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COMPANY PROFILE

Shoals Technologies Group is a leading manufacturer of balance of systems solutions. Through innovation and diversification Shoals has grown exponentially since its founding in 1996. Shoals maintains a diverse portfolio of PV balance of systems products, including combiner/re-combiner boxes, master fuse boxes, custom harnessing solutions, junction boxes, PV wire, in-line fuses, racking and PV monitoring solutions.

CERTIFICATIONS

- TUV certified
- UL Listed: 508A, 1703, 1741
- ISO 9001:2008 certified

QUICK FACTS

- STG currently produces over 1.5 million assemblies per week, offering our clients the expertise of distinguished design, and the flexibility of full, semi, and manual production modes.
- Shoals' state of the art facilities currently have the capacity to output over 12 MW per day.
- STG currently holds over 68 percent of the North American balance of systems market and a significant percentage internationally with customers in Canada, Germany, China, Spain, and India.



STANDARDS FOR EXCELLENCE

Shoals Technologies Group maintains the highest standards for excellence. It is this standard that has and continues to help Shoals establish relationships with many of the top integrators and project developers in the solar industry. With solutions second to none in the marketplace, Shoals has had the privilege to be part of some of the largest private and government PV projects to date.

HIGH CURRENT COMBINER BOXES

UL APPROVED COMBINER BOXES WITH BUILT-IN PROTECTION IN THE EVENT OF ABNORMALLY HIGH CURRENT.



Features

- Finger-safe fuse holders
- Reinforced, plated busbars
- Lockable enclosures
- Built to UL1741
- Non-conductive NEMA 4X enclosure
- 5-year warranty standard on all models
- 600VDC UL Listed
- 1000VDC IEC Rated
- Available in Metal or Fiberglass
- Customizable to meet installation requirements
- Available with SNAPShot™ Wireless Monitoring



Technical Information

	STG.CBRH.3	STG.CBRH.6	STG.CBRH.12
Voltage Rating (VDC)	600	600	600
Maximum DC Current (A)	90	132	240
Maximum Continuous Current (A)	57.7	84.5	154
Maximum Voltage (VDC)	600	600	600
Positive Output Wire Size (mm ²)	13.302 - 130	13.302 - 130	13.302 - 150
Negative Output Wire Size (mm ²)	2.081 - 53.4	2.081 - 53.4	2.081 - 53.4
Input Wire Size (mm ²)	13.302 - 2.081	13.302 - 2.081	13.302 - 2.081
Overall Dimensions (cm)	20.3 x 20.3 x 10.2	20.3 x 25.4 x 10.2	30.5 x 30.5 x 10.2
Enclosure Rating	NEMA 4X	NEMA 4X	NEMA 4X
Number of Fuse Poles	3	6	12
Maximum Input Fuse Rating (A)	30	30	20
Operating Temperature (C°)	-40 to 50	-40 to 50	-40 to 50



COMMERCIAL COMBINER BOXES

PROVIDING THE IDEAL LOW COST, HIGH
QUALITY SOLUTION FOR COMMERCIAL
PHOTOVOLTAIC INSTALLATIONS.

Features

- Finger-safe fuse holders
- Reinforced, plated busbars
- Lockable enclosures
- Built to UL1741
- Non-conductive NEMA 4X enclosure
- 5-year warranty standard on all models
- Available in Metal or Fiberglass
- Customizable to meet installation requirements
- Available with SNAPShot™ Wireless Monitoring



Technical Information

	STG.CBC.12	STG.CBC.36
Voltage Rating (VDC)	600	600
Maximum DC Current (A)	240	360
Max. Input Current Per String (A)	20	10
Max. Input Short Circuit Current Per String (A)	12.8	6.4
Max. Positive Input Wire Size (mm ²)	2.08 - 13.3	2.08 - 13.3
Max. Negative Input Wire Size (mm ²)	2.08 - 21.1	2.08 - 21.1
Output Wire Size (mm ²)	13.3 - 180	13.3 - 180
Overall Dimensions (cm)	40.6 x 50.8 x 20.3	76.2 x 91.4 x 20.3
Enclosure Rating	NEMA 4X	NEMA 4
Number of Fuse Poles	12	36
Maximum Input Fuse Rating (A)	30	30
Operating Temperature (C°)	-40 to 50	-40 to 50

UTILITY-SCALE COMBINER BOXES

USED IN MANY OF THE WORLD'S LARGEST PV INSTALLATIONS, AND PROVIDE RELIABILITY SECOND TO NONE.



