltage DC
- Reduced fire risk
- Use with 60 cell PV module



| Mfr. Model #    | Voltage   | Connector Type                             | Input Power | BSE Part # |
|-----------------|-----------|--|-------------|------------|
| M215-60-2LL-S22 | 16 – 36 V | MC-4 Type 2 locking or amphenol H4 locking | 190–260 W   | 2717806    |
| M215-60-2LL-S23 | 16 – 36 V | Tyco solarlock locking                     | 190–260 W   | 2717811    |



# SOLAR COMPONENTS

## M215 Microinverter Installation Accessories

Variety of installation accessories.



| Mfr. Model # | Description             | Voltage  | Spacing | BSE Part # |
|--------------|-------------------------|----------|---------|------------|
| ET10-240-01  | Trunk cable portrait    | 240 V AC | 40"     | 2717801    |
| ET17-240-01  | Trunk cable landscape   | 240 V AC | 67"     | 2717800    |
| ET10-208-01  | Trunk cable portrait    | 208 V AC | 40"     | 2717577    |
| ET17-208-01  | Trunk cable landscape   | 208 V AC | 67"     | 2717576    |
| ET-CLIP-01   | Cable clips             | -        | -       | 2717815    |
| ET-DISC-05   | Disconnect tool         | -        | -       | 2717819    |
| ET-INSTL     | M215 install kit        | -        | -       | 2717822    |
| ET-TERM-01   | Branch terminator       | -        | -       | 2717824    |
| ET-SEAL-01   | Watertight sealing caps | -        | -       | 2717823    |

## Module Level Monitoring



| Mfr. Model # | Description  | Voltage      | BSE Part # |
|--------------|--|--------------|------------|
| ENV-120-01   | Envoy communications gateway, with ethernet bridge pair    | 120 V        | 2776741    |
| ELCF-120-001 | Line communication filter, IEMU communication hub included | 208/240 V AC | 2790708    |

## Environ Smart Thermostats

Allows owners to manage heating and cooling along with their solar system through internet connected devices.

- 7-day programmability
- Large backlit display
- Precise touch screen



| Mfr. Model # | Description   | BSE Part # |
|--------------|---|------------|
| EVRN-RT-01   | Environ smart thermostat with ZigBee interface kit                    | 2790709    |
| EVRN-RT-02   | Environ smart thermostat with ZigBee interface, additional thermostat | 2790710    |
| EVRN-RR-01   | Environ repeater for ZigBee interface                                 | 2790711    |

## Sunny Boy SB700 Series Grid-Tie Inverters

Compact and economical price make it ideal for start or demo systems.

- Three different input voltage ranges
- Galvanic isolation
- Three point mounting assembly
- UL certified



| Mfr. Model # | Voltage     | AC Output     | BSE Part # |
|--------------|-------------|---------------|------------|
| SB700USB     | 150/200/250 | 460/600/700 W | 2790837    |

## Sunny Boy SB2000/2500/3000 HFUS Series Grid-Tie Inverters

Designed for projects requiring UL certification.

- Maximum efficiency 97.3%
- Galvanic isolation
- OptiCool™ active temperature management
- Plug-in grounding
- Slim enclosure
- Integrated DC disconnect and combiner box



| Mfr. Model # | Voltage      | Type                    | AC Output | BSE Part # |
|--------------|--------------|-------------------------|-----------|------------|
| SB2000HFUS   | 208/240 V AC | High frequency inverter | 2,000 W   | 2790838    |
| SB2500HFUS   | 208/240 V AC | High frequency inverter | 2,500 W   | 2790839    |
| SB3000HFUS   | 208/240 V AC | High frequency inverter | 3000 W    | 2790840    |

## Sunny Boy Inverters 3000/4000US Grid-Tie Inverters

Specially designed for countries that require UL certification.

The automatic grid voltage detection allows easy and safe installation.

- 96.8% peak efficiency
- OptiCool active temperature management
- Galvanic isolation
- Patented automatic grid voltage detection
- Integrated DC disconnect



| Mfr. Model # | Voltage        | AC Output | BSE Part # |
|--------------|----------------|-----------|------------|
| SB3000US     | 250 – 500 V DC | 3,000 W   | 2445795    |
| SB4000US     | 310 – 600 V DC | 4,000 W   | 2445796    |



### Sunny Boy Inverters 5000/6000/7000/8000 US Series Grid-Tie Inverters

Designed specifically to meet IEEE-1547 requirements.

- 97% peak efficiency
- OptiCool active temperature management
- Galvanic isolation
- Patented automatic grid voltage detection
- Integrated DC disconnect
- Low frequency transformer, true sinewave
- 6000US, 7000US and 8000US are also compatible with the Sunny Tower



### Sunny SensorBox Monitor

Installed directly onto the modules and measures the sun radiation and temperature.

- Precise acquisition of irradiation intensity, module temperature, ambient temperature and wind speed values
- Easy installation on the solar generator
- Simple integration into existing PV plants via RS485
- Data analysis on any PC or in the Sunny Portal
- Rapid error detection via continuous target-actual comparison of plant performance



| Mfr. Model # | Voltage       | AC Output | BSE Part # |
|--------------|---------------|-----------|------------|
| SB5000US     | 208/240/277 V | 5,000 W   | 2440573    |
| SB6000US     | 208/240/277 V | 6,000 W   | 2445797    |
| SB7000US     | 208/240/277 V | 7,000 W   | 2445798    |
| SB8000US     | 240 V/2TN     | 7,680 W   | 2613275    |



| Mfr. Model #            | Voltage     | BSE Part # |
|-------------------------|-------------|------------|
| SUNNY-SENSORBOX-MONITOR | 100 – 240 V | 2445801    |

### Sunny Boy SB8000/9000/10000 TL-US Series Grid-Tie Inverters

Ideal choice for mid-size and large plants from 24 kWp up to the megawatt range.

- Transformerless
- Maximum efficiency of 98.7%
- Integrated DC disconnect and combiner box
- Transformerless, for grids 208 V with combiner box, for ungrounded systems
- OptiCool™ active temperature management



### Sunny WebBox with Bluetooth®

Receives and stores currently measured values and data from PV inverters and Sunny SensorBox devices.

- No cables needed
- Remote monitoring
- Data logger
- Automatic monitoring of up to 50 inverters
- Fast set up



| Mfr. Model # | Voltage | AC Output | BSE Part # |
|--------------|---------|-----------|------------|
| SB8000TL-US  | 208 V   | 8,000 W   | 2790841    |
| SB9000TL-US  | 208 V   | 9,000 W   | 2790842    |
| SB10000TL-US | 208 V   | 10,000 W  | 2790843    |



| Mfr. Model #    | BSE Part # |
|-----------------|------------|
| SUNNY-WEBBOX-BT | 3010236    |

Notes ● ● ● ● ●

### Sunny Beam Bluetooth Piggyback Card

One Sunny Beam Bluetooth piggy back card is required per SMA inverter for the Sunny Beam Bluetooth® monitor.



| Mfr. Model # | BSE Part # |
|--------------|------------|
| BTPBINV-NR   | 2613284    |

### Sunny WebBox

The integrated Sunny WebBox is the most advanced communication gateway in the PV industry and it is included with the Sunny Tower.

- For monitoring of up to 50 inverters



| Mfr. Model #      | BSE Part # |
|-------------------|------------|
| SUNNY-WEBBOX-240V | 2613304    |

### RS-485 Communications Module

For the communication between the solar Sunny Boy inverters and monitoring devices.

- Up to 50 inverters can be connected to a Sunny WebBox
- The maximum total cable length is 3,600' (1,200 m)
- For medium and large solar power systems
- High speed and reliability



| Mfr. Model # | BSE Part # |
|--------------|------------|
| RS485        | 2445800    |

### Ambient Temperature Sensor

For use with SensorBox.



| Mfr. Model #               | BSE Part # |
|----------------------------|------------|
| AMBIENT-TEMPERATURE-SENSOR | 2613280    |

### Module Temperature Sensor

- Includes 2-component thermally conductive adhesive, 2.5 m connection cable, and mounting materials
- For use with Sunny SensorBox



| Mfr. Model #              | For Use With    | BSE Part # |
|---------------------------|-----------------|------------|
| MODULE-TEMPERATURE-SENSOR | Sunny SensorBox | 2613281    |

### IG Plus V Inverters

- Maximum efficiency of 96.2%
- Built-in six string combiner
- Integrated lockable DC disconnect



| Mfr. Model #   | Voltage                  | Configuration      | AC Output | BSE Part # |
|----------------|--------------------------|--------------------|-----------|------------|
| IG-Plus-3.0    | 208/240/277 V output     | Single-phase       | 3,000 W   | 2790712    |
| IG-Plus-3.8    | 208/240/277 V output     | Single-phase       | 3,800 W   | 2790713    |
| IG-Plus-5.0    | 208/240/277 V output     | Single-phase       | 5,000 W   | 2790714    |
| IG-Plus-6.0    | 208/240/277 V output     | Single-phase       | 6,000 W   | 2790715    |
| IG-Plus-7.5    | 208/240/277 V output     | Single-phase       | 7,500 W   | 2790716    |
| IG-Plus-10.0   | 208/240/277 V output     | Single-phase       | 10,000 W  | 2790717    |
| IG-Plus-11.4   | 208/240/277 V output     | Single-phase       | 11,400 W  | 2790718    |
| IG-Plus-11.4-3 | 208/240 V output (delta) | True 3-phase delta | 11,400 W  | 2790719    |
| IG-Plus-12.0-3 | 277 V output             | True 3-phase       | 12,000 W  | 2790720    |

Notes ● ● ● ● ●





## 3-Phase Commercial Central Inverters

Sets the industry standard for high reliability, ease of installation and lifetime maintainability.

- Smart Air Management™
- Bottom and side entry
- Easy to maintain
- Maximum efficiency of 98.1%
- For 3-phase applications



**AE PV Powered™**

| Mfr. Model #   | Voltage | AC Output | BSE Part # |
|----------------|---------|-----------|------------|
| AE35TX-208     | 208 V   | 35 kW     | 2790769    |
| AE35TX-480     | 480 V   | 35 kW     | 2790770    |
| AE50TX-208     | 208 V   | 50 kW     | 2790771    |
| AE50TX-480     | 480 V   | 50 kW     | 2790772    |
| AE75TX-208     | 208 V   | 75 kW     | 2790773    |
| AE75TX-480     | 480 V   | 75 kW     | 2790774    |
| AE100TX-208    | 208 V   | 100 kW    | 2790775    |
| AE100TX-480    | 480 V   | 100 kW    | 2790776    |
| AE260TX-480    | 208 V   | 260 kW    | 2790777    |
| AE260TX-LV-480 | 480 V   | 260 kW    | 2790778    |

## CL Commercial 3-Phase Central Inverters

High yield power electronics with the unique, modular system design of up to 15 identical power stages in the MIX™ concept.

- Intelligent cooling
- Comprehensive system monitoring
- For 3-phase applications



**Fronius**  
SHIFTING THE LIMITS

| Mfr. Model #          | Description                   | Voltage           | AC Output | BSE Part # |
|-----------------------|-------------------------------|-------------------|-----------|------------|
| CL-33.3-DELTA         | –                             | 208/240 V (delta) | 33.3 kW   | 2790743    |
| CL-36.0-WYE           | –                             | 277 V (wye)       | 36 kW     | 2790744    |
| CL-44.4-DELTA         | –                             | 208/240 V (delta) | 44.4 kW   | 2790745    |
| CL-48.0-WYE           | –                             | 277 V (wye)       | 48 kW     | 2790746    |
| CL-55.5-DELTA         | –                             | 208/240 V (delta) | 55.5 kW   | 2790747    |
| CL-60.0-WYE           | –                             | 277 V (wye)       | 60 kW     | 2790748    |
| CL-MOUNTING-BASE      | Base for Fronius CL           | –                 | –         | 2790749    |
| STRING-CONTROL-250/25 | Fronius string control 250/25 | –                 | –         | 2790750    |

## 3-Phase Commercial Central Inverters

Slated for three-phase commercial installations, outdoor resistance with the highest reliability and efficiency in the industry.

- Industrial grade
- User interactive LCD transformer isolated



**SOLECTRIA RENEWABLES**

| Mfr. Model #  | Voltage | Max Power | BSE Part # |
|---------------|---------|-----------|------------|
| PVI-13KW-208V | 208 V   | 13.2 kW   | 2790856    |
| PVI-13KW-240V | 240 V   | 13.2 kW   | 2790857    |
| PVI-13KW-480V | 480 V   | 12.2 kW   | 2790858    |
| PVI-15KW-208V | 208 V   | 15 kW     | 2790859    |
| PVI-15KW-240V | 240 V   | 15 kW     | 2790860    |
| PVI-15KW-480V | 480 V   | 15 kW     | 2790861    |
| PVI-60KW-208V | 208 V   | 60 kW     | 2790862    |
| PVI-60KW-240V | 240 V   | 60 kW     | 2790863    |
| PVI-60KW-480V | 480 V   | 60 kW     | 2790864    |

## Module Maximizer

For residential, commercial and utility scale photovoltaic solar arrays, optimizes the power output of each module.

- Great conversion efficiency



**Tigo**  
energy

| Mfr. Model #  | Description               | Voltage   | Connector Type | BSE Part # |
|---------------|---------------------------|-----------|----------------|------------|
| ES050V300W-4W | 300 W maximizer           | 16 – 48 V | MC4            | 2790872    |
| ES050V300W-5W | 300 W maximizer           | 16 – 48 V | Tyco           | 2790873    |
| MU-ESW        | Maximizer management unit | –         | –              | 2790874    |
| MU-GTWY       | Gateway signal booster    | –         | –              | 2790875    |

Notes ● ● ● ● ●



## METERING GROUNDS AND PROTECTION

### E-Z Read Watt Hour Meter

Designed to be field installed on the U5100 and U5300 metered power outlets.

- Numeric read-out in full kilowatt increments
- No "tenths" dial
- Remanufactured to 1% accuracy



| Mfr. Model # | Ampere Rating | BSE Part # |
|--------------|---------------|------------|
| CL200        | 200 A         | 2428805    |

### Residential Meter Sockets Single-Position

- Ring type
- 4 terminal
- Accepts 5th terminal
- Available with -KK bypass



| Mfr. Model # | Service | Dimensions           | Ampere Rating | Connector Size | BSE Part # |
|--------------|---------|----------------------|---------------|----------------|------------|
| U7490-RL     | OH/UG   | 3-5/16 x 8 x 11-1/2" | 125 A         | #6-2/0         | 149123     |
| U4518-XL-W   | OH/UG   | 4-1/8 x 11 x 15-1/2" | 200 A         | #6-350         | 1099110    |

### Test Block Bypass - 3-Phase

For use with remote main-ring type.



| Mfr. Model # | Description                      | Ampere Rating | Connectors CU/AL [Min] | Connectors CU/AL [Max] | BSE Part # |
|--------------|----------------------------------|---------------|------------------------|------------------------|------------|
| 117TB        | Test block bypass-TB series 3Ø4W | 100 A         | 6 AWG                  | 1 /0 AWG               | 148722     |
| 127TB        | Test block bypass-TB series 3Ø4W | 200 A         | 1 /0 AWG               | 250 kcmil              | 148733     |

### Module Grounding Lug

Made from high strength copper alloy with stainless steel screw.

- For copper conductor only
- Lay-in feature
- Rated for grounding and bonding
- UL, CSA certified



| Mfr. Model # | Description | Stud Size | Wire Range | BSE Part # |
|--------------|-------------|-----------|------------|------------|
| GBL-4DBT     | Tin plated  | 10        | 4 - 14 AWG | 1104907    |

### Copper Lay-In QIKLUG™

Made from high strength copper alloy with stainless steel screw.

- UL467 listed for direct burial in earth or concrete
- Open-faced design allows for fast lay-in of the conductor without the need for cutting or breaking



| Mfr. Model # | Description | Stud Size | Wire Range  | BSE Part # |
|--------------|-------------|-----------|-------------|------------|
| CL501TN      | Tin plated  | #10       | #14 - #4 CU | 2298313    |

### Amp, Grounding Connector

For use with solid wire.



Electronics

| Mfr. Model # | Wire Range | BSE Part # |
|--------------|------------|------------|
| 2058729-1    | 6 - 12 AWG | 2790876    |

### WEEB Grounding Products

- WEEB-BNDJMP6.7AS includes: Bonding cable, tin-plated copper screw, 1/4-20 x 3/4" hex washer



| Mfr. Model #     | Description                                  | BSE Part # |
|------------------|--|------------|
| UMC              | WEEB for pole and ground mount installations | 2677268    |
| WEEB-9.5NL       | WEEB without retention feature               | 2791088    |
| WEEB-PMC         | WEEB   | 2791089    |
| WEEB-UMC         | -  | 2791090    |
| WEEB-DMC         | WEEB for mounting enphase to Unirac          | 2791091    |
| WEEB-WMC         | WMC grounding clip                           | 2791092    |
| WEEB-LUG-6.7     | Tin plated copper lay in lug with WEEB       | 2791093    |
| WEEB-BNDJMP6.7AS | Bonding jumper                               | 2615888    |

METERING GROUNDS AND PROTECTION



# SOLAR COMPONENTS

## Lightning Arresters

Help prevent damage to computers and other electronic equipment. Category C and B.

- Silicon Oxide Varistor™
- Maximum current: 100,000 A
- PVC case material
- Leads: 36" #12 THHN
- Amperage: Clamping voltage line to neutral
- Locknut and washer furnished
- 8 x 20 microsec and waveshape per IEEE 28 ANSI and NEMA C62.1



| Mfr. Model # | Max Voltage | Configuration        | BSE Part # |
|--------------|-------------|----------------------|------------|
| LA302R       | 250 V       | 1-phase, 3-wire      | 152645     |
| LA303        | 260 V       | 3-phase, 3 or 4-wire | 152646     |
| LA602DC      | 600 V DC    | 1-phase, 3-wire      | 2429044    |
| LA603        | 600 V       | 3-phase, 3 or 4-wire | 152647     |

## IDSR Series - UL Class RK5 Dual-Element Time Delay Fuse With Indication

Provides superior time-delay to withstand minor current surges without sacrificing protection for sustained overloads or short-circuit conditions.

- Ideal for solar inverters
- Interrupting rating of 20 kA
- UL listed for 600 V AC/DC



| Mfr. Model # | Ampere Rating | BSE Part # |
|--------------|---------------|------------|
| IDSR010      | 10 A          | 170754     |
| IDSR015      | 15 A          | 170755     |
| IDSR020      | 20 A          | 124198     |
| IDSR030      | 30 A          | 124200     |
| IDSR060      | 60 A          | 124206     |

Notes ● ● ● ● ●

## SPF Series Solar Fuses

Midget style fuses specifically designed for protecting PV systems.

- Designed to both UL and IEC PV specifications
- Interrupting rating of 20 kA
- UL listed for 1,000 V DC



| Mfr. Model # | Ampere Rating | BSE Part # |
|--------------|---------------|------------|
| SPF001       | 1 A           | 2569652    |
| SPF002       | 2 A           | 2569705    |
| SPF003       | 3 A           | 2569670    |
| SPF004       | 4 A           | 2569650    |
| SPF005       | 5 A           | 2569612    |
| SPF006       | 6 A           | 2569758    |
| SPF008       | 8 A           | 2569762    |
| SPF010       | 10 A          | 2569613    |
| SPF012       | 12 A          | 2569635    |
| SPF015       | 15 A          | 2569663    |
| SPF020       | 20 A          | 2569730    |
| SPF025       | 25 A          | 2569742    |
| SPF030       | 30 A          | 2569707    |

## KLKD Series - AC/DC Rated Fast-Acting Midget Fuse

Designed for use in circuits with DC fault currents up to 10,000 amperes.

- Fast-acting, high-interrupting capacity, current-limiting type fuse
- Especially suited for DC control circuits
- UL listed for 600 V AC/DC



| Mfr. Model # | Ampere Rating | BSE Part # |
|--------------|---------------|------------|
| KLKD001      | 1 A           | 124896     |
| KLKD002      | 2 A           | 124898     |
| KLKD003      | 3 A           | 630353     |
| KLKD004      | 4 A           | 630299     |
| KLKD005      | 5 A           | 630317     |
| KLKD006      | 6 A           | 630323     |
| KLKD008      | 8 A           | 630288     |
| KLKD010      | 10 A          | 630319     |
| KLKD012      | 12 A          | 630310     |
| KLKD015      | 15 A          | 124899     |
| KLKD020      | 20 A          | 630302     |
| KLKD025      | 25 A          | 630314     |
| KLKD030      | 30 A          | 630295     |



## COMBINER BOXES AND DISCONNECTS

### Acme Conduit Entry

Makes quick and simple transactions from USE-2 or PV array wire to conduit protected THWN-2-wire.

- Box is a compact two-piece UV resistant, NEMA 3R rated enclosure
- Allows ample wiring space compatible with any conduit type



| Mfr. Model # | Description   | BSE Part # |
|--------------|---|------------|
| ACE-PT       | Pass-through with gaskets, screws, strain relief, includes mounting bracket with hardware | 2677269    |
| ACE-1P       | 1-string pass through   | 2791094    |
| ACE-2C       | 2-string combiner   | 2791095    |

### Solar Pass Through Boxes

Low profile way to group input circuits from several arrays or panels.

- Rated for 600 V DC - continuous duty
- Built to UL 1741 standards
- Multi-hole solar cord grip
- Light weight design



| Mfr. Model # | Number of Circuits | Enclosure Type     | BSE Part # |
|--------------|--------------------|--------------------|------------|
| CPBF03       | 3                  | Fiberglass NEMA 4X | 2715616    |
| CPBF04       | 4                  | Fiberglass NEMA 4X | 2732104    |

Notes ● ● ● ● ●

### N4X Fiberglass Combiner Box

Designed and built to provide long dependable service, lower installed costs and a wide range of options and accessories.

- Touch-Safe fuse holders and power distribution blocks for safe operation
- Configured for positive and negative grounded arrays
- IP20 finger-safe construction
- Rated for 600 V DC - continuous duty
- Built to UL 1741 standards



| Mfr. Model # | Number of Circuits | Enclosure Type     | BSE Part # |
|--------------|--------------------|--------------------|------------|
| CCBF02       | 2                  | Fiberglass NEMA 4X | 2450152    |
| CCBF04       | 4                  | Fiberglass NEMA 4X | 2450153    |
| CCBF06       | 6                  | Fiberglass NEMA 4X | 2450151    |
| CCBF08       | 8                  | Fiberglass NEMA 4X | 2450154    |
| CCBF10       | 10                 | Fiberglass NEMA 4X | 2407657    |
| CCBF12       | 12                 | Fiberglass NEMA 4X | 2407659    |
| CCBF14       | 14                 | Fiberglass NEMA 4X | 2407661    |
| CCBF16       | 16                 | Fiberglass NEMA 4X | 2407663    |
| CCBF18       | 18                 | Fiberglass NEMA 4X | 2407665    |
| CCBF20       | 20                 | Fiberglass NEMA 4X | 2407667    |
| CCBF22       | 22                 | Fiberglass NEMA 4X | 2407669    |
| CCBF24       | 24                 | Fiberglass NEMA 4X | 2407671    |
| CCBF36       | 36                 | Fiberglass NEMA 4X | 2450164    |
| CCBF48       | 48                 | Fiberglass NEMA 4X | 2450165    |

### N4X Fiberglass Combiner Box with Surge Protection

Save material costs, installation time and labor by joining the combiner box and disconnect within one enclosure and eliminating the need for a disconnect in a separate enclosure.

- IP20 finger-safe construction
- Rated for 600 V DC - continuous duty
- Built to UL 1741 standards; Touch-Safe fuse holders
- Configured for positive and negative grounded arrays
- Includes UL 1449 surge arrester



| Mfr. Model # | Number of Circuits | Enclosure Type     | BSE Part # |
|--------------|--------------------|--------------------|------------|
| CCBF02-SP    | 2                  | Fiberglass NEMA 4X | 2731790    |
| CCBF04-SP    | 4                  | Fiberglass NEMA 4X | 2731747    |
| CCBF06-SP    | 6                  | Fiberglass NEMA 4X | 2731742    |
| CCBF08-SP    | 8                  | Fiberglass NEMA 4X | 2731735    |
| CCBF10-SP    | 10                 | Fiberglass NEMA 4X | 2731727    |
| CCBF12-SP    | 12                 | Fiberglass NEMA 4X | 2731723    |
| CCBF14-SP    | 14                 | Fiberglass NEMA 4X | 2731777    |
| CCBF16-SP    | 16                 | Fiberglass NEMA 4X | 2731832    |
| CCBF18-SP    | 18                 | Fiberglass NEMA 4X | 2732175    |
| CCBF20-SP    | 20                 | Fiberglass NEMA 4X | 2732148    |
| CCBF22-SP    | 22                 | Fiberglass NEMA 4X | 2732152    |
| CCBF24-SP    | 24                 | Fiberglass NEMA 4X | 2732156    |

COMBINER BOXES AND DISCONNECTS

# SOLAR COMPONENTS

## N4X Fiberglass Combiner Box with Integral Fusible Disconnect

Used in residential applications to provide a low profile, cost effective way to group input wires and circuits from several arrays or solar panels and transition from solar (PV) cable to traditional building wire.

- IP20 finger-safe construction
- Rated for 600 V DC - continuous duty
- Built to UL 1741 standards; Touch-Safe fuse holders
- Configured for positive and negative grounded arrays



### 100 A



| Mfr. Model # | Number of Circuits | Enclosure Type     | BSE Part # |
|--------------|--------------------|--------------------|------------|
| CCBF02-DS100 | 2                  | Fiberglass NEMA 4X | 2731949    |
| CCBF04-DS100 | 4                  | Fiberglass NEMA 4X | 2731956    |
| CCBF06-DS100 | 6                  | Fiberglass NEMA 4X | 2731962    |
| CCBF08-DS100 | 8                  | Fiberglass NEMA 4X | 2731967    |
| CCBF10-DS100 | 10                 | Fiberglass NEMA 4X | 2731972    |
| CCBF12-DS100 | 12                 | Fiberglass NEMA 4X | 2731980    |
| CCBF14-DS100 | 14                 | Fiberglass NEMA 4X | 2731987    |
| CCBF16-DS100 | 16                 | Fiberglass NEMA 4X | 2732157    |
| CCBF18-DS100 | 18                 | Fiberglass NEMA 4X | 2732161    |
| CCBF20-DS100 | 20                 | Fiberglass NEMA 4X | 2732165    |
| CCBF22-DS100 | 22                 | Fiberglass NEMA 4X | 2732169    |
| CCBF24-DS100 | 24                 | Fiberglass NEMA 4X | 2732172    |

### 200 A



| Mfr. Model # | Number of Circuits | Enclosure Type     | BSE Part # |
|--------------|--------------------|--------------------|------------|
| CCBF02-DS200 | 2                  | Fiberglass NEMA 4X | 2732125    |
| CCBF06-DS200 | 6                  | Fiberglass NEMA 4X | 2732127    |
| CCBF08-DS200 | 8                  | Fiberglass NEMA 4X | 2732035    |
| CCBF10-DS200 | 10                 | Fiberglass NEMA 4X | 2732031    |
| CCBF12-DS200 | 12                 | Fiberglass NEMA 4X | 2731851    |
| CCBF14-DS200 | 14                 | Fiberglass NEMA 4X | 2731845    |
| CCBF16-DS200 | 16                 | Fiberglass NEMA 4X | 2731841    |
| CCBF18-DS200 | 18                 | Fiberglass NEMA 4X | 2731903    |
| CCBF20-DS200 | 20                 | Fiberglass NEMA 4X | 2731955    |
| CCBF22-DS200 | 22                 | Fiberglass NEMA 4X | 2731950    |
| CCBF24-DS200 | 24                 | Fiberglass NEMA 4X | 2731945    |

## N4X Fiberglass Combiner Box with Integral Fusible Disconnect and Surge Protection

Used to group input wires and circuits from several arrays or solar panels, with disconnect and surge protection.

- Configured for positive and negative grounded arrays
- IP20 finger-safe construction
- Rated for 600 V DC - continuous duty
- Built to UL 1741 standards; Touch-Safe fuse holders
- Includes UL 1449 surge arrester



### 100 A



| Mfr. Model #    | Number of Circuits | Enclosure Type     | BSE Part # |
|-----------------|--------------------|--------------------|------------|
| CCBF02-DS100-SP | 2                  | Fiberglass NEMA 4X | 2731344    |
| CCBF04-DS100-SP | 4                  | Fiberglass NEMA 4X | 2731352    |
| CCBF06-DS100-SP | 6                  | Fiberglass NEMA 4X | 2731177    |
| CCBF08-DS100-SP | 8                  | Fiberglass NEMA 4X | 2731183    |
| CCBF10-DS100-SP | 10                 | Fiberglass NEMA 4X | 2731189    |
| CCBF12-DS100-SP | 12                 | Fiberglass NEMA 4X | 2731201    |
| CCBF14-DS100-SP | 14                 | Fiberglass NEMA 4X | 2731153    |
| CCBF16-DS100-SP | 16                 | Fiberglass NEMA 4X | 2731254    |
| CCBF18-DS100-SP | 18                 | Fiberglass NEMA 4X | 2731264    |
| CCBF20-DS100-SP | 20                 | Fiberglass NEMA 4X | 2731272    |
| CCBF22-DS100-SP | 22                 | Fiberglass NEMA 4X | 2731278    |
| CCBF24-DS100-SP | 24                 | Fiberglass NEMA 4X | 2731284    |

### 200 A



| Mfr. Model #    | Number of Circuits | Enclosure Type     | BSE Part # |
|-----------------|--------------------|--------------------|------------|
| CCBF02-DS200-SP | 2                  | Fiberglass NEMA 4X | 2731377    |
| CCBF04-DS200-SP | 4                  | Fiberglass NEMA 4X | 2731349    |
| CCBF06-DS200-SP | 6                  | Fiberglass NEMA 4X | 2731313    |
| CCBF08-DS200-SP | 8                  | Fiberglass NEMA 4X | 2731285    |
| CCBF10-DS200-SP | 10                 | Fiberglass NEMA 4X | 2731257    |
| CCBF12-DS200-SP | 12                 | Fiberglass NEMA 4X | 2731261    |
| CCBF14-DS200-SP | 14                 | Fiberglass NEMA 4X | 2731265    |
| CCBF16-DS200-SP | 16                 | Fiberglass NEMA 4X | 2731269    |
| CCBF18-DS200-SP | 18                 | Fiberglass NEMA 4X | 2731273    |
| CCBF20-DS200-SP | 20                 | Fiberglass NEMA 4X | 2731277    |
| CCBF22-DS200-SP | 22                 | Fiberglass NEMA 4X | 2731281    |
| CCBF24-DS200-SP | 24                 | Fiberglass NEMA 4X | 2731321    |





### Fused Combiner Boxes

Offers a safe and dependable method to connect and protect power from the solar array to your electrical system.

- Touch safe fuse holders
- 15 A max fuse capacity per terminal
- 600 V DC rating; UL1471 listed



| Mfr. Model # | Number of Circuits | Maximum Current Rating | Enclosure Type     | No. of Conductors | BSE Part # |
|--------------|--------------------|------------------------|--------------------|-------------------|------------|
| MSCF126R     | 12                 | 180                    | NEMA 3R            | 1 output          | 2783868    |
| MSCF246R     | 24                 | 360                    | NEMA 3R            | 2 output          | 2783870    |
| MSCF126X     | 12                 | 180                    | Fiberglass NEMA 4X | 1 output          | 2783871    |
| MSCF246X     | 24                 | 360                    | Fiberglass NEMA 4X | 2 output          | 2783872    |

### IntelliString Smart PV Combiner Boxes

Makes string combiner monitoring easy and affordable.

- Clear touch safe covers
- Finger safe fuse holders
- Solid busbar
- Configured for positive and negative grounded arrays
- Monitor up to 20 A per string
- UL and CSA certified



### AE PVPowered™

| Mfr. Model # | Number of Circuits | Enclosure Type     | BSE Part # |
|--------------|--------------------|--------------------|------------|
| PVP-SSCB-8   | 8                  | Fiberglass NEMA 4X | 2790803    |
| PVP-SSCB-16  | 16                 | Fiberglass NEMA 4X | 2790804    |

### Combi-Switch Combination DC Disconnect and PV Combiner Box

Combines a DC disconnect with PV string fusing.

- Simplifies input wiring
- Touch safe fuse holders
- Fused input protection
- 8 A fuses included
- UL 1741 listed



| Mfr. Model # | Number of Circuits | Enclosure Type | Continuous Current Rating | No. of Conductors                | BSE Part # |
|--------------|--------------------|----------------|---------------------------|----------------------------------|------------|
| SBCD         | 4                  | NEMA 3R        | 32 A DC maximum           | 1 positive, 1 negative (outputs) | 2790855    |

### PV Combiner Boxes

Provide greater flexibility and expandability in system design, oversized bus-work adds high efficiency and dependability.

- Reliable bus-work; UL 1741 listed
- PV positive wires all land directly on touch-safe fuse holders



| Mfr. Model # | Number of Circuits | Enclosure Type | Continuous Current Rating | BSE Part # |
|--------------|--------------------|----------------|---------------------------|------------|
| SBCB-6       | 6                  | NEMA 3R        | 72 A DC max               | 2790851    |
| SCCB-12      | 12                 | NEMA 3R        | 192 A DC max              | 2790852    |
| SCCB-28      | 28                 | NEMA 3R        | 336 A DC max              | 2790853    |
| SCCB-52      | 52                 | NEMA 3R        | 333 A DC max              | 2790854    |

### PV Combiner Boxes

Offers a range of PV combiners from two string up to 16 strings.

- Internal plastic injection molded dead front covers
- Knockouts that accept waterproof strain reliefs

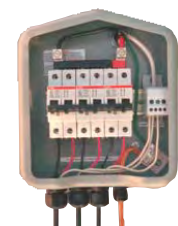


| Mfr. Model # | Enclosure Type | Circuit        | BSE Part # |
|--------------|----------------|----------------|------------|
| MNPV3        | NEMA 3R        | 3              | 2790755    |
| MNPV6        | NEMA 3R        | 6              | 2790756    |
| MNPV12       | NEMA 3R        | 12             | 2790757    |
| MNPV16       | NEMA 3R        | 16             | 2790758    |
| MNPV16-24    | NEMA 3R        | 24 if 150 V DC | 2790759    |
| MNPV16-250   | NEMA 3R        | 12 if 300 V DC | 2790760    |

### Roof-Mount Enclosure/Combiner and Accessories

A PV wire enclosure and seamless flashed product all-in-one, eliminates the multiple parts and respective labor typically needed to accomplish the roof penetration.

- Seamless water-tight protection and low profile design
- Versatility to all PV systems



| Mfr. Model # | Description  | BSE Part # |
|--------------|--|------------|
| 0760-41AD    | AC/DC combiner, 120/240 V AC 60 A, 600 V DC 120 A, NEMA 3R enclosure | 2678869    |
| 0784BB       | Positive bus bar, includes lug and install screw                     | 2790818    |
| 0784FBB-2    | Positive bus 2 string  | 2790819    |
| 0785BB       | Negative bus bar, includes lug and install screw                     | 2790820    |
| 0785TBB-2    | Negative bus 2 string  | 2790821    |
| 0784AC2K     | 2 branch colored AC bus kits   | 2790822    |
| 0784AC3K     | 3 branch colored AC bus kits   | 2790823    |
| 1440         | Power block, rated to 600 V/175 A, main (1) 2/0 - 14, tap (4) 4 - 14 | 2790824    |
| 1455.15      | Din rail mounted breaker, 15 A 120/240 V AC                          | 2790825    |
| 1455.20      | Din rail mounted breaker, 20 A 120/240 V AC                          | 2790826    |

## Class 3110 Single Throw 3-Wire Heavy Duty Safety Switches

According to the National Electric Code, section 690.15, PV arrays must have a disconnecting means to isolate the inverter from the PV power source.

- Utility grid-tie inverters that utilize PV arrays with voltages above 250 V DC require a disconnect rated for 600 V DC to perform this function
- Can be used for disconnecting up to three PV arrays for three grid-tie inverters
- It has wiring lugs that are rated to accept two #14 to #10 wires in each lug
- It is nonfusible, rated at 600 V DC
- 3-pole, 3-wire



### Non-fusible



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| HU361RB      | 30 A          | NEMA 3R        | 156560     |
| HU362RB      | 60 A          | NEMA 3R        | 156561     |
| HU363RB      | 100 A         | NEMA 3R        | 156563     |
| HU361        | 30 A          | NEMA 1         | 156568     |
| HU362        | 60 A          | NEMA 1         | 156572     |
| HU363        | 100 A         | NEMA 1         | 156573     |

### Fusible



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| H361RB       | 30 A          | NEMA 3R        | 156442     |
| H362RB       | 60 A          | NEMA 3R        | 156449     |
| H363RB       | 100 A         | NEMA 3R        | 156458     |
| H361         | 30 A          | NEMA 1         | 156438     |
| H362         | 60 A          | NEMA 1         | 156446     |
| H363         | 100 A         | NEMA 1         | 156452     |

## Heavy-Duty VBII Photovoltaic Disconnect Switch

Performs the function of three competitive switches, designed for use in negative ground up to 600 V DC photovoltaic systems.