Features

- Finger-safe fuse holders
- Reinforced, plated busbars
- Lockable enclosures
- Lexan® arc shields
- Built to UL1741
- Non-conductive NEMA 4X enclosure
- 5-year warranty standard on all models
- DC Disconnects (Optional)
- Available in Metal or Fiberglass
- Customizable to meet installation requirements
- Available with SNAPShot™ Wireless Monitoring

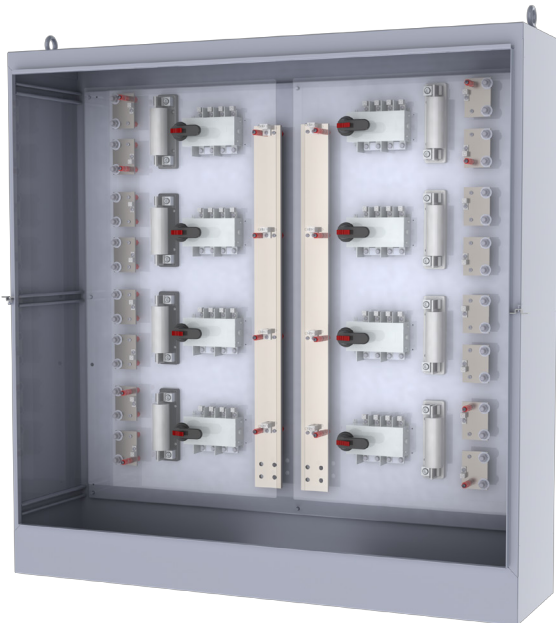


Technical Information

	STG.CBU.24	STG.CBU.36	STG.CBU.48
Voltage Rating (VDC)	1000	1000	1000
Maximum DC Current (A)	720	720	720
Maximum Continuous Current (A)	576	576	576
Max. Positive Input Wire Size (mm ²)	2.08 - 13.3	2.08 - 13.3	2.08 - 13.3
Max. Negative Input Wire Size (mm ²)	2.08 - 13.3	2.08 - 13.3	2.08 - 13.3
Output Wire Size (mm ²)	35 - 300	35 - 300	35 - 300
Overall Dimensions (cm)	76.2 x 91.4 x 20.3	76.2 x 91.4 x 20.3	76.2 x 91.4 x 20.3
Enclosure Rating	NEMA 4X	NEMA 4X	NEMA 4X
Number of Fuse Poles	24	36	48
Max Input Fuse Rating (A)	30	20	15
Operating Temperature (C°)	-40 to 50	-40 to 50	-40 to 50

MASTER FUSE BOXES

COMBINES THE OUTPUTS OF MULTIPLE STRING COMBINERS INTO A SINGLE OUTPUT GOING TO THE INVERTER. APPLICABLE TO LARGE SOLAR ARRAY PROJECTS WHERE MANY COMBINER BOXES ARE REQUIRED.



Features

- Finger-safe fuse holders
- Reinforced, plated busbars
- Lockable enclosures
- Built to UL1741
- NEMA 4 enclosure
- 5-year warranty standard on all models
- Positive and Negative DC Disconnects
- Customizable to meet installation requirements

Technical Information

	STG.MFB.600.8	STG.MFB.600.7	STG.MFB.600.6
Voltage Rating (VDC)	600	600	600
Maximum Output DC Current (A)	1600	1600	1600
Max. Input Current Per Pole (A)	200	200	200
Max. Positive Input Wire Size (mm ²)	400	400	400
Max. Negative Input Wire Size (mm ²)	400	400	400
Output Wire Size (mm ²)	1000	1000	1000
Overall Dimensions (cm)	182.8 x 182.8 x 45.2	182.8 x 182.8 x 45.2	182.8 x 182.8 x 45.2
Enclosure Rating	NEMA 4	NEMA 4	NEMA 4
Number of Fuse Poles	8	7	6
Max Input Fuse Rating (A)	200	200	200
Operating Temperature (C°)	-40 to 50	-40 to 50	-40 to 50

SMART COMBINER BOXES

WITH **SNAPSHOT** wireless monitoring

BUILT UPON BATTLEFIELD PROVEN, MILITARY GRADE TECHNOLOGY, SNAPSHOT™ IS BASED ON A LOW POWER, HIGH PERFORMANCE, SECURE MESH NETWORK THAT CAN RECOVER FROM ANY ISSUES, LARGE OR SMALL, ENCOUNTERED IN THE FIELD.