- Unique enclosure design features a rolled out front flange that prevents cuts and scrapes to conductor insulation and to the installer's hands
- All switches comply with UL98 requirements and are UL listed in file number E335018 as UL1741 photovoltaic disconnect switches
- Factory installed ground bar supplied as standard
- 3-pole, 3-wire

## SIEMENS

### Non-fusible



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| HNF361RPV    | 30 A          | NEMA 3R        | 2540625    |
| HNF362RPV    | 60 A          | NEMA 3R        | 2540651    |
| HNF363RPV    | 100 A         | NEMA 3R        | 2540644    |
| HNF364RPV    | 200 A         | NEMA 3R        | 2728512    |
| HNF361PV     | 30 A          | NEMA 1         | 2540659    |
| HNF362PV     | 60 A          | NEMA 1         | 2540685    |
| HNF363PV     | 100 A         | NEMA 1         | 2540676    |
| HNF364PV     | 200 A         | NEMA 1         | 2728511    |

### Fusible



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| HF361RPV     | 30 A          | NEMA 3R        | 2540672    |
| HF362RPV     | 60 A          | NEMA 3R        | 2540634    |
| HF363RPV     | 100 A         | NEMA 3R        | 2540631    |
| HF364RPV     | 200 A         | NEMA 3R        | 2728509    |
| HF361PV      | 30 A          | NEMA 1         | 2542429    |
| HF362PV      | 60 A          | NEMA 1         | 2540902    |
| HF363PV      | 100 A         | NEMA 1         | 2542455    |
| HF364PV      | 200 A         | NEMA 1         | 2728510    |



### Heavy-Duty VBII Photovoltaic Disconnect Switch - Positive Ground

Performs the function of three competitive switches, designed for use in positive ground up to 600 V DC photovoltaic systems.

- Unique enclosure design features a rolled out front flange that prevents cuts and scrapes to conductor insulation and to the installer's hands
- All switches comply with UL98 requirements and are UL listed in file number E335018 as UL1741 photovoltaic disconnect switches
- Factory installed ground bar supplied as standard
- 3-pole, 3-wire

## SIEMENS

### Non-fusible



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| HNF361RPVPG  | 30 A          | NEMA 3R        | 2728525    |
| HNF362RPVPG  | 60 A          | NEMA 3R        | 2728526    |
| HNF363RPVPG  | 100 A         | NEMA 3R        | 2728527    |
| HNF364RPVPG  | 200 A         | NEMA 3R        | 2728528    |
| HNF361PVPG   | 30 A          | NEMA 1         | 2728521    |
| HNF362PVPG   | 60 A          | NEMA 1         | 2728522    |
| HNF363PVPG   | 100 A         | NEMA 1         | 2728523    |
| HNF364PVPG   | 200 A         | NEMA 1         | 2728524    |

### Fusible



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| HF361RPVPG   | 30 A          | NEMA 3R        | 2728517    |
| HF362RPVPG   | 60 A          | NEMA 3R        | 2728518    |
| HF363RPVPG   | 100 A         | NEMA 3R        | 2728519    |
| HF364RPVPG   | 200 A         | NEMA 3R        | 2728520    |
| HF361PVPG    | 30 A          | NEMA 1         | 2728513    |
| HF362PVPG    | 60 A          | NEMA 1         | 2728514    |
| HF363PVPG    | 100 A         | NEMA 1         | 2728515    |
| HF364PVPG    | 200 A         | NEMA 1         | 2728516    |

### EverGold™ Photovoltaic Disconnect Switches

Provide the flexibility needed to wire Photovoltaic (PV) systems in the most efficient means possible.

- Single-pole
- UL listed for 600 V DC
- For use as a disconnect for photovoltaic applications per NEC 690



### Non-fusible



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| TSN161       | 30 A          | NEMA 1         | 2683044    |
| TSN162       | 60 A          | NEMA 1         | 2683040    |
| TSN163       | 100 A         | NEMA 1         | 2683060    |
| TSN161R      | 30 A          | NEMA 3R        | 2683042    |
| TSN162R      | 60 A          | NEMA 3R        | 2683062    |
| TSN163R      | 100 A         | NEMA 3R        | 2683058    |

### Fusible



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| TS161        | 30 A          | NEMA 1         | 2683096    |
| TS162        | 60 A          | NEMA 1         | 2683078    |
| TS163        | 100 A         | NEMA 1         | 2683048    |
| TS161R       | 30 A          | NEMA 3R        | 2683094    |
| TS162R       | 60 A          | NEMA 3R        | 2683050    |
| TS163R       | 100 A         | NEMA 3R        | 2683046    |

COMBINER BOXES AND DISCONNECTS

Notes ● ● ● ● ●

# SOLAR COMPONENTS

## Photovoltaic Disconnect Switches

- Marked as suitable for NEC 690 PV applications up to 600 V DC
- UL 98 listed
- Clear polycarbonate deadfront to guard against accidental contact with live parts
- Isolated ground terminals (neutral) for grounded conductors
- NEMAT 3R, 12 and 4X stainless enclosures



### Non-fusible

Solar disconnect switch, non-fusible.



| Manufacturer Part Number | Ampere Rating | Enclosure Type     | BSE Part # |
|--------------------------|---------------|--------------------|------------|
| DH161URKN                | 30 A          | NEMA 3R            | 2746660    |
| DH162URKN                | 60 A          | NEMA 3R            | 2746661    |
| DH163URKN                | 100 A         | NEMA 3R            | 2746662    |
| DH164URKN                | 200 A         | NEMA 3R            | 2746663    |
| DH165URKN                | 400 A         | NEMA 3R            | 2746664    |
| DH166URKN                | 600 A         | NEMA 3R            | 2746665    |
| DH161UDKN                | 30 A          | NEMA 12            | 2746666    |
| DH162UDKN                | 60 A          | NEMA 12            | 2746667    |
| DH163UDKN                | 100 A         | NEMA 12            | 2746668    |
| DH164UDKN                | 200 A         | NEMA 12            | 2746669    |
| DH165UDKN                | 400 A         | NEMA 12            | 2746670    |
| DH166UDKN                | 600 A         | NEMA 12            | 2746671    |
| DH161UWKN                | 30 A          | Fiberglass NEMA 4X | 2746672    |
| DH162UWKN                | 60 A          | Fiberglass NEMA 4X | 2746673    |
| DH163UWKN                | 100 A         | Fiberglass NEMA 4X | 2746674    |
| DH164UWKN                | 200 A         | Fiberglass NEMA 4X | 2746675    |
| DH165UWKN                | 400 A         | Fiberglass NEMA 4X | 2746676    |
| DH166UWKN                | 600 A         | Fiberglass NEMA 4X | 2746677    |

### Fusible

Solar disconnect switch, fusible.

| Mfr. Model # | Ampere Rating | Enclosure Type     | BSE Part # |
|--------------|---------------|--------------------|------------|
| DH161NRK     | 30 A          | NEMA 3R            | 2746642    |
| DH162NRK     | 60 A          | NEMA 3R            | 2746643    |
| DH163NRK     | 100 A         | NEMA 3R            | 2746644    |
| DH164NRK     | 200 A         | NEMA 3R            | 2746645    |
| DH165NRK     | 400 A         | NEMA 3R            | 2746646    |
| DH166NRK     | 600 A         | NEMA 3R            | 2746647    |
| DH161NDK     | 30 A          | NEMA 12            | 2746648    |
| DH162NDK     | 60 A          | NEMA 12            | 2746649    |
| DH163NDK     | 100 A         | NEMA 12            | 2746650    |
| DH164NDK     | 200 A         | NEMA 12            | 2746651    |
| DH165NDK     | 400 A         | NEMA 12            | 2746652    |
| DH166NDK     | 600 A         | NEMA 12            | 2746653    |
| DH161NWK     | 30 A          | Fiberglass NEMA 4X | 2746654    |
| DH162NWK     | 60 A          | Fiberglass NEMA 4X | 2746655    |
| DH163NWK     | 100 A         | Fiberglass NEMA 4X | 2746656    |
| DH164NWK     | 200 A         | Fiberglass NEMA 4X | 2746657    |
| DH165NWK     | 400 A         | Fiberglass NEMA 4X | 2746658    |
| DH166NWK     | 600 A         | Fiberglass NEMA 4X | 2746659    |

## Photovoltaic Disconnect Switches

Provide flexibility for efficient wiring in PV systems.

- Easy access cover
- Ample gutter space
- Bright red operating handle
- Lockable over center cover latches
- 600V DV



### Non-fusible

Provide flexibility for efficient wiring in PV systems, non-fusible.



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| MSN161R      | 30 A          | NEMA 3R        | 2783881    |
| MSN162R      | 60 A          | NEMA 3R        | 2783883    |
| MSN163R      | 100 A         | NEMA 3R        | 2783884    |
| MSN161       | 30 A          | NEMA 1         | 2783873    |
| MSN162       | 60 A          | NEMA 1         | 2783874    |
| MSN163       | 100 A         | NEMA 1         | 2783875    |

### Fusible

Provide flexibility for efficient wiring in PV systems, fusible.



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| MS161R       | 30 A          | NEMA 3R        | 2783885    |
| MS162R       | 60 A          | NEMA 3R        | 2783886    |
| MS163R       | 100 A         | NEMA 3R        | 2783887    |
| MS161        | 30 A          | NEMA 1         | 2783876    |
| MS162        | 60 A          | NEMA 1         | 2783878    |
| MS163        | 100 A         | NEMA 1         | 2783880    |





### Non-fusible Light Duty General Safety Switches

Up to 100 kA short circuit current rating with proper current limiting fusing.

- Designed for residential and commercial applications where economy is a prime consideration
- General duty safety switches are UL listed, File E2875, and meet or exceed the NEMA standard KS1
- Suitable for use as service equipment when equipped with a factory-installed neutral assembly or a field-installed service grounding kit
- Typical loads are lighting, air conditioning, and appliances
- 240 V AC



#### 2-wire

- 2-wire 2-blades



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| DU221RB      | 30 A          | NEMA 3R        | 156489     |
| DU222RB      | 60 A          | NEMA 3R        | 156496     |

#### 3-wire

- 3-wire 3-blades



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| DU321RB      | 30 A          | NEMA 3R        | 156499     |
| DU322RB      | 60 A          | NEMA 3R        | 156503     |
| DU323RB      | 100 A         | NEMA 3R        | 156507     |

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Notes ● ● ● ● ●

### Non-fusible 3-Wire Light Duty General Safety Switches

Design that adds rigidity and strength, rolled edges prevents cuts and scrapes to conductors and to installer's hands.

- Cover interlock
- Handle and cover padlocking provisions
- Highly visible red handle grip
- Informative door labeling which includes replacement parts list
- Quick-make, quick-break operating mechanism that ensures positive operation
- Side-hinged door that opens 180° for easier wiring
- Visible blade, double-break switch action
- 240 V AC



### SIEMENS

| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| GNF321R      | 30 A          | NEMA 3R        | 141452     |
| GNF322R      | 60 A          | NEMA 3R        | 885587     |
| GNF323R      | 100 A         | NEMA 3R        | 885588     |

### Non-Fusible 3-Wire Light Duty General Safety Switches

Designed for residential or light commercial application where duty is not severe.

- UL listed and CSA certified
- 60° C and 75° C conductor rating
- Feature quick-make, quick-break mechanisms
- Suitable for use as service entrance equipment when installed in accordance with National Electrical Code
- 240 V AC



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| TGN3321R     | 30 A          | NEMA 3R        | 1061222    |
| TGN3322R     | 60 A          | NEMA 3R        | 1061232    |
| TGN3323R     | 100 A         | NEMA 3R        | 1061243    |

# SOLAR COMPONENTS

## Non-Fusible Light Duty General Safety Switches

Provide a means to manually connect or disconnect the load from the source.

- Single throw
- 240 V AC



### Non-fusible

- 2-pole, 2-wire
- Single throw



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| DG221URB     | 30 A          | NEMA 3R        | 1773666    |
| DG222URB     | 60 A          | NEMA 3R        | 1774679    |

### Non-fusible

- 3-pole, 3-wire
- Single throw
- 240 V AC



| Mfr. Model # | Ampere Rating | Enclosure Type | BSE Part # |
|--------------|---------------|----------------|------------|
| DG321URB     | 30 A          | NEMA 3R        | 1773672    |
| DG322URB     | 60 A          | NEMA 3R        | 1774921    |
| DG323URB     | 100 A         | NEMA 3R        | 1773803    |

## Liquidtight Flexible Cord and Cable Fittings

Ideal for environments where there is a need to run multiple cables into an enclosure and space at the enclosure is limited.



| Mfr. Model # | Material | Hub Size | Number of Holes | Wire Range     | BSE Part # |
|--------------|----------|----------|-----------------|----------------|------------|
| 2520-2       | Steel    | 1/2"     | 2               | 0.215" – 0.22" | 705887     |

## Heyco-Tite Liquid Tight Cordgrips for Solar Applications

- Made of nylon construction with TPE sealing glands that resist salt water, weak acids, gasoline, alcohol, oil, grease and common solvents
- Locknuts not included
- Multi-hole glands are only to be used with Heyco liquid tight cordgrips and are not sold separately



| Mfr. Model # | Description | Configuration  | Clearance | BSE Part # |
|--------------|-------------|----------------|-----------|------------|
| M3200GAJ     | LTCG LL 1/2 | 2-hole, 6 mm   | 0.87"     | 2790752    |
| M3200GAH     | LTCG LL 1/2 | 3-hole, 5.6 mm | 0.87"     | 2790751    |
| M3231GAE     | LTCG 1/2    | 2-hole, 5.2 mm | 0.875"    | 2670531    |
| M3234GAG     | LTCG 3/4    | 4-hole, 5.2 mm | 1.04"     | 2670534    |

## Nylon Locknuts

Nylon 6/6 material.

- 94V-2 flammability rating



| Mfr. Model # | Size     | BSE Part # |
|--------------|----------|------------|
| 8463         | 1/2" NPT | 2790753    |
| 8465         | 3/4" NPT | 2790754    |

# CONNECTOR CABLES AND TOOLS

## MC4 Female and Male Connectors



| Mfr. Model #    | Type             | Wire Size      | AWG Size | BSE Part # |
|-----------------|------------------|----------------|----------|------------|
| 32.0016P0001-UR | Female connector | 0.216 – 0.354" | 12/10    | 2790761    |
| 32.0017P0001-UR | Male connector   | 0.216 – 0.354" | 12/10    | 2790762    |



### H4 Female and Male Connector



| Mfr. Model # | Type              | BSE Part # |
|--------------|-------------------|------------|
| PV-100506-F  | MC4 equal, female | 2790701    |
| PV-100506-M  | MC4 equal, male   | 2790702    |

### Amp, TE Connectivity SOLARLOK® Connector System

Provides simple, fast and reliable connections from solar modules with different insulation diameters to DC/AC converters.

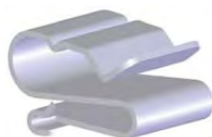
- Male and female cable coupler was designed for high voltage/current/temperature and mating safety is provided by polarity keyed housings with multiple plugging and unplugging cycles
- Squeeze-to-release connections compliment the robust product specifications



| Mfr. Model # | Keying  | Type   | Wire Size | BSE Part # |
|--------------|---------|--------|-----------|------------|
| 6-1394461-4  | Neutral | Male   | 6         | 2458041    |
| 5-1394462-6  | Minus   | Female | 10        | 2790877    |

### Cable Snap Clips

- Made with corrosion resistant 304 stainless steel
- Designed to prevent damage to cable insulation
- Dual wire compartments
- Special tab for easy installation and removal with flat-head screwdriver



| Mfr. Model # | Description      | Wire Range  | BSE Part # |
|--------------|------------------|-------------|------------|
| ACC          | USE-2 or PV wire | 5 – 7.2 mm  | 2613308    |
| ACC-PV       | PV wire          | 6.8 – 8 mm  | 2791096    |
| ACC-R2       | AC cables        | 9.3 – 14 mm | 2791097    |

### Cable Snap Clips

- Supports cable from 1/16 – 1/2" flange
- Works effectively with MC and AC cable dimensions 3/8 – 1-1/4" and low voltage cables from 7/32" and up
- Clip "snaps" on flange and cable "snaps" into clip



| Mfr. Model # | Cable O.D. Range | BSE Part # |
|--------------|------------------|------------|
| SC2A         | 0.218 – 0.281    | 178878     |

### MC4 Spanner and Unlocking Tool

For assembly and disassembly of multi-contact MC4 cables that lock together.



| Mfr. Model # | BSE Part # |
|--------------|------------|
| PV-MS        | 2790763    |

### H4 Spanner and Unlocking Tool

Required to unlock H4 connectors.



| Mfr. Model # | BSE Part # |
|--------------|------------|
| 670803       | 2790704    |

### MC4 Crimp Tool with Die Set and Locator

Parallel jaws for even crimps.

- 1.2 metric tons of pressure
- Interchangeable dies and locator
- High precision ratchet mechanism



| Mfr. Model # | Length | Crimps            | BSE Part # |
|--------------|--------|-------------------|------------|
| R624-570-3-1 | 8"     | MC4, 14/12/10 AWG | 2790817    |

### H4 Crimp Tool

Required for crimping H4 contact sleeves to 10, 12 and 14 AWG wire.



| Mfr. Model # | BSE Part # |
|--------------|------------|
| 670508       | 2790703    |

# SOLAR COMPONENTS

## Amp, SOLARLOK® Handheld Crimping Tool

Hand crimping tool for screwed contacts.



**tyco**

Electronics

| Mfr. Model # | Wire Size   | BSE Part # |
|--------------|-------------|------------|
| 1-1579004-2  | 10 – 12 AWG | 2458042    |

## Wire



| Mfr. Model #   | Number of Strands | Color | Gauge | BSE Part # |
|----------------|-------------------|-------|-------|------------|
| 10T7RHWUSE2RED | 7                 | Red   | 10 ga | 2419854    |
| 10T37RHWUSE2BK | 37                | Black | 10 ga | 2418880    |

## Wire - Copper, Photovoltaic Wire

- 10 AWG
- 7 strands



| Mfr. Model # | Put-Ups   | Rating | Color | BSE Part # |
|--------------|-----------|--------|-------|------------|
| 10AWG        | 500' reel | 600 V  | Black | 2420430    |
| 10AWG        | 500' reel | 600 V  | Red   | 2420431    |
| 10AWG        | 500' reel | 600 V  | Green | 2462009    |
| 10AWG        | 500' reel | 600 V  | White | 2467579    |

## Stripmaster Wire Stripper #10 to #22 AWG

- Knife-type blades
- Cleanly strips wire up to 7/8" (22 mm)
- One-third less hand pressure for each strip
- Eliminates nicking, cutting and fraying of wire
- Wire gripper holds wire centered in hole



| Mfr. Model # | Strips Wire Sizes | BSE Part # |
|--------------|-------------------|------------|
| 45-092       | 10 – 22 AWG       | 128125     |

## Amp, SOLARLOK® Insulation Stripper

**tyco**

Electronics



| Mfr. Model # | Strips Wire Sizes | BSE Part # |
|--------------|-------------------|------------|
| 4-1579002    | 1.5 – 6 mm        | 2790878    |

## Kinetic Super™ Wire Strippers

Ergonomically engineered design reduces fatigue.

- Accurate stripping holes and integrated wire cutter
- Plier nose for extra gripping strength
- Pocket-Locket™ locks tool tighter for added safety
- Santoprene® molded grip cushions hand
- Shear-Cut™ bolt cutters
- Thumb-Valley™ thumb guide promotes comfort while focusing kinetic energy for faster wire stripping



| Mfr. Model # | Stranded Wire Range | Solid Wire Range | Handle Color | BSE Part # |
|--------------|---------------------|------------------|--------------|------------|
| 45-715       | 12 – 20 AWG         | 10 – 18 AWG      | Yellow       | 1217288    |
| 45-718       | 8 – 16 AWG          | 6 – 14 AWG       | Red          | 1214140    |

## Reflex™ Super T®-Stripper Wire Strippers

- 6-32 and 8-32 self-chasing screw cutting holes
- Ergonomic curved handles
- Locking latch keeps stripper in closed position
- Textured sleeves extend to stripping head to cushion thumb and fingers



| Mfr. Model # | Stranded Wire Range | Solid Wire Range | Handle Color | BSE Part # |
|--------------|---------------------|------------------|--------------|------------|
| 45-615       | 10 – 18 AWG         | 8 – 16 AWG       | Yellow       | 800390     |
| 45-618       | 8 – 16 AWG          | 8 – 14 AWG       | Red          | 800393     |





### Electrician's Straight-Claw Hammer

Correctly balanced and designed specifically for use in electrical work.

- Extra-long neck and narrow striking face
- Fiberglass shaft absorbs shock and keeps head tight
- Perforated neoprene grip bonded to handle
- Plastic-alloy jacketing helps protect neck from fraying and splintering
- Polished, forged, tempered-steel head



| Mfr. Model # | Length | Head Weight | BSE Part # |
|--------------|--------|-------------|------------|
| 807-18       | 15"    | 18 oz       | 129393     |

### Magnetic Tape Measures

Magnetic with a nylon coated hardened steel blade.

- Built in shock absorber
- Steel belt clip
- Double-sided
- True zero feature



| Mfr. Model # | Description                                       | Length | BSE Part # |
|--------------|---|--------|------------|
| 93116        | Single hook                                       | 16'    | 2743642    |
| 934-30       | Multi-ripped end hook with bottom blade protector | 30'    | 2729923    |

### Gold™ Quick Change Retractable Utility Knife

- Quick blade release allows rotation or changing of blade without opening handle or using any tools
- One-piece, stainless steel nose with titanium coating resists wear, eliminates spreading
- Stores up to five blades



| Mfr. Model # | Includes                                 | BSE Part # |
|--------------|--|------------|
| SSRK1-20353  | 3 shatter-resistant titanium edge blades | 1578767    |

### Gold™ Utility Knife Blades

High speed steel edge with titanium coating for a longer lasting blade.

- Patented bi-metal construction enables blades to bend and flex without breaking
- Ideal for cutting drywall, insulation, flooring, roofing and more
- Four notch system enables blade to extend further for deeper cuts
- Fits all standard utility knives



| Mfr. Model #  | Package Quantity | Dispenser    | BSE Part # |
|---------------|------------------|--------------|------------|
| GOLD50D-20351 | 50               | Included     | 1572893    |
| GOLD5C-20350  | 5                | Not included | 1572894    |

### Folding Lockback Utility Knife

- Lightweight aluminum handle with clip
- One-handed opening mechanism
- Quick-change blade mechanism
- Spring-blade release



| Mfr. Model # | Includes                           | BSE Part # |
|--------------|------------------------------------|------------|
| LBK          | Nylon pouch and replacement blades | 1676916    |

### 117 Series Digital Multimeters

True-rms for accurate measurements.

- Includes test leads, holster and battery
- Measures voltage, current, resistance, capacitance and frequency
- Min, max and average to record signal fluctuations
- 6,000 mV - 600 V AC/DC
- UL® listed, CSA certified and CE approved



| Mfr. Model # | Current | Frequency         | Resistance  | Capacitance         | BSE Part # |
|--------------|---------|-------------------|-------------|---------------------|------------|
| FLUKE-117    | 10.00 A | 99.99 Hz – 50 kHz | 600 – 40 MΩ | 1,000 nF – 9,999 μF | 2034449    |

## 233 Remote Display Multimeter

Wireless remote display digital multimeter with removable magnetic display allows you to be 30' away from the measurement point. Perfect for those difficult measurements where display viewing is challenging.

- True-rms, built-in thermometer, removable magnetic display
- Measure up to 1000 V AC and DC; measure up to 10 A (20 A for 30 seconds)
- 10,000  $\mu$ F capacitance range
- Frequency to 50 kHz
- Resistance, continuity and diode measurements
- Battery life approximately 400 hours



**FLUKE**

| Mfr. Model # | Voltage                      | Frequency    | Resistance Range            | AC/DC Current | BSE Part # |
|--------------|------------------------------|--------------|-----------------------------|---------------|------------|
| FLUKE-233    | 0.1 mV – 100 V AC/DC voltage | 5 Hz – 50 Hz | 0.1 $\Omega$ – 40M $\Omega$ | 1 mA – 10 A   | 2434450    |

## 117/322 Electrician's Combo Kit

- Kit Includes: Fluke 322 clamp meter, Fluke-117/322 digital multimeter, hard point test lead set, magnetic meter hanging strap (TPAK) and deluxe soft carrying case



**FLUKE**

| Mfr. Model #  | BSE Part # |
|---------------|------------|
| FLUKE-117/322 | 2034450    |

## 376 Clamp Meter with iFlex™

Allows you to take current measurements in crowded cabinets, between tightly packed wires or of large conductors that don't fit within a typical clamp jaw.

- Flex flexible current probe included, 18" circumference
- True-rms AC, voltage and current
- Frequency measurement to 500 Hz
- Minimum, maximum, average and inrush recording
- 500 mV DC measurement range
- CAT IV 600 V, CAT III 1,000 V safety rating



**FLUKE**

| Mfr. Model # | Voltage (AC/DC) | Current         | Resistance | Frequency | Capacitance   | BSE Part # |
|--------------|-----------------|-----------------|------------|-----------|---------------|------------|
| FLUKE-376    | 1000 V          | 1,000 – 2,500 A | 60         | 500 Hz    | 9,999 $\mu$ F | 2597353    |

## 170 Series Digital Multimeters

True-rms for precise measurement of nonlinear signals.

- Includes test leads and battery; large display
- Max, min and avg; measures voltage, current, resistance, capacitance, frequency and continuity
- Optional cases: C510, C25, C90, C125
- CAT III — 1,000 V; CAT IV — 600 V rated
- UL® listed, CSA certified and CE approved



**FLUKE**

| Mfr. Model #   | Voltage (AC/DC)  | Current      | Frequency            | Resistance                  | Capacitance              | BSE Part # |
|----------------|------------------|--------------|----------------------|-----------------------------|--------------------------|------------|
| FLUKE-177-ESFP | 600 mV – 1,000 V | 60 mA – 10 A | 99.99 Hz – 99.99 kHz | 600 $\Omega$ – 50M $\Omega$ | 1,000 nF – 9,999 $\mu$ F | 1075066    |

## 330 Series Clamp Meters

Small body and jaws fit into tight places.

- Includes test leads, batteries and soft carrying case
- Controls positioned for one-handed operation
- True-rms, inrush current feature, backlight, and auto shut-off
- 100mS inrush current
- Frequency and DC current; max, min capability (337)
- CAT III — 600 V rated
- UL® listed, CSA certified and CE approved



**FLUKE**

| Mfr. Model # | Voltage (AC/DC) | Current                          | Resistance                   | BSE Part # |
|--------------|-----------------|----------------------------------|------------------------------|------------|
| FLUKE-335    | 600 mV          | to 600 A AC                      | 600 $\Omega$ /6,000 $\Omega$ | 1097379    |
| FLUKE-337    | 600 mV          | to 999.9 A AC;<br>0 – 999.9 A DC | 600 $\Omega$ /6,000 $\Omega$ | 1097377    |

## 374/375 True-rms AC/DC Clamp Meter

- Proprietary inrush measurement technology to filter out noise and capture motor starting current exactly as the circuit protection sees it
- Ergonomic design fits in your hand and can be used while wearing personal protective equipment
- Large, easy to read backlight display automatically sets the correct measurement range so you do not need to change the switch positions while taking a measurement
- Includes soft carrying case



**FLUKE**

| Mfr. Model # | Resistance      | Diameter | Size                   | BSE Part # |
|--------------|-----------------|----------|------------------------|------------|
| FLUKE-374    | 6,000 $\Omega$  | 1.3"     | 9.685 x 3.267 x 1.692" | 2604594    |
| FLUKE-375    | 60,000 $\Omega$ | 1.3"     | 9.685 x 3.267 x 1.692" | 2604595    |



### 374/375 True-rms AC/DC Clamp Meter

- Proprietary inrush measurement technology to filter out noise and capture motor starting current exactly as the circuit protection sees it
- Ergonomic design fits in your hand and can be used while wearing personal protective equipment
- Large, easy to read backlight display automatically sets the correct measurement range so you do not need to change the switch positions while taking a measurement
- Includes soft carrying case



**FLUKE**

| Mfr. Model # | Resistance | Diameter | Size                   | BSE Part # |
|--------------|------------|----------|------------------------|------------|
| FLUKE-374    | 6,000Ω     | 1.3"     | 9.685 x 3.267 x 1.692" | 2604594    |
| FLUKE-375    | 60,000Ω    | 1.3"     | 9.685 x 3.267 x 1.692" | 2604595    |

### 233 Remote Display Multimeter

Wireless remote display digital multimeter with removable magnetic display allows you to be 30' away from the measurement point. Perfect for those difficult measurements where display viewing is challenging.

- True-rms, built-in thermometer, removable magnetic display
- Measure up to 1,000 V AC and DC; measure up to 10 A (20 A for 30 seconds)
- 10,000 μF capacitance range
- Frequency to 50 kHz
- Resistance, continuity and diode measurements
- Battery life approximately 400 hours



**FLUKE**

| Mfr. Model # | Voltage                      | Frequency    | Resistance Range | AC/DC Current | BSE Part # |
|--------------|------------------------------|--------------|------------------|---------------|------------|
| FLUKE-233    | 0.1 mV – 100 V AC/DC voltage | 5 Hz – 50 Hz | 0.1Ω – 40MΩ      | 1 mA – 10 A   | 2434450    |

### Fluke 376 Clamp Meter with iFlex™

Allows you to take current measurements in crowded cabinets, between tightly packed wires or of large conductors that don't fit within a typical clamp jaw.

- iFlex flexible current probe included, 18" circumference
- True-rms AC, voltage and current
- Frequency measurement to 500 Hz
- Minimum, maximum, average and inrush recording
- 500 mV DC measurement range
- CAT IV 600 V, CAT III 1,000 V safety rating



**FLUKE**

| Mfr. Model # | Voltage (AC/DC) | Current        | Resistance | Frequency | Capacitance | BSE Part # |
|--------------|-----------------|----------------|------------|-----------|-------------|------------|
| FLUKE-376    | 1,000 V         | 1000 – 2,500 A | 60         | 500 Hz    | 9,999 uF    | 2597353    |

### FE3200 Series Two-Section Extension Ladder

QuickLatch® equipped runglock for securing fly and base sections when extended.

- 300 lb Type IA load capacity
- CSA certified; meets OSHA requirements; meets or exceeds ANSI A14.5 requirements
- Fully serrated D-shaped rungs
- Mar-resistant rail end caps
- Outside slide guides
- Swivel safety shoes — can be used with tread down or in spike position



| Mfr. Model # | Length | Section Length | Maximum Length | BSE Part # |
|--------------|--------|----------------|----------------|------------|
| FE3224       | 24'    | 12'            | 21'            | 112396     |

CONNECTOR CABLES AND TOOLS

Notes ● ● ● ● ●

## HYDRATION AND COOLING

### Chill-Its® Evaporating and Cooling Bandana and Headband

Help workers stay cool, fight fatigue and increase productivity.

- Lightweight, comfortable cotton construction; reusable; tie closure
- Remains hydrated for 24 – 48 hours; super absorbent acrylic polymer activates when soaked in cold water 2 – 5 minutes



| Mfr. Model # | Style             | BSE Part # |
|--------------|-------------------|------------|
| 6700         | Denim             | 1681081    |
| 6700         | Stars and stripes | 1681082    |
| 6700         | Brown camo        | 1681083    |
| 6700         | Red western       | 1681084    |
| 6700         | Navy western      | 1681085    |
| 6700         | Blue              | 1681086    |
| 6700         | Flames            | 2669659    |

### Evaporative Cooling Bandana with Cooling Towel

Advanced PVA material keeps you cool without the bulk.

- Activate by running under water for 2 – 5 minutes
- Re-usable: just soak wet to re-activate
- Tie closure; lightweight and low profile



| Mfr. Model # | Style                                | BSE Part # |
|--------------|--------------------------------------|------------|
| 6700CT       | Blue with cooling towel              | 2669663    |
| 6700CT       | Lime with cooling towel              | 2669661    |
| 6700CT       | Stars and stripes with cooling towel | 2778748    |
| 6700CT       | Red western with cooling towel       | 2785860    |
| 6700         | Navy western with cooling towel      | 1681085    |

Notes ● ● ● ● ●

### Chill-Its® 6615 High-Performance Dew Rag

Hi Cool® moisture management performance fabric transports moisture away.

- Absorbent terry headband; elastic band for a great fit



| Mfr. Model # | Style             | BSE Part # |
|--------------|-------------------|------------|
| 6615         | Digital camo      | 2092343    |
| 6615         | Barbed wire       | 2092344    |
| 6615         | Flames            | 2092345    |
| 6615         | Skulls            | 2092348    |
| 6615         | Stars and stripes | 2092349    |
| 6615         | Blue              | 2475604    |
| 6615         | Navy western      | 2669664    |
| 6615         | Red western       | 2669666    |

### Chill-Its® 6665 Evaporative Cooling Vest

Soak in cold water and enjoy cooling relief and comfort.

- Lightweight, durable and washable; v-neck with zipper closure
- 100% nylon; quilted nylon outer layer; water-repellent liner and black cotton-poly elastic trim; activated, polymer-embedded fabric inside



| Mfr. Model # | Color | Size   | BSE Part # |
|--------------|-------|--------|------------|
| 6665-M       | Lime  | Medium | 2672254    |
| 6665-L       | Lime  | Large  | 2475605    |
| 6665-XL      | Lime  | XL     | 2475606    |
| 6665-2XL     | Lime  | 2XL    | 2672255    |
| 6665-3XL     | Lime  | 3XL    | 2672256    |

### Water Coolers

Having the best cold retention in the water cooler industry, these Igloo coolers keep water cold longer and are ideal for hydrating your crew on the job site or in the shop.

- Cooler maintains ice for three days at 90° F; HI-VIS safety yellow color; UV inhibitors protect against sun damage
- “Drinking Water” imprint meets OSHA labeling requirements for water used on job sites
- Pressure-fit lid won't trap dirt and mold; keeper cord affixes lid to cooler; recessed and angled drip-resistant spigot for easy dispensing



| Mfr. Model # | Container | BSE Part # |
|--------------|-----------|------------|
| 431          | 3 gal     | 2463019    |
| 451          | 5 gal     | 2463021    |





### SCRUBS® SUN SKEETER™ Insect Repellent Plus Sunscreen Wipes

SUN SKEETER™ wipes are the first and only premoistened wipe to combine the power of DEET with UVA/UVB sunscreen protection and are EPA registered and safe to use.

- Greaseless formula
- Ideal for active users; sweat-resistant



| Mfr. Model # | Container      | BSE Part # |
|--------------|----------------|------------|
| 91501        | 1 towel packet | 2672257    |

### Sunscreen – Single Use Towelettes SPF-30

SunX® SPF 30+ sunscreen offers excellent UVA/UVB protection.

- Oil-free and not greasy yet is water and very sweat-resistant; PABA (Para-aminobenzioc acid) free and passes linesman's glove testing
- Contains aloe vera gel and Vitamin E to keep skin smooth and soft and the cedar fragrance discourages insects; convenient wipe on towelettes



| Mfr. Model # | Description | BSE Part # |
|--------------|-------------|------------|
| 122000X      | Waterproof  | 1720949    |

## ERGONOMICS

### ProFlex® Kneeling Pad

- Nonconductive; silicone-free, will not promote corrosion; resistant to petroleum products and other liquids; closed-cell foam rubber will not compression set



| Mfr. Model # | Color | Size           | BSE Part # |
|--------------|-------|----------------|------------|
| 380          | Black | 14" x 21" x 1" | 2047598    |
| 385          | Black | 16" x 28" x 1" | 2064804    |
| 390          | Black | 18" x 36" x 1" | 2064805    |

## EYE PROTECTION

### Venture II® Safety Glasses

Fully adjustable temples feature 4 size settings.

- 9.75 base curved lens provides full side protection
- 99% protection against UV rays
- Lens coated for superior scratch-resistance
- Nose buds secure glass and prevent slipping
- Passes MIL-PRF-31013 ballistic standards
- Meets ANSI Z87.1-2003 high velocity impact standard



| Mfr. Model # | Lens                    | Frame             | BSE Part # |
|--------------|-------------------------|-------------------|------------|
| SB1810ST     | Clear (antifog)         | Black             | 1249400    |
| SB1810S      | Clear                   | Black             | 1249401    |
| SB1860SF     | Light blue              | Black             | 1249060    |
| SB1820S      | Gray                    | Black             | 1249399    |
| SB1830S      | Amber                   | Black             | 1249063    |
| SB1860S      | Infinity blue           | Black             | 1249059    |
| SB1880S      | Indoor/outdoor mirrored | Black             | 1249072    |
| SB1890S      | Gold mirrored           | Black             | 1249071    |
| SMB1810S     | Clear                   | Metallic blue     | 1249066    |
| SMM1810S     | Clear                   | Maroon            | 1249044    |
| SB1810SB     | Clear                   | Black             | 2355751    |
| SB1820SB     | Black                   | Black             | 2678914    |
| SB1808ST     | Mirror (antifog)        | Black             | 2678915    |
| SB1835S      | Bronze                  | Black             | 1249062    |
| SB1840S      | Orange                  | Black             | 1455986    |
| SB1870S      | Gray mirror             | Black             | 1249058    |
| SB1875S      | Black mirror            | Black             | 1249065    |
| SB1885S      | Blue mirror             | Black             | 1434570    |
| SB1850SF     | 5.0IR                   | Black             | 1249061    |
| SB1820ST     | Gray (antifog)          | Black             | 1249064    |
| SH1820S      | Gray                    | Realtree hardwood | 1249069    |

# SOLAR COMPONENTS

## Venture 3 Safety Glasses

Stylish, ergonomic frame combines with sleek polycarbonate lenses for the ultimate in protection and style.

- Provides 99% protection from harmful UV-A and UV-B rays
- Newly designed ventilated nosepiece
- Perfectly balanced from temple tips to the bridge of the nose
- High quality optics offer extreme clarity and no distortion
- 9.75 base curved lens provides full side protection
- CAN/CSA Z94.3-07; CE EN166 certified
- Meets ANSI Z87.1-2003 high velocity impact standard; exceeds ANSI Z87.1-2003 high impact requirements



| Mfr. Model # | Lens            | Frame | BSE Part # |
|--------------|-----------------|-------|------------|
| SB5710D      | Clear           | Black | 2464345    |
| SB5770D      | Silver mirror   | Black | 2464346    |
| SB5760D      | Infinity blue   | Black | 2464348    |
| SB5720D      | Gray            | Black | 2464347    |
| SB5710DT     | Clear (antifog) | Black | 2678916    |
| SB5720DT     | Gray (antifog)  | Black | 2678917    |
| SB5730D      | Amber           | Black | 2678920    |
| SB5780D      | Mirror          | Black | 2678923    |

## V2 Readers

Commonly used in indoor or outdoor applications.

- Strategic placement of lens insert is out of user's direct line of vision
- Offers protection from excessive glare
- Provides 99% protection from harmful UV-A and UV-B rays
- 100% polycarbonate scratch-resistant lenses
- Exceeds ANSI Z87.1-2003 high-impact requirements



| Mfr. Model # | Lens  | Frame | Diopter Strength | BSE Part # |
|--------------|-------|-------|------------------|------------|
| SB1810R10    | Clear | Black | 1                | 2321585    |
| SB1810R15    | Clear | Black | 1.5              | 1677168    |
| SB1810R20    | Clear | Black | 2                | 1979497    |
| SB1810R2.5   | Clear | Black | 2.5              | 1979498    |
| SB1810R3.0   | Clear | Black | 3                | 1979499    |
| SB1820R15    | Gray  | Black | 1.5              | 2239319    |
| SB1820R20    | Gray  | Black | 2                | 2321588    |
| SB1820R25    | Gray  | Black | 2.5              | 2401456    |

## Zone Safety Glasses

100% polycarbonate scratch-resistant lenses.

- 99% protection against harmful UV-A and UV-B rays
- Exceeds ANSI Z87.1-2003 high velocity impact requirements



| Mfr. Model # | Lens   | Frame | BSE Part # |
|--------------|--------|-------|------------|
| SB910E       | Clear  | Black | 1249080    |
| SB920E       | Gray   | Black | 1249079    |
| SB970E       | Mirror | Black | 1249077    |

## Zone II

Stylish frame with 100% polycarbonate lenses, commonly used in outdoor applications.

- Built-in nose pads elevate frame for precision fit and weightless wear
- Straight back, rubber coated temple tips
- Provides 99% protection from harmful UV-A and UV-B rays
- Exceeds ANSI Z87.1-2003 high impact requirements



| Mfr. Model # | Lens              | Frame       | BSE Part # |
|--------------|-------------------|-------------|------------|
| SB3320E      | Gray              | Black matte | 1548198    |
| SS3365E      | Ice blue mirror   | Silver      | 2464352    |
| SS3370E      | Silver mirror     | Silver      | 1548196    |
| SS3345E      | Ice orange mirror | Silver      | 2468120    |
| SB3310E      | Clear             | Black       | 1548203    |
| SB3370E      | Silver mirror     | Black       | 1548187    |
| SB3365E      | Blue mirror       | Black       | 2678934    |
| SB3380E      | Mirror            | Black       | 1548189    |
| SS3320E      | Silver            | Gray        | 1548207    |
| SS3375E      | Blue mirror       | Silver      | 1548184    |
| SBW3320E     | Black             | Black wood  | 1548210    |
| SBW3370E     | Silver mirror     | Black wood  | 1548185    |
| SBW3375E     | Blue mirror       | Black wood  | 1548165    |
| SRW3320E     | Gray              | Red wood    | 1548209    |
| SRW3370E     | Silver mirror     | Red wood    | 1548191    |
| SB3345E      | Ice orange mirror | Matte black | 2468113    |



### Ztek® Safety Glasses

Economical, wraparound single lens provides full panoramic view.

- Lens coated for superior scratch-resistance
- 99% protection against UV rays
- Exceeds ANSI Z87.1-2003 high-impact requirements
- CAN/CSA Z94.3-07; CE EN166 certified



| Mfr. Model # | Lens                    | Frame         | BSE Part # |
|--------------|-------------------------|---------------|------------|
| S2510S       | Clear                   | Clear         | 1249320    |
| S2510ST      | Clear (antifog)         | Clear         | 1587731    |
| S2575S       | Blue mirror             | Blue mirror   | 1249298    |
| S2520ST      | Gray (antifog)          | Gray          | 1548192    |
| S2560ST      | Infinity blue (antifog) | Infinity blue | 2678941    |
| S2515S       | Coffee                  | Coffee        | 1249311    |
| S2530S       | Amber                   | Amber         | 1249301    |
| S2540S       | Mirror                  | Mirror        | 2678942    |
| S2565S       | Gold mirror             | Gold mirror   | 2678943    |
| S2580S       | IO mirror               | IO mirror     | 1249297    |
| S2590S       | Gold mirror             | Gold mirror   | 1249296    |
| S2570S       | Silver mirror           | Silver mirror | 1249299    |

### Ztek Readers

Economical, wrap-around single lens provides full panoramic view.

- Provides 99% protection from harmful UV-A and UV-B rays
- 100% polycarbonate scratch-resistant lenses
- Available in +1.5, +2 and +2.5 magnifications
- Exceeds ANSI Z87.1-2003 high impact requirements



| Mfr. Model # | Lens  | Frame | Diopter Strength | BSE Part # |
|--------------|-------|-------|------------------|------------|
| S2510R15     | Clear | Clear | 1.5              | 2615367    |
| S2510R20     | Clear | Clear | 2                | 2785806    |
| S2510R25     | Clear | Clear | 2.5              | 2785807    |

### Lens Cleaning Towelettes

100 individually packaged lens cleaning towelettes.



| Mfr. Model # | BSE Part # |
|--------------|------------|
| LCT100       | 1258606    |

### Lens Cleaning Station

Lens cleaning station with 8 oz cleaning solution and 600 count box of tissues.



| Mfr. Model # | BSE Part # |
|--------------|------------|
| LCS10        | 1258615    |

### SCRUBS® Safety Lens Wipes

Wipes combine lens cleaner with a quality, lint-free wipe to clean your glass and plastic lenses.

- Eliminates messy overspray
- Ammonia-free formula
- Safe on most surfaces
- Leaves lenses streak-free



| Mfr. Model # | Size           | Container          | BSE Part # |
|--------------|----------------|--------------------|------------|
| 98491        | 6" x 8" towels | 120 wipe container | 2449266    |

### Safety Glasses Carrying Case

Cloth eyewear case with drawstring.

- Microfiber bag is ideal for lens cleaning



| Mfr. Model # | Description             | BSE Part # |
|--------------|-------------------------|------------|
| PYRBAG       | Microfiber eyewear case | 1258607    |



## FACILITY IDENTIFICATION

### "Mr. Ouch" Transformer Markers

National Electrical Manufacturers Association (NEMA) recommends use of "Mr. Ouch" labels on transformers located in public areas.

- Meets the NEMA Standard as well as Underwriters Laboratory Performance Standard #969
- Permanent pressure sensitive acrylic adhesive
- Made of tamper-resistant acrylic film



| Mfr. Model # | Legend                           | Color                  | Size            | BSE Part # |
|--------------|----------------------------------|------------------------|-----------------|------------|
| 46347        | Danger hazardous voltage         | Black and red on white | 8" h x 4-1/2" w | 323589     |
| 46346        | Warning hazardous voltage inside | Black and red on white | 8" h x 4-1/2" w | 323617     |

### Admittance Sign - High Voltage Keep Out

High voltage keep out sign.



| Mfr. Model # | Material                | Legend                       | Color                  | Size         | BSE Part # |
|--------------|-------------------------|------------------------------|------------------------|--------------|------------|
| 84083        | Self-sticking polyester | Danger high voltage keep out | Black and red on white | 7" h x 10" w | 618047     |

## FALL PROTECTION

### Revolution™ Arc-Rated Harness

Designed to protect workers from falls caused by electric arc-flash and arc-blast exposure when working at heights or in confined space applications near energized electrical sources.

- Kevlar web loop back pad allows for a "metal-less" connection when used with a Kevlar shock-absorbing lanyard with a choke-off loop
- Bright red pad stitching for easy identification as an arc-rated product
- The webbing offers the durability and FR properties of Kevlar on the outer side, with softer FR Nomex on the inside of the webbing for greater comfort



by Honeywell

| Mfr. Model # | Description                          | Capacity | Size   | BSE Part # |
|--------------|--------------------------------------|----------|--------|------------|
| RKNAR-QC/UBK | Leather insulators / web back D-ring | 400 lb   | L - XL | 2733075    |

### Heavy-Duty Arc-Rated Harness

Rugged black Kevlar® webbing for harsh welding environments.

- Meets ASTM F887 Arc-Test requirements and is rated for arc exposure
- Quick-connect buckles on the chest strap for easy/fast donning
- Leather insulators; web back D-ring



by Honeywell

| Mfr. Model # | Size   | BSE Part # |
|--------------|--------|------------|
| 650KQC/UBK   | L - XL | 2733078    |

### DuraFlex® Utility Harnesses

Designed with minimal hardware above the waist to reduce electrical conductivity.

- Web loop lanyard attachment reduces the chance of electric shock near high-voltage sources and minimizes harness weight for added comfort
- Pads keep chest strap in place and protect user from potential shock and injury
- Adjustable belt loops allow for attachment of linemen's belts, adjustable to fit most manufacturer models



by Honeywell

| Mfr. Model # | Description   | Capacity | Size   | BSE Part # |
|--------------|---|----------|--------|------------|
| E752/UGN     | Chest strap adjustment, protective pads, adjustable belt loops                                | 400 lbs  | L - XL | 2733088    |
| E753/UGN     | Chest strap adjustment, protective pads, adjustable belt loops, self-rescue positioning loops | 400 lbs  | L - XL | 2733091    |

### Non-Stretch Utility Harness

Traditional non-stretch full-body harness in lightweight, durable, yellow polyester webbing.

- Web loop lanyard attachment reduces the chance of electric shock near high-voltage sources and minimizes harness weight for added comfort



by Honeywell

| Mfr. Model # | Description                          | Capacity | Size   | BSE Part # |
|--------------|--------------------------------------|----------|--------|------------|
| 752/UYP      | Adjustable lineman's belt attachment | 400 lbs  | L - XL | 2733085    |





### Arc-Rated Shock-Absorbing Lanyards

Designed to protect workers from electric arc-flash and arc-blast exposure.

- Meets stringent ASTM F887-05 arc-flash standards
- Available with Kevlar choke-off loop for a “metal-less” connection



| Mfr. Model # | Material       | Style                                | Standard Length | BSE Part # |
|--------------|----------------|--------------------------------------|-----------------|------------|
| 933K/6FTBK   | Kevlar webbing | Lanyard with SofStop® shock absorber | 6'              | 2733081    |

### Manyard® Shock-Absorbing Lanyards

Specially-woven shock-absorbing inner core smoothly expands to reduce fall arrest forces.

- After a fall occurs, a warning flag is released
- Meets ANSI Z359 requirements



| Mfr. Model #     | Material  | Hook Type     | Length | BSE Part # |
|------------------|-----------|---------------|--------|------------|
| 233TWLS-Z7/6FTGN | Green web | Locking snap  | 6'     | 2733094    |
| 233TWRS-Z7/6FTGN | Green web | Locking rebar | 6'     | 2733095    |

### Miller Side Winder Retractable Web Lanyard

Lanyard is a positioning device designed to allow linemen to bypass obstructions safely in pole climbing applications.

- The length is easily adjustable up to 8' and includes a carabiner and attachment bracket for installation on linemen's belts



| Mfr. Model # | Length | BSE Part # |
|--------------|--------|------------|
| 8327SW/8FTYL | 8'     | 2733063    |

### Squids® Single Carabiner Tool Lanyard

Tethers tools to help worker prevent injury, damage and lost productivity from dropped tools.

- Stretch cord surrounded by tubular nylon webbing
- Lock stitching at both ends for extra security
- Maximum safe working capacity: 10 lbs
- Adjustable barrel lock for tool attachment



| Mfr. Model # | Description                      | BSE Part # |
|--------------|----------------------------------|------------|
| 3100-ST      | Single carabiner - lime          | 2732317    |
| 3100-XT      | Extended single carabiner - lime | 2778758    |

## FIRST AID PRODUCTS

### First Aid Kit

Made of soft red nylon.

- Contains various first aid products



| Mfr. Model # | Size              | BSE Part # |
|--------------|-------------------|------------|
| 018500-4222  | 10-1/2" x 7" x 6" | 1720950    |

### Hexachlorophene Antiseptic Swabs

Antiseptic towelettes.



| Mfr. Model # | Description | Size                   | BSE Part # |
|--------------|-------------|------------------------|------------|
| 021645M      | 10 per box  | 2" x 2" each towelette | 1721015    |

### Adhesive Bandages

Plastic adhesive bandage.

- Latex-free; yellow carton



| Mfr. Model # | Description | Size    | BSE Part # |
|--------------|-------------|---------|------------|
| 020795       | 16 per box  | 1" x 3" | 1721014    |
| 020915       | 6 per box   | 2" x 4" | 1721013    |

### Knuckle Bands

- Latex-free cloth adhesive



| Mfr. Model # | Description | BSE Part # |
|--------------|-------------|------------|
| 020020       | 8 per box   | 1721012    |

### Ivy X™ Cleanser Towelette

For temporary relief of minor skin irritation from poison plants and insect bites.



| Mfr. Model # | Description | BSE Part # |
|--------------|-------------|------------|
| 2884640      | 25 per box  | 2682750    |

FALL PROTECTION | FIRST AID PRODUCTS

## HAND PROTECTION

### HyFlex® 11-500, Light-Cut Protection Gloves

Ergonomically designed DuPont™ Kevlar® stretch liner with spandex and black foam nitrile coated palm.

- Enhances grip in light oil conditions with good abrasion-resistance
- Silicone-free and natural rubber latex-free for worker and product protection
- Provides “second skin” closeness, reducing risk of snags and cuts; knitwrist cuff style; palm coated style



**Ansell**

| Mfr. Model # | Size | BSE Part # |
|--------------|------|------------|
| 205574       | 6    | 2366346    |
| 205575       | 7    | 2366347    |
| 205576       | 8    | 2366348    |
| 205577       | 9    | 2366349    |
| 205578       | 10   | 2366344    |

### ProFlex® 720 Mechanics Gloves

Visco-elastic gel polymer pad to dampen shock and impact.

- 3/4 finger design on thumb, index and middle finger for added dexterity and tactility
- Breathable stretch spandex; neoprene knuckle pad; textured PVC palm



| Mfr. Model # | Size | BSE Part # |
|--------------|------|------------|
| 720-S        | S    | 1928504    |
| 720-M        | M    | 1527576    |
| 720-L        | L    | 1527578    |
| 720-XL       | XL   | 1527579    |
| 720-2XL      | 2XL  | 1527580    |

### ProFlex® 821 Silicone Handler Gloves

- Textured silicone palm and fingers; padded breathable spandex back; ideal for dry surfaces
- Micro-injected closure for quick cinching; woven elastic cuff; neoprene knuckle pad; terry thumb brow wipe



| Mfr. Model # | Size | Color | BSE Part # |
|--------------|------|-------|------------|
| 821-S        | S    | Gray  | 1928625    |
| 821-M        | M    | Gray  | 1928569    |
| 821-L        | L    | Gray  | 1928568    |
| 821-XL       | XL   | Gray  | 1928570    |
| 821-2XL      | 2XL  | Gray  | 1928567    |

### Squids® 3400 Grabber

Grabber-Dual Clip: Keep gloves and other items handy.

- Clips to clothing, belts, tool belts and D-rings; detachable, usable with 'beeners, D-rings, etc.; breakaway feature
- Dielectric/nonconductive material; durable, ultra-resilient acetal copolymer



| Mfr. Model # | Color  | BSE Part # |
|--------------|--------|------------|
| 3400         | Black  | 1720738    |
| 3400         | Blue   | 1720739    |
| 3400         | Orange | 1720740    |
| 3400         | Lime   | 1720741    |

### ProFlex® 872 Hi-Visibility General-Duty Mesh Gloves

Hi-Vis general duty-mesh: cool, mesh-backed glove with sure-grip palm for wide range of tasks.

- Breathable, polyester Hi-Vis mesh back; 3M™ Scotchlite™ tape zones on back and wrist
- Abrasion-resistant textured PVC on palm and fingers; durable synthetic leather palm and fingers



| Mfr. Model # | Size | Color  | BSE Part # |
|--------------|------|--------|------------|
| 872-S        | S    | Orange | 2064773    |
| 872-M        | M    | Orange | 2064774    |
| 872-L        | L    | Orange | 2064775    |
| 872-XL       | XL   | Orange | 2064776    |
| 872-2XL      | 2XL  | Orange | 2064777    |

### Insulating Rubber Gloves and Sleeves

Type I and Type II gloves are extremely flexible to make working with small parts easy.

- Measure circumference around the palm to determine the size of the glove
- Meet or exceeds ASTM D120 and IEC EN60903 standards



### SALISBURY

by Honeywell

| Class | Length   | Max. Use Voltage | Color                  | Size       | BSE Part #   |
|-------|----------|------------------|------------------------|------------|--------------|
| E 00  | 11 or 14 | 500 / 750        | R, B, BL, or BLO       | 7          | Specify size |
| E 0   | 11 or 14 | 1,000 / 1,500    | Y, R, B, BL, BLO or BY | 8, 8-1/2   | Specify size |
| E 1   | 11 or 14 | 7,500 / 11,250   | B, YB or RB            | 9, 9-1/2   | Specify size |
| E 2   | 11 or 14 | 17,000 / 25,500  | B, YB or RB            | 10, 10-1/2 | Specify size |
| E 3   | 11 or 14 | 26,500 / 39,750  | B, YB or RB            | 11         | Specify size |
| E 4   | 11 or 14 | 36,000 / 54,000  | B, YB or RB            | 12         | Specify size |

#### Glove types and colors

| Type I Natural Rubber |                             | Type II SALCOR® Rubber  |
|-----------------------|-----------------------------|-------------------------|
| R=red                 | BY=black in, yellow out     | BL=blue                 |
| B=black               | YB=yellow inside, black out | BLO=blue in, orange out |
| Y=yellow              | RB=red inside, black out    |                         |



# HEAD PROTECTION

## V-Gard® Protective Helmets

- Meets or exceeds the applicable requirements for a Type I helmet (top impact) as outlined in ANSI Z89.1-2003, Class E and also as outlined in CSA 294.1-2005 (Class E) with 1-Touch and Fas-Trac suspensions
- Includes MSA's Fas-Trac® suspension system for all-day comfort, with quick and easy adjustments; not specifically designed to protect against lateral blows from the front, side or rear



### Hat Style

Hat Style (full brim)—protective nonslotted helmet with Fas-Trac® Suspension.



| Mfr. Model # | Color         | BSE Part # |
|--------------|---------------|------------|
| 475369       | White         | 1751575    |
| 475368       | Blue          | 2400729    |
| 475366       | Yellow        | 2306553    |
| 496075       | Orange        | 2400760    |
| 475371       | Red           | 2400731    |
| 475370       | Green         | 2400730    |
| 10021292     | Hi-vis orange | 2400762    |
| 815570       | Hi-vis lime   | 2400767    |

### Cap Style

Cap style (front brim)—protective slotted helmet with Fas-Trac® suspension.



| Mfr. Model # | Color         | BSE Part # |
|--------------|---------------|------------|
| 475358       | White         | 2306649    |
| 475360       | Yellow        | 2262915    |
| 475361       | Orange        | 2400723    |
| 475362       | Green         | 2400724    |
| 475363       | Red           | 2400725    |
| 475364       | Hi-vis orange | 2400726    |
| 488146       | Hi-vis lime   | 2400761    |

### NFL-Logoed Cap Style

The NFL line of V-Gard® caps with the comfortable strap-adjustable, 1-Touch™ suspension offers superior quality, comfort and protection.

- Officially licensed



| Mfr. Model # | Style               | Size      | BSE Part #    |
|--------------|---------------------|-----------|---------------|
| NFL-CAP      | All teams available | 6-1/2 – 8 | Specify style |

## AS1500 Hard Hat With Arc Shield

- 15 cal/cm<sup>2</sup> ATPV rating when used with the included chin cup; 10 cal/cm<sup>2</sup> without the chin cup



## SALISBURY

by Honeywell

| Mfr. Model # | Description                           | BSE Part # |
|--------------|---------------------------------------|------------|
| AS1500HAT    | AS1500 with SA29R front brim hard hat | 2410290    |

## Standard Fas-Trac® Replacement Ratchet Suspension System

- Great for all day comfort; features a large knob for easy adjustments; comfortable four-point webbed suspension
- Perforated vinyl sweatband easily wipes clean



| Mfr. Model # | For Use With                   | BSE Part # |
|--------------|--------------------------------|------------|
| 10087220     | Standard V-Guard caps and hats | 2366717    |

## Sun Shields



| Mfr. Model # | For Use With             | BSE Part # |
|--------------|--------------------------|------------|
| 697290       | Standard V-Gard cap only | 2071489    |
| 697410       | V-Gard hat only          | 2071490    |

## Terri-band Sweatband

Custom design fits all MSA helmets.

- Washable; plastic snaps



| Mfr. Model # | Package Quantity | BSE Part # |
|--------------|------------------|------------|
| 696688       | 10               | 2400763    |

**The Sunkits program can help you increase business by minimizing your system design and inventory costs, and give you access to a global brand with marketing support.**

For more information, turn to page 43.





## HEARING PROTECTION

### Classic™ Uncorded Earplugs in Value Pack

Slow-recovery foam helps ensure comfort and minimize pressure.

- Dermatologically safe foam is nonirritating, nonflammable and moisture-resistant
- NRR 29 dB; ANSI S3.19-1974; CSA Class AL



| Mfr. Model # | Description  | BSE Part # |
|--------------|--|------------|
| 90000        | Bright yellow provides a quick visual compliance check | 1950747    |

### E-A-R™ Swerve Banded Hearing Protector



| Mfr. Model # | Description                           | BSE Part # |
|--------------|---------------------------------------|------------|
| 22004        | E-A-R swerve banded hearing protector | 2398361    |

### Foam Ear Plugs

Soft, comfortable and unobtrusive hearing protection.

- Bright orange color; hypo-allergenic material; smooth, dirt-resistant surface; tapered shape to fit ear canal comfortably



| Mfr. Model # | Description | Style    | BSE Part # |
|--------------|-------------|----------|------------|
| 29008        | 29 dB NRR   | Uncorded | 720324     |
| 29009        | 29 dB NRR   | Corded   | 720403     |

Notes ● ● ● ● ●

## HI-VIS

### GloWear® 8210HL Economy Vest

Class 2, ANSI compliant polyester mesh.

- 2" ANSI certified reflective tape, (1) 360°, (2) vertical
- Hook-and-loop closure; one inside pocket



| Mfr. Model #   | Color | Size      | BSE Part # |
|----------------|-------|-----------|------------|
| 8210HL-L/XL    | Lime  | L – XL    | 1680944    |
| 8210HL-2XL/3XL | Lime  | 2XL – 3XL | 1680945    |

### GloWear® 8289 Class 2 T-Shirts

Short, crew with one outside pocket.

- 2" Level 2 ANSI-compliant tape (3M Scotchlite); (1) 360°, (2) vertical; ANSI certified (107-Class 2) polyester breathable knit
- Moisture wicking treatment



| Mfr. Model # | Color  | Size    | BSE Part #   |
|--------------|--------|---------|--------------|
| 8289         | Lime   | S – 5XL | Specify size |
| 8289         | Orange | S – 5XL | Specify size |

### GloWear® 8397 Sweatshirt

Comfort, warmth and visibility.

- 2" Level 2 ANSI compliant tape (3M Scotchlite), (1) 360°, (2) vertical, (4) sleeves
- Moisture wicking treatment



| Mfr. Model # | Color | Size | BSE Part # |
|--------------|-------|------|------------|
| 8397-S       | Lime  | S    | 1681110    |
| 8397-M       | Lime  | M    | 1681111    |
| 8397-L       | Lime  | L    | 1681112    |
| 8397-XL      | Lime  | XL   | 1681124    |
| 8397-2XL     | Lime  | 2XL  | 1681100    |
| 8397-3XL     | Lime  | 3XL  | 1681113    |
| 8397-4XL     | Lime  | 4XL  | 1681114    |
| 8397-5XL     | Lime  | 5XL  | 1681115    |





# LOCKOUT TAGOUT

## Clamp-On Breaker Lockouts

Simply tighten lockout securely onto switch tongue, pull cover over thumbscrew and lock cover to prevent clamp from being loosened.

- Accepts locks shackles up to 9/32" in diameter
- Detachable cleats (included) expand the range of applicable breakers
- Extremely versatile – works on wide range of single-pole and internal-trip multi-pole breakers
- Made of rugged polypropylene and impact modified nylon
- New blade design provides tighter grip with less torque on thumb screw
- Two sizes, one for 120/277 V breakers and one for 480/600 V breakers



| Mfr. Model # | Description | Package Quantity | BSE Part # |
|--------------|-------------|------------------|------------|
| 65965        | 120/277 V   | 6                | 557210     |
| 65966        | 480/600 V   | 6                | 557217     |

## Miniature Circuit Breaker Lockouts

A safe and effective method for locking out miniature circuit breakers, commonly used in European and Asian equipment.

- The Lockout easily installs with the aid of a push-button
- Available for single and multi-pole breakers
- Recommended to lock with lightweight Brady or other padlocks, the lockouts can take padlocks with a shackle diameter up to 9/32" safety padlocks



| Mfr. Model # | Package Quantity | Type | BSE Part # |
|--------------|------------------|------|------------|
| 90844        | 1                | POS  | 1687797    |
| 90847        | 1                | PIS  | 1687811    |
| 90850        | 1                | POW  | 1687688    |
| 90853        | 1                | TBLO | 1687686    |

## Steel Lockout Hasps

The answer to your safety concerns during group lockout situations.

- Constructed of vinyl-coated high tensile steel with rust resistant plating



| Mfr. Model # | Description                                     | BSE Part # |
|--------------|---|------------|
| 65375        | 1" diameter jaws; lock holes: 3/8" diameter     | 556115     |
| 65376        | 1-1/2" diameter jaws; lock holes: 3/8" diameter | 111796     |

## Plug Lockouts

Avoid electrical accidents by applying lockouts to prevent plugs from being inserted into a wall outlet.

- Made of rugged polypropylene
- Large 220/500 V plug lockout: 1" diameter hole for cable
- Small 110 V plug lockout: 1/2" diameter hole for cable



| Mfr. Model # | Description             | Dimensions           | BSE Part # |
|--------------|-------------------------|----------------------|------------|
| 65674        | Small 110 V plugout     | 2" x 2" x 3-1/2"     | 556902     |
| 65675        | Large 220/500 V plugout | 3-1/4" x 3-1/4" x 7" | 556911     |

## Fuse Lockout Devices

Unique locking mechanism prevents device from being accidentally removed from fuse block.

- Available in two sizes for most commonly used fuses



| Mfr. Model # | Package Quantity | Size   | BSE Part # |
|--------------|------------------|--------|------------|
| 65750        | 6                | 13/32" | 557099     |
| 65751        | 6                | 9/16"  | 557108     |

## Lockout Tags

- Heavy-duty, holds up to 80 lbs of pull force preventing accidental removal
- Tags accept pencil, pen and marker (pen and marker can be completely erased using isopropyl alcohol, allowing for repeated use)
- 3/8" diameter heavy-duty brass grommet accepts most padlock shackles
- Tag size is 5-1/2" x 3"



| Mfr. Model # | Material             | Legend (Reverse side)             | BSE Part # |
|--------------|----------------------|-----------------------------------|------------|
| 65525        | Heavy duty polyester | Locked out, unauthorized removal  | 556410     |
| 66063        | Economy polyester    | Locked out, unauthorized removal  | 1274827    |
| 66064        | Economy polyester    | Locked out, individual who signed | 1274818    |
| 65451        | Cardstock            | Locked out, unauthorized removal  | 1694997    |
| 65452        | Cardstock            | Locked out, individual who signed | 1695002    |
| 65520        | Nylon fasteners      | -                                 | 556374     |

# SOLAR COMPONENTS

## Lockout Tags

Do not operate tags—maintenance department.



| Mfr. Model # | Material             | Legend (Reverse side)             | BSE Part # |
|--------------|----------------------|-----------------------------------|------------|
| 65503        | Heavy duty polyester | Locked out, unauthorized removal  | 556314     |
| 65521        | Heavy duty polyester | Locked out, individual who signed | 556382     |
| 66053        | Economy polyester    | Locked out, unauthorized removal  | 1275053    |
| 66054        | Economy polyester    | Locked out, individual who signed | 1275062    |
| 65441        | Cardstock            | Locked out, unauthorized removal  | 1695038    |
| 65442        | Cardstock            | Locked out, individual who signed | 1695030    |

## Safety Padlocks

Padlock complies with all OSHA requirements and is a safer alternative to metal locks for lockout applications.

- Special 6-pin cylinder resists tampering; triple-coated hardened steel shackle resists corrosion; one-piece “seamless” body construction; ribbed sides
- “Danger” and “Property Of” labels provided



| Mfr. Model # | Package Quantity | Color  | BSE Part # |
|--------------|------------------|--------|------------|
| 99580        | 1                | Black  | 1793096    |
| 103033       | 1                | Brown  | 2302932    |
| 99556        | 1                | Blue   | 1793128    |
| 99564        | 1                | Green  | 1793126    |
| 99576        | 1                | Orange | 1793098    |
| 104919       | 1                | Purple | 2040082    |
| 99552        | 1                | Red    | 1675035    |
| 99570        | 1                | Yellow | 1793124    |
| 51353        | 6                | Black  | 1765270    |
| 101956       | 6                | Brown  | 2040124    |
| 51344        | 6                | Blue   | 1765310    |
| 51345        | 6                | Green  | 1765345    |
| 51347        | 6                | Orange | 1765268    |
| 104916       | 6                | Purple | 2040085    |
| 51339        | 6                | Red    | 1675037    |
| 51346        | 6                | Yellow | 1765271    |

## Electrical Lockout Toolbox

All the basics for locking out breakers, electrical plugs, wall switches and fuses.



| Mfr. Model # | Description                           | BSE Part # |
|--------------|---------------------------------------|------------|
| 99312        | Kit with 2 safety padlocks and 2 tags | 1676345    |

## Portable Padlock Pouch Lockout Kit

Gives each worker the locks, tags and hasps they'll need for their next lockout situation.

- 2 - heavy-duty lockout tags (65520) with nylon cable ties
- 1 - 1.5" group lockout hasp (65376)
- 1 - 1" group lockout hasp (65375)
- 1 - lockout belt pouch (51172)
- 2 - differently keyed safety padlocks (99552)



| Mfr. Model # | BSE Part # |
|--------------|------------|
| 99290        | 1675302    |

## Combination Lockout Duffel

Everything you need to lock out the most common mechanical and electrical control points, with extra electrical lockout devices.

- Padlock options: choose between two keyed-different safety padlocks (99552) or steel padlocks (99500)
- Padlocks come with two heavy-duty, re-usable lockout tags (65520) and nylon cable ties



| Mfr. Model # | Description                           | BSE Part # |
|--------------|---------------------------------------|------------|
| 99690        | Kit with 2 safety padlocks and 2 tags | 1794407    |

# RESPIRATORY PROTECTION

## N95 Particulate Respirator

Protection against nonoil based particles.

- 3M's advanced electret media
- Features welded strap attachment, soft nose foam and adjustable noseclip; lightweight



| Mfr. Model # | Package Quantity | BSE Part # |
|--------------|------------------|------------|
| 46457        | 20 per box       | 788780     |

## 8511 Respirator Mask

Helps reduce exposure to dust from sanding on particle board, drywall, nonlead paints, fiberglass insulation dust.

- Cool Flow™ exhalation valve makes it comfortable in heat and humidity; M-noseclip; lightweight



| Mfr. Model # | Package Quantity | BSE Part # |
|--------------|------------------|------------|
| 54343        | 10 per box       | 964145     |



## WORK CLOTHING

### GloWear® 8365 Class 3 Rain Jacket

Breathable poly shell keeps rain out but lets perspiration escape.

- 300D oxford; breathable PU coating; polyester mesh lining; inset hood with drawstring and stoppers
- 2" Level 2 ANSI-compliant tape



### GloWear® 8915 Class E Rain Pants

Breathable waterproof comfort.

- Weatherproof outer shell constructed of 300D oxford; breathable PU coating; polyester mesh lining



| Mfr. Model # | Color  | Size  | BSE Part # |
|--------------|--------|-------|------------|
| 8365-L       | Lime   | Large | 1928364    |
| 8365-L       | Orange | Large | 1928365    |

| Mfr. Model # | Color  | Size  | BSE Part # |
|--------------|--------|-------|------------|
| 8915-L       | Lime   | Large | 1928404    |
| 8915-L       | Orange | Large | 1928405    |

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# SOLAR COMPONENTS

## IT'S EASY TO FIND THE PRODUCTS

|                           |                            |                         |                         |                               |                       |
|---------------------------|----------------------------|-------------------------|-------------------------|-------------------------------|-----------------------|
| <b>3M</b>                 | 99564..... 42              | CCBF14-DS100..... 20    | DH163UWKN..... 24       | 6700CT..... 32                | TS163R..... 23        |
| 22004..... 40             | 99570..... 42              | CCBF14-DS100-SP..... 20 | DH164NDK..... 24        | 8210HL..... 40                | TSN161..... 23        |
| 29008..... 40             | 99576..... 42              | CCBF14-DS200..... 20    | DH164NRK..... 24        | 8365L..... 43                 | TSN161R..... 23       |
| 29009..... 40             | 99580..... 42              | CCBF14-DS200-SP..... 20 | DH164NWK..... 24        | 8365L..... 43                 | TSN162..... 23        |
| 46457..... 42             | 99690..... 42              | CCBF14-SP..... 19       | DH164UDKN..... 24       | 8915L..... 43                 | TSN162R..... 23       |
| 54343..... 42             | 103033..... 42             | CCBF16..... 19          | DH164URKN..... 24       | 8915L..... 43                 | TSN163..... 23        |
| 90000..... 40             | 104916..... 42             | CCBF16-DS100..... 20    | DH164UWKN..... 24       | <b>Erico</b>                  | TSN163R..... 23       |
| <b>Amphenol</b>           | 104919..... 42             | CCBF16-DS100-SP..... 20 | DH165NDK..... 24        | SC2A..... 27                  |                       |
| 670508..... 27            | 101956..... 42             | CCBF16-DS200..... 20    | DH165NRK..... 24        | <b>Fluke Electronics</b>      |                       |
| 670803..... 27            | <b>Burndy</b>              | CCBF16-DS200-SP..... 20 | DH165NWK..... 24        | FLUKE-117..... 29             | <b>Hevco</b>          |
| PV-100506-F..... 27       | ACC..... 27                | CCBF16-SP..... 19       | DH165UDKN..... 24       | FLUKE-117/322..... 30         | 8463..... 26          |
| PV-100506-M..... 27       | ACC-PV..... 27             | CCBF18..... 19          | DH165URKN..... 24       | FLUKE-177-ESFP..... 30        | 8465..... 26          |
| <b>Ansell</b>             | ACC-R2..... 27             | CCBF18-DS100..... 20    | DH165UWKN..... 24       | FLUKE-233..... 30             | M3200GAH..... 26      |
| 205574..... 38            | ACE1P..... 19              | CCBF18-DS100-SP..... 20 | DH166NDK..... 24        | FLUKE-233..... 31             | M3200GAJ..... 26      |
| 205575..... 38            | ACE2C..... 19              | CCBF18-DS200..... 20    | DH166NRK..... 24        | FLUKE-335..... 30             | M3231GAE..... 26      |
| 205576..... 38            | ACEPT..... 19              | CCBF18-DS200-SP..... 20 | DH166NWK..... 24        | FLUKE-337..... 30             | M3234GAG..... 26      |
| 205577..... 38            | CL501TN..... 17            | CCBF18-SP..... 19       | DH166UDKN..... 24       | FLUKE-374..... 30             | <b>Ideal</b>          |
| 205578..... 38            | WEEB-9.5NL..... 17         | CCBF20..... 19          | DH166URKN..... 24       | FLUKE-374..... 31             | 45-092..... 28        |
| <b>Array Technologies</b> | WEEB-BNDJMP6.7AS..... 17   | CCBF20-DS100..... 20    | DH166UWKN..... 24       | FLUKE-374..... 30             | 45-615..... 28        |
| AZ-125-6..... 11          | WEEB-DMC..... 17           | CCBF20-DS100-SP..... 20 | <b>Delta Lightning</b>  | FLUKE-375..... 30             | 45-618..... 28        |
| AZ-225-12..... 11         | WEEB-LUG-6.7..... 17       | CCBF20-DS200..... 20    | LA302R..... 18          | FLUKE-375..... 31             | 45-715..... 28        |
| AZ-225-9..... 11          | WEEB-LUG-6.7..... 17       | CCBF20-DS200-SP..... 20 | LA303..... 18           | FLUKE-376..... 30             | 45-718..... 28        |
| WDA-OPTION..... 11        | WEEB-PMC..... 17           | CCBF20-SP..... 19       | LA602DC..... 18         | FLUKE-376..... 31             | <b>Ialoo</b>          |
| W-MANCON..... 11          | WEEB-UMC..... 17           | CCBF22..... 19          | LA603..... 18           | <b>Fronius USA</b>            | 431..... 32           |
| <b>Brady</b>              | WEEB-UMC..... 17           | CCBF22-DS100..... 20    | <b>Dottie</b>           | CAT5..... 15                  | 451..... 32           |
| 46346..... 36             | WEEB-WMC..... 17           | CCBF22-DS100-SP..... 20 | LBK..... 29             | CL-33.3-DELTA..... 16         | GBL-4DBT..... 17      |
| 46347..... 36             | <b>Copper Crouse-Hinds</b> | CCBF22-DS200..... 20    | <b>DPW Solar</b>        | CL-36.0-WYE..... 16           | <b>ITW Dymon</b>      |
| 51339..... 42             | CCBF02..... 19             | CCBF22-DS200-SP..... 20 | DP-TPM12-X..... 11      | CL-44.4-DELTA..... 16         | 91501..... 33         |
| 51344..... 42             | CCBF02-DS100..... 20       | CCBF22-SP..... 19       | DP-TPM6-X..... 11       | CL-48.0-WYE..... 16           | 98491..... 35         |
| 51345..... 42             | CCBF02-DS100-SP..... 20    | CCBF24..... 19          | DP-TPM9-X..... 11       | CL-55.5-DELTA..... 16         | <b>Klein Tools</b>    |
| 51346..... 42             | CCBF02-DS200..... 20       | CCBF24-DS100..... 20    | <b>Enphase Energy</b>   | CL-60.0-WYE..... 16           | 93116..... 29         |
| 51347..... 42             | CCBF02-SP..... 19          | CCBF24-DS100-SP..... 20 | ELCF-120-001..... 12    | CL-MOUNTING-BASE..... 16      | 807-18..... 29        |
| 51353..... 42             | CCBF04..... 19             | CCBF24-DS200..... 20    | ENV-120-01..... 12      | DATALOGGER..... 15            | 934-30..... 29        |
| 65375..... 41             | CCBF04-DS100..... 20       | CCBF24-DS200-SP..... 20 | ET10-208-01..... 12     | DATCOMPOWERSUPPLY15..... 15   | <b>Lenox</b>          |
| 65376..... 41             | CCBF04-DS100-SP..... 20    | CCBF24-SP..... 19       | ET10-240-01..... 12     | IGPERSONALDISPLAY..... 15     | GOLD50D-20351..... 29 |
| 65441..... 42             | CCBF04-DS200-SP..... 20    | CCBF36..... 19          | ET17-208-01..... 12     | IGPLUS100..... 14             | GOLD5C-20350..... 29  |
| 65442..... 42             | CCBF04-SP..... 19          | CCBF48..... 19          | ET17-240-01..... 12     | IGPLUS114..... 14             | SSRK1-20353..... 29   |
| 65451..... 41             | CCBF06..... 19             | CPBF03..... 19          | ET-CLIP-01..... 12      | IGPLUS143..... 14             | <b>Littelfuse</b>     |
| 65452..... 41             | CCBF06-DS100..... 20       | CPBF04..... 19          | ET-DISC-05..... 12      | IGPLUS1203..... 14            | IDSR010..... 18       |
| 65503..... 42             | CCBF06-DS100-SP..... 20    | <b>Cutler-Hammer</b>    | ET-INSTL..... 12        | IGPLUS30..... 14              | IDSR015..... 18       |
| 65520..... 41             | CCBF06-DS200..... 20       | DG221URB..... 26        | ET-SEAL-01..... 12      | IGPLUS38..... 14              | IDSR020..... 18       |
| 65521..... 42             | CCBF06-DS200-SP..... 20    | DG222URB..... 26        | ET-TERM-01..... 12      | IGPLUS50..... 14              | IDSR030..... 18       |
| 65525..... 41             | CCBF06-SP..... 19          | DG321URB..... 26        | EVRN-RR-01..... 12      | IGPLUS60..... 14              | IDSR060..... 18       |
| 65674..... 41             | CCBF08..... 19             | DG322URB..... 26        | EVRN-RT-01..... 12      | IGPLUS75..... 14              | KLKD001..... 18       |
| 65675..... 41             | CCBF08-DS100..... 20       | DG323URB..... 26        | EVRN-RT-02..... 12      | IGPLUSBUSBAR..... 15          | KLKD002..... 18       |
| 65750..... 41             | CCBF08-DS100-SP..... 20    | DH161NDK..... 24        | M215-60-2LL-S22..... 11 | IGPLUSCOMCARD..... 15         | KLKD003..... 18       |
| 65751..... 41             | CCBF08-DS200..... 20       | DH161NRK..... 24        | M215-60-2LL-S23..... 11 | INTERFACEBOX..... 15          | KLKD005..... 18       |
| 65965..... 41             | CCBF08-DS200-SP..... 20    | DH161NWK..... 24        | <b>Ergodyne</b>         | INTERFACECARD..... 15         | KLKD006..... 18       |
| 65966..... 41             | CCBF08-SP..... 19          | DH161UDKN..... 24       | 380..... 33             | INTERFACARDEASY..... 15       | KLKD008..... 18       |
| 66053..... 42             | CCBF10..... 19             | DH161URKN..... 24       | 720..... 38             | RS-232..... 15                | KLKD010..... 18       |
| 66054..... 42             | CCBF10-DS100..... 20       | DH161UWKN..... 24       | 821..... 38             | SENSOR..... 15                | KLKD012..... 18       |
| 66063..... 41             | CCBF10-DS100-SP..... 20    | DH162NDK..... 24        | 872..... 38             | STRING-CONTROL-250/25..... 16 | KLKD015..... 18       |
| 66064..... 41             | CCBF10-DS200..... 20       | DH162NRK..... 24        | 3400..... 38            | KLKD020..... 18               | KLKD025..... 18       |
| 84083..... 36             | CCBF10-DS200-SP..... 20    | DH162NWK..... 24        | 6615..... 32            | WLANUSBSTICK..... 15          | KLKD030..... 18       |
| 90844..... 41             | CCBF10-SP..... 19          | DH162UDKN..... 24       | 6665..... 32            | <b>GE Electric</b>            | SPF001..... 18        |
| 90847..... 41             | CCBF12..... 19             | DH162URKN..... 24       | 6700..... 32            | TGN3321R..... 25              | SPF002..... 18        |
| 90850..... 41             | CCBF12-DS100..... 20       | DH162UWKN..... 24       | 8289..... 40            | TGN3322R..... 25              | SPF003..... 18        |
| 90853..... 41             | CCBF12-DS100-SP..... 20    | DH163NDK..... 24        | 8397..... 40            | TGN3323R..... 25              | SPF004..... 18        |
| 99290..... 42             | CCBF12-DS200..... 20       | DH163NRK..... 24        | 19003..... 37           | TS161..... 23                 | SPF005..... 18        |
| 99312..... 42             | CCBF12-DS200-SP..... 20    | DH163NWK..... 24        | 3100EXTLIME..... 37     | TS161R..... 23                | SPF006..... 18        |
| 99552..... 42             | CCBF12-SP..... 19          | DH163URKN..... 24       | 385BLACK16 X28..... 33  | TS162..... 23                 | SPF008..... 18        |
| 99556..... 42             | CCBF14..... 19             | DH163URKN..... 24       | 390BLACK18 X36..... 33  | TS162R..... 23                | SPF010..... 18        |
|                           |                            |                         |                         | TS163..... 23                 |                       |





|                               |                              |                   |                                 |                                    |                              |
|-------------------------------|------------------------------|-------------------|---------------------------------|------------------------------------|------------------------------|
| SPF012..... 18                | 697290..... 39               | S2540S..... 35    | SS3375E..... 34                 | HNF364PV..... 22                   | H361RB..... 22               |
| SPF015..... 18                | 697410..... 39               | S2560ST..... 35   | <b>Quick Mount PV</b>           | HNF364PVPG..... 23                 | H362..... 22                 |
| SPF020..... 18                | 815570..... 39               | S2565S..... 35    | QMEXT-2.5-A-1..... 9            | HNF364RPV..... 22                  | H362RB..... 22               |
| SPF025..... 18                | 10021292..... 39             | S2570S..... 35    | QMEXT-2.5-B-1..... 9            | HNF364RPVPG..... 23                | H363..... 22                 |
| SPF030..... 18                | 10087220..... 39             | S2575S..... 35    | QMHS-10-1..... 9                | <b>SMA America</b>                 | H363RB..... 22               |
| <b>Louisville Ladder</b>      | NFL-CAP..... 39              | S2580S..... 35    | QMHS-6-1..... 9                 | AMBIENT-TEMPERATURE-SENSOR..... 14 | HU361..... 22                |
| FE3224..... 31                | <b>Multi-Contact</b>         | S2590S..... 35    | QMHS-8-1..... 9                 | BTPBINV-NR..... 14                 | HU361RB..... 22              |
| <b>MidNite Solar</b>          | 10T37RHWUSE2BK..... 28       | SB1810R10..... 34 | QMLC-A-1..... 9                 | MODULE TEMPERATURE-SENSOR..... 14  | HU362..... 22                |
| MNPV12..... 21                | 10T77RHWUSE2RED..... 28      | SB1810R15..... 34 | QMLC-B-1..... 9                 | RS485..... 14                      | HU362RB..... 22              |
| MNPV16..... 21                | 32.0016P0001-UR..... 26      | SB1810R20..... 34 | QMRB-1..... 9                   | SB10000TL-US..... 13               | HU363..... 22                |
| MNPV16-24..... 21             | 32.0017P0001-UR..... 26      | SB1810R25..... 34 | QMCS-A-1..... 9                 | SB2000HFUS..... 12                 | HU363RB..... 22              |
| MNPV16-250..... 21            | PV-MS..... 27                | SB1810R30..... 34 | QMCS-B-1..... 9                 | SB2500HFUS..... 12                 |                              |
| MNPV3..... 21                 | <b>National Elec. Carbon</b> | SB1810S..... 33   | QMUTM-A-1..... 10               | SB3000HFUS..... 12                 | <b>TE Connectivity - Amp</b> |
| MNPV6..... 21                 | 1440..... 21                 | SB1810SB..... 33  | QMUTM-B-1..... 10               | SB4000US..... 12                   | 4-1579002..... 28            |
| <b>Midwest Electric</b>       | 1455.15..... 21              | SB1810ST..... 33  | <b>Rennsteig Tools</b>          | SB5000US..... 13                   | 5-1394462-6..... 27          |
| MS161..... 24                 | 1455.2..... 21               | SB1820R15..... 34 | R624-570-3-1..... 27            | SB6000US..... 13                   | 6-1394461-4..... 27          |
| MS161R..... 24                | 0760-41AD..... 21            | SB1820R20..... 34 | <b>S-5 Attachment Solutions</b> | SB7000US..... 13                   | <b>Terrasmart</b>            |
| MS162..... 24                 | 0784AC2K..... 21             | SB1820R25..... 34 | S-5-CORRUBRACKET..... 11        | SB8000TL-US..... 13                | TS-1-A..... 10               |
| MS162R..... 24                | 0784AC3K..... 21             | SB1820S..... 33   | S-5-E..... 10                   | SB8000U..... 13                    | TS-1-B..... 10               |
| MS163..... 24                 | 0784BB..... 21               | SB1820SB..... 33  | S-5-E-MINI..... 10              | SB9000TL-US..... 13                | TS-905..... 10               |
| MS163R..... 24                | 0784FBB-2..... 21            | SB1820ST..... 33  | S-5-PV-KIT..... 10              | SBCB-6..... 21                     | <b>Thomas &amp; Betts</b>    |
| MSCF126R..... 21              | 0785BB..... 21               | SB1830S..... 33   | S-5-S..... 10                   | SBCD..... 21                       | 2520-2..... 26               |
| MSCF126X..... 21              | 0785TBB-2..... 21            | SB1835S..... 33   | S-5-S-MINI..... 10              | SCCB-12..... 21                    | <b>Thomson Technology</b>    |
| MSCF246R..... 21              | <b>North Safety</b>          | SB1840S..... 33   | S-5-T-MINI..... 10              | SCCB-28..... 21                    | FJ001BL..... 10              |
| MSCF246X..... 21              | 20020..... 37                | SB1850SF..... 33  | S-5-U..... 10                   | SCCB-52..... 21                    | <b>Tigo Energy</b>           |
| MSN161..... 24                | 20795..... 37                | SB1860S..... 33   | S-5-U-MINI..... 10              | SSM-24..... 15                     | ES050V300W-4W..... 16        |
| MSN161R..... 24               | 20915..... 37                | SB1860S..... 33   | S-5-VERSABRACKET-67 11          | SSM-32..... 15                     | ES050V300W-5W..... 16        |
| MSN162..... 24                | 21645..... 37                | SB1870S..... 33   | <b>Salisbury</b>                | SSM-64..... 15                     | MU-ESW..... 16               |
| MSN162R..... 24               | 2884640..... 37              | SB1875S..... 33   | AS1500HAT..... 39               | ST-36..... 15                      | MU-GTWY..... 16              |
| MSN163..... 24                | 018500-4222..... 37          | SB1880S..... 33   | E00-E4 Gloves..... 38           | ST-42..... 15                      | <b>Unirac</b>                |
| MSN163R..... 24               | 122000X..... 33              | SB1880ST..... 33  | <b>Siemens Energy</b>           | SUNNY-SENSORBOX-MONITOR..... 13    | 002001C..... 5               |
| <b>Milbank</b>                | <b>Power One</b>             | SB1885S..... 33   | GNF321R..... 25                 | SUNNY-WEBBOX-BT..... 13            | 002002C..... 5               |
| 117TB..... 17                 | PVI-3.0-OUTD-US..... 15      | SB1890S..... 33   | GNF322R..... 25                 | SUNNY-WEBBOX-240V..... 14          | 002003C..... 5               |
| 127TB..... 17                 | PVI-3.6-OUTD-US..... 15      | SB3310E..... 34   | GNF323R..... 25                 | <b>Solar Solutions</b>             | 002004C..... 5               |
| CL200..... 17                 | PVI-4.2-OUTD-US..... 15      | SB3320E..... 34   | HF361PV..... 22                 | 1-1579004-2..... 28                | 002005C..... 5               |
| U4518-XL-W..... 17            | PVI-5000-OUTD-US..... 15     | SB33345E..... 34  | HF361PVPG..... 23               | 2058729-1..... 17                  | 002006C..... 5               |
| U7490-RL..... 17              | PVI-6000-OUTD-US..... 15     | SB33365E..... 34  | HF361RPV..... 22                | <b>SolarWorld</b>                  | 002007C..... 5               |
| <b>Miller Fall Protection</b> | <b>PV Powered</b>            | SB3370E..... 34   | HF361RPVPG..... 23              | MONO-2.5-270W..... 3               | 002008C..... 5               |
| 233TWLS-Z7/6FTGN..... 37      | AE100TX-208..... 16          | SB3380E..... 34   | HF362PV..... 22                 | MONO-2.5-265W..... 3               | 002009C..... 5               |
| 233TWRS-Z7/6FTGN..... 37      | AE100TX-480..... 16          | SB5710D..... 34   | HF362PVPG..... 23               | MONO-BLK-2.5-265W..... 3           | 002012C..... 5               |
| 650KQC/UBK..... 36            | AE260TX-480..... 16          | SB5710DT..... 34  | HF362RPV..... 22                | <b>Solectria Renewables</b>        | 002101C..... 5               |
| 752/UYK..... 36               | AE260TX-LV-480..... 16       | SB5720D..... 34   | HF362RPVPG..... 23              | PVI-13KW-208V..... 16              | 002102C..... 5               |
| 8327SW/8FTYL..... 37          | AE35TX-208..... 16           | SB5720DT..... 34  | HF363PV..... 22                 | PVI-13KW-240V..... 16              | 002103C..... 5               |
| 933K/6FTBK..... 37            | AE35TX-480..... 16           | SB5730D..... 34   | HF363PVPG..... 23               | PVI-15KW-208V..... 16              | 002104C..... 5               |
| E752/UGN..... 36              | AE50TX-208..... 16           | SB5760D..... 34   | HF363RPV..... 22                | PVI-15KW-240V..... 16              | 003000S..... 6               |
| E753/UGN..... 36              | AE50TX-480..... 16           | SB5770D..... 34   | HF363RPVPG..... 23              | PVI-15KW-480V..... 16              | 003001S..... 6               |
| RKNAR-QC/UBK..... 36          | AE75TX-208..... 16           | SB910E..... 34    | HF364PV..... 22                 | PVI-60KW-208V..... 16              | 004000M..... 9               |
| <b>MSA</b>                    | AE75TX-480..... 16           | SB920E..... 34    | HF364PVPG..... 23               | PVI-60KW-240V..... 16              | 004002C..... 9               |
| 475358..... 39                | PVP-SSCB-16..... 21          | SB970E..... 34    | HF364RPV..... 22                | PVI-60KW-480V..... 16              | 004003C..... 8               |
| 475360..... 39                | PVP-SSCB-8..... 21           | SBW3320E..... 34  | HF364RPVPG..... 23              | PVI-60KW-240V..... 16              | 004004C..... 8               |
| 475361..... 39                | <b>Pyramex</b>               | SBW3370E..... 34  | HNF361PV..... 22                | PVI-60KW-480V..... 16              | 004005C..... 8               |
| 475362..... 39                | LCS10..... 35                | SH1820S..... 33   | HNF361PVPG..... 23              |                                    | 004006C..... 8               |
| 475363..... 39                | LCT100..... 35               | SMB1810S..... 33  | HNF361RPV..... 22               |                                    | 004007C..... 8               |
| 475364..... 39                | PYRBAG..... 35               | SMM1810S..... 33  | HNF361RPVPG..... 23             |                                    | 004008C..... 8               |
| 475366..... 39                | S2510R15..... 35             | SRW3320E..... 34  | HNF362PV..... 22                |                                    | 004010D..... 8               |
| 475368..... 39                | S2510R20..... 35             | SRW3370E..... 34  | HNF362PVPG..... 23              |                                    | 004012C..... 8               |
| 475369..... 39                | S2510R25..... 35             | SS3320E..... 34   | HNF362RPV..... 22               |                                    | 004013C..... 8               |
| 475370..... 39                | S2510S..... 35               | SS3345E..... 34   | HNF362RPVPG..... 23             |                                    | 004014C..... 8               |
| 475371..... 39                | S2510ST..... 35              | SS3365E..... 34   | HNF363PV..... 22                |                                    | 004015C..... 8               |
| 488146..... 39                | S2515S..... 35               | SS3370E..... 34   | HNF363PVPG..... 23              |                                    | 004017D..... 8               |
| 496075..... 39                | S2520ST..... 35              |                   | HNF363RPV..... 22               |                                    | 004300C..... 8               |
| 696688..... 39                | S2530S..... 35               |                   | HNF363RPVPG..... 23             |                                    | 004300D..... 8               |

# SOLAR COMPONENTS

## IT'S EASY TO FIND THE PRODUCTS

|                 |                 |                 |                 |                 |                      |
|-----------------|-----------------|-----------------|-----------------|-----------------|----------------------|
| 004301G ..... 9 | 011144M ..... 3 | 030024C ..... 7 | 209003D ..... 6 | 302105D ..... 4 | 330003C ..... 7      |
| <b>Unirac</b>   | 011192M ..... 3 | 030025C ..... 7 | 210192C ..... 3 | 302106D ..... 4 | 330004D ..... 7      |
| 004302G ..... 9 | 030001C ..... 8 | 030026C ..... 7 | 210192D ..... 3 | 303001C ..... 6 | 403200C ..... 4      |
| 004400C ..... 8 | 030002C ..... 7 | 202000D ..... 7 | 302000C ..... 4 | 303002D ..... 6 | 403201C ..... 4      |
| 004400D ..... 8 | 030003C ..... 7 | 202001C ..... 6 | 302001C ..... 4 | 303003C ..... 5 | 403202C ..... 4      |
| 004401G ..... 9 | 030004C ..... 8 | 202001D ..... 6 | 302002C ..... 4 | 304000C ..... 9 | 403203C ..... 4      |
| 004402G ..... 9 | 030005C ..... 8 | 202002C ..... 6 | 302003C ..... 4 | 304000D ..... 9 | 403210P ..... 4      |
| 004600C ..... 8 | 030006C ..... 8 | 202002D ..... 6 | 302003D ..... 4 | 307007M ..... 5 | 403211C ..... 4      |
| 004600D ..... 8 | 030007C ..... 8 | 202003C ..... 6 | 302004C ..... 4 | 307015M ..... 5 | 403211G ..... 4      |
| 004601G ..... 9 | 030008C ..... 8 | 202003D ..... 6 | 302004D ..... 4 | 307020M ..... 5 | 403213C ..... 4      |
| 004602G ..... 9 | 030009C ..... 8 | 202004C ..... 6 | 302005C ..... 4 | 307034M ..... 5 | 403214C ..... 4      |
| 004700C ..... 8 | 030010C ..... 8 | 202004D ..... 6 | 302005D ..... 4 | 307107M ..... 5 | 403214G ..... 4      |
| 004700D ..... 8 | 030011C ..... 8 | 202005D ..... 6 | 302006C ..... 4 | 307115M ..... 5 | 403215C ..... 4      |
| 004701G ..... 9 | 030012C ..... 8 | 202006D ..... 6 | 302006D ..... 4 | 307120M ..... 5 | 403215S ..... 4      |
| 004702G ..... 9 | 030013C ..... 8 | 202007C ..... 6 | 302007D ..... 4 | 307134M ..... 5 | 403216S ..... 4      |
| 008000C ..... 6 | 030014C ..... 8 | 202007D ..... 6 | 302008C ..... 4 | 308001S ..... 5 | 403301C ..... 4      |
| 008002S ..... 5 | 030015C ..... 8 | 202008D ..... 6 | 302008D ..... 4 | 309001D ..... 7 | 403302C ..... 4      |
| 008003S ..... 7 | 030016C ..... 8 | 204001C ..... 7 | 302009C ..... 4 | 310132C ..... 3 | 403303C ..... 4      |
| 008004S ..... 7 | 030017C ..... 8 | 209000C ..... 6 | 302009D ..... 4 | 310168C ..... 3 | 403311G ..... 4      |
| 008005S ..... 6 | 030018C ..... 8 | 209000D ..... 6 | 302010C ..... 4 | 310168D ..... 3 | 403313G ..... 4      |
| 009001D ..... 7 | 030019C ..... 8 | 209001C ..... 6 | 302011C ..... 4 | 310208C ..... 3 | 403314G ..... 4      |
| 009002D ..... 7 | 030020C ..... 7 | 209001D ..... 6 | 302101C ..... 4 | 310240C ..... 3 | 403315S ..... 4      |
| 009003D ..... 7 | 030021C ..... 6 | 209002C ..... 6 | 302101D ..... 4 | 310240D ..... 3 | 403316S ..... 4      |
| 009004D ..... 7 | 030022C ..... 6 | 209002D ..... 6 | 302103C ..... 4 | 330001C ..... 7 | 622069C ..... 9      |
| 010144M ..... 3 | 030023C ..... 7 | 209003C ..... 6 | 302104D ..... 4 | 330002D ..... 7 | <b>Wire - Copper</b> |
|                 |                 |                 |                 |                 | 10AWG ..... 28       |

## NOW YOU KNOW ABBREVIATIONS

|  |  |   |   |   |   |
|--|--|---|---|---|---|
| <b>%</b> percent                                       | <b>CE EN</b> European Certification for Safety Glasses | <b>HID</b> High-intensity discharge                                     | <b>kWh</b> kilowatt-hour                          | <b>NEC</b> National Electrical Code                       | <b>THHN</b> thermoplastic high heat-resistant nylon             |
| <b>°</b> degree  | <b>CFC</b> chlorofluorocarbon                          | <b>IBC</b> International Building Code                                  | <b>kWp</b> kilowatt-peak                          | <b>NEMA</b> National Electrical Manufacturers Association | <b>THWN</b> Thermoplastic Heat and Water Resistant Nylon Coated |
| <b>Ω</b> Ohm   | <b>cm</b> centimeter                                   | <b>ICC-ES</b> International Code Council Evaluation Service             | <b>l</b> length                                   | <b>NRR</b> noise reduction rating                         | <b>TPE</b> thermoplastic elastomer                              |
| <b>μ</b> micrometer or micron                          | <b>CSA</b> Canadian Standards Association              | <b>ID</b> identification  | <b>L</b> large or liter                           | <b>O.D.</b> outside diameter                              | <b>UL</b> Underwriters' Laboratories                            |
| <b>∅</b> phase   | <b>cu</b> cubic  | <b>IEC</b> International Electrotechnical Commission                    | <b>lb</b> pound                                   | <b>OSHA</b> Occupational Safety and Health Administration | <b>UV</b> ultraviolet   |
| <b>#</b> number  | <b>Cu</b> copper                                       | <b>IEEE</b> Institute of Electrical and Electronics Engineers           | <b>LCD</b> liquid crystal display                 | <b>oz</b> ounce   | <b>V</b> volt   |
| <b>'</b> foot (see also ft)                            | <b>cu ft</b> cubic foot                                | <b>in</b> inch (see also " )  | <b>m</b> meter                                    | <b>PABA</b> Para-aminobenzoic acid                        | <b>V AC</b> volts alternating current                           |
| <b>"</b> inch (see also in)                            | <b>cu yd</b> cubic yard                                | <b>Isc</b> short-circuit current  | <b>M</b> medium                                   | <b>pt</b> pint  | <b>V DC</b> volts direct current                                |
| <b>A</b> amp   | <b>d</b> depth   | <b>I-V</b> current and voltage  | <b>mA</b> milliamp                                | <b>PU</b> polyurethane                                    | <b>VA</b> volt-ampere   |
| <b>AC</b> alternating current                          | <b>dB</b> decibel                                      | <b>K</b> Kelvin   | <b>max</b> maximum                                | <b>PV</b> photovoltaic                                    | <b>VOC</b> open circuit voltage                                 |
| <b>Ah</b> ampere-hour                                  | <b>DC</b> direct current                               | <b>kA</b> Kiloampere  | <b>MC</b> metal clad                              | <b>PVC</b> polyvinyl chloride                             | <b>w</b> width  |
| <b>Al</b> aluminum                                     | <b>dia</b> diameter                                    | <b>kcmil</b> thousand circular mil                                      | <b>mil</b> milli-inch                             | <b>qt</b> quart   | <b>W</b> watt, wattage  |
| <b>ANSI</b> American National Standards Institute      | <b>EPA</b> Environmental Protection Agency             | <b>kHz</b> kilohertz  | <b>min</b> minute or minimum                      | <b>S</b> small  | <b>wLAN</b> wireless local area network                         |
| <b>ASTM</b> American Society for Testing and Materials | <b>F</b> Fahrenheit                                    | <b>kW</b> kilowatt  | <b>mL</b> milliliter                              | <b>sec</b> second   | <b>W/m<sup>2</sup></b> watts per                                |
| <b>ATPV</b> arc thermal performance value              | <b>ft</b> foot (also see ' )                           | <b>kW•h (m<sup>2</sup>•day)</b> kilowatt-hours per square meter per day | <b>mm</b> millimeter                              | <b>sq</b> square  | <b>Wp</b> watt peak power                                       |
| <b>avg</b> average                                     | <b>g</b> gram  |   | <b>MMPT</b> maximum power point tracking          | <b>str</b> stranded                                       | <b>XL</b> extra large   |
| <b>AWG</b> American wire gauge                         | <b>ga</b> gauge  |   | <b>MPP</b> Maximum Power Point                    | <b>T</b> ton  | <b>yd</b> yard  |
| <b>BIPV</b> Building-Integrated Photovoltaics          | <b>gal</b> gallon                                      |   | <b>mS</b> milliseconds                            |   |   |
| <b>C</b> Celsius                                       | <b>gr</b> grain  |   | <b>MSHA</b> Mine Safety and Health Administration |   |   |
|  | <b>h</b> height  |   | <b>mV</b> millivolt                               |   |   |
|  | <b>Hz</b> Hertz  |   |   |   |   |



## SOLAR PHOTOVOLTAIC GLOSSARY

- Alternating Current (AC)** Electricity flow that constantly changes from positive to negative. Almost all power produced in the United States shifts direction at a rate of 60 times per second.
- Ambient temperature** The temperature of the surrounding area.
- Amorphous silicon** A thin-film, silicon photovoltaic cell having no crystalline structure. Manufactured by depositing layers of doped silicon on a substrate.
- Ampere (A)** The unit of measure for how much electricity flows through a conductor.
- Ampere-hour (Ah)** A measure of the flow of current (in amperes) over one hour; used to measure battery capacity.
- Annual solar savings** The energy savings attributable to a solar feature relative to the energy requirements of a non-solar building.
- Average demand** The energy demand for a given location over a period of time.
- Avoided cost** The amount of money an electric utility would need to spend for the next increment of electric generation to produce or purchase.
- Azimuth angle** The angle between true south and the point on the horizon directly below the sun.
- Battery** Often sold with a solar electric system to store electricity to be used at a later time.
- Building-Integrated Photovoltaics (BIPV)** The design and integration of photovoltaic technology into the building envelope, typically replacing conventional building materials.
- Circuit** One or more conductors through which electricity flows.
- Converter** An electrical apparatus that changes the quantity or quality of electrical energy.
- Crystalline silicon** A type of photovoltaic cell made from a slice of single-crystal silicon or polycrystalline silicon.
- Customer load** The amount of power your site uses. Load may be expressed in kilowatts (capacity) or kilowatt-hours (energy). Peak kilowatts refers to electric demand requirements are at its highest.
- Demand** The level at which electricity is delivered to end-users at a given point in time. Measured in kilowatts.
- Direct Current (DC)** Electricity that continuously flows in one direction.
- Electrical grid** The transmission and distribution system linking power plants to customers through high-power transmission line service.
- Energy** The capability of doing work; different forms of energy can be converted, but the total amount remains the same.
- Energy audit** A survey revealing energy use in a home, which helps find ways to use less energy.
- Fixed tilt array** A photovoltaic array set in at a fixed angle with respect to horizontal.
- Grid-connected system** A solar electric or photovoltaic system in which the array acts like a central generating plant, supplying power to the grid.
- Hertz** The unit of electromagnetic frequency that is equal to one cycle per second.
- Interconnection** The link of transmission lines between two utilities, or between a utility and an end-user, enabling power to move in either direction.
- Insolation** The solar power density incident on a surface of stated area and orientation. Expressed as average irradiance in watts per square meter ( $W/m^2$ ) or kilowatt-hours per square meter per day ( $kWh/(m^2 \cdot day)$ ) (or hours/day). Photovoltaics are measured as  $kWh/(kWp \cdot y)$  (kilowatt hours per year per kilowatt peak rating)
- Inverter** A device that converts direct current electricity to alternating current.
- Irradiance** The direct, diffuse, and reflected solar radiation that strikes a surface. Expressed in kilowatts per square meter. Irradiance multiplied by time equals insolation.
- Kilowatt (kW)** 1,000 watts. A unit of measure of the amount of electricity needed to operate given equipment.
- Kilowatt-hour (kWh)** The amount of kW produced over a period of time, or one kilowatt of electricity supplied for one hour.
- Maximum Power Point (MPP)** The point on the current-voltage (I-V) curve of a module under illumination, where the product of current and voltage is maximum. For a typical silicon cell, this is at about 0.45 volts.
- Mounting equipment** Used to fasten solar modules to the roof.
- Multicrystalline** A semiconductor (photovoltaic) material composed of variously oriented, small, individual crystals. Sometimes referred to as poly- or semicrystalline.
- National Electrical Code (NEC)** Guidelines for all types of electrical installations. The 1984 and later editions of the NEC contain Article 690, "Solar Photovoltaic Systems" which should be followed when installing a system.
- Net metering** Grid-connected systems allow residential customers to run their electric meters backwards, offsetting their utility bill. Other than the renewable energy system, no special equipment is needed.
- One-axis tracking** A system capable of rotating about one axis.
- Orientation** Placement with respect to the cardinal directions, N, S, E, W.
- Peak Sun Hours** The equivalent number of hours per day when solar irradiance averages  $1,000\text{ w/m}^2$ .
- Photovoltaic cell or module or panel** A device that produces an electric reaction to light to produce electricity.
- Photovoltaic array** Interconnected modules that function as a single electricity-producing unit. Modules are assembled as a discrete structure, with common support or mounting. In smaller systems, an array can consist of a single module.
- Photovoltaic conversion efficiency** The ratio of electric power produced by a photovoltaic device to the power of the sunlight incident on the device.
- Polycrystalline silicon** A material used to make photovoltaic cells, which consist of many crystals unlike single-crystal silicon.
- Solar energy** Heat and light radiated from the sun.
- Solar panel** Devices that collect energy from the sun. Solar photovoltaic modules use solar cells to convert light from the sun into electricity.
- Solar rating** A measure of the average solar energy available at a location in an average year. Radiant power is expressed in power per unit area: usually  $W/m^2$ , or  $kW/sq\text{-meter}$ .
- Solar resource** The amount of solar insolation a site receives, measured in  $kWh/m^2/day$ , equivalent to the number of peak sun hours.
- Stand-alone system** A photovoltaic system not connected to a grid. May or may not require batteries or other forms of storage.
- Storage** Saving surplus electricity produced by a photovoltaic system. Batteries are storage devices.
- String** A number of photovoltaic modules or panels interconnected electrically in series to produce the operating voltage required by the load.
- Tracking equipment** Structure that houses PV modules and automatically follows the sun throughout the day to maximize output.
- Utility grid** The interconnection of electricity generation plants through the transmission and distribution lines to customers. The grid also refers to the interconnection of utilities through the electric transmission and distribution systems.
- Volt (V)** Amount of force required to drive a steady current of one ampere through a resistance of one ohm. Electrical systems of most homes and offices use 120 volts.
- Watt (W)** Electric measurement of power at one point in time, as capacity or demand.





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