Features

- 600V or 1000V capability
- Up to 25 amps per string
- Powered from DC busbar
- Supports external plug-ins for additional features
- No battery change required
- Mesh protocol with maximum ranges exceeding 3 miles
- FCC certified on all 16 channels
- IEEE 802.15.4 low-power mesh protocol
- AES-128 encryption
- Adjustable polling frequency
- Instant-on, self-detecting & self-healing
- 5-year warranty standard on all models

Measured Variables

- Temperature (C°)
- Current (A)
- Voltage (VDC)

Accessories

- Modbus Interface
- External glass temperature sensor

Current Accuracy

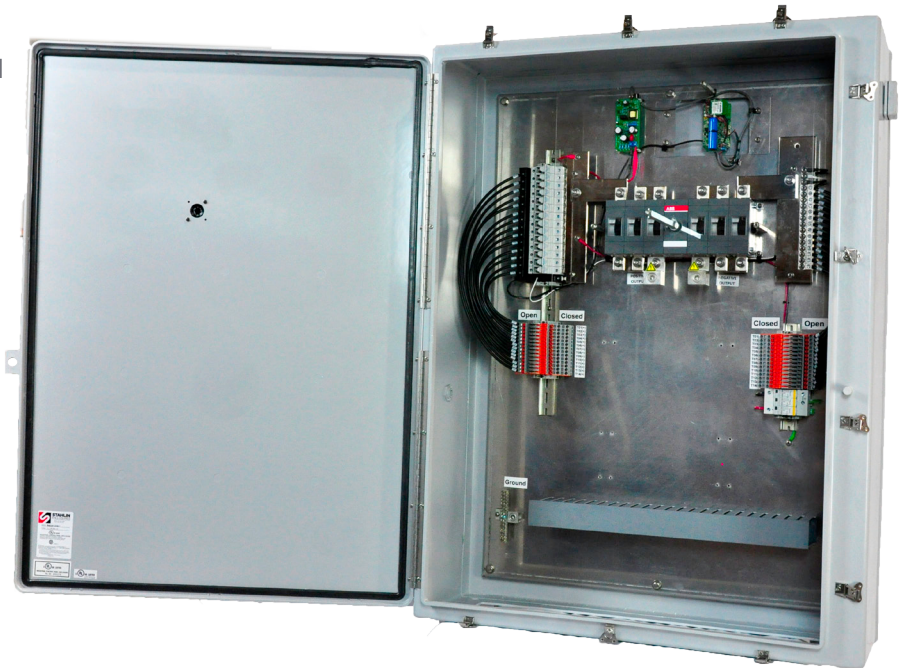
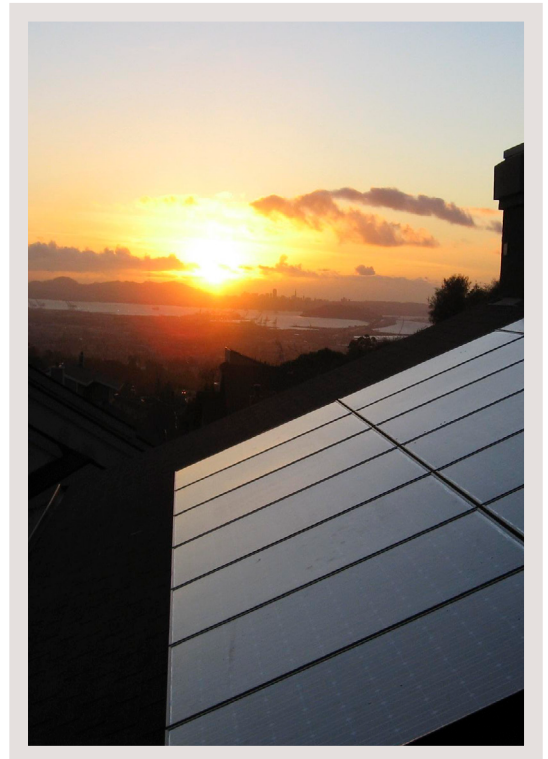
- 30A Module - (+/- 1%)
- 15A Module - (+/- 1%)
- 10A Module - (+/- 1%)
- 3A Module - (+/- 1%)

Current Range

- 30A Module - (2A - 30A)
- 15A Module - (1A - 15A)
- 10A Module - (0A - 10A)
- 3A Module - (0A - 2.5A)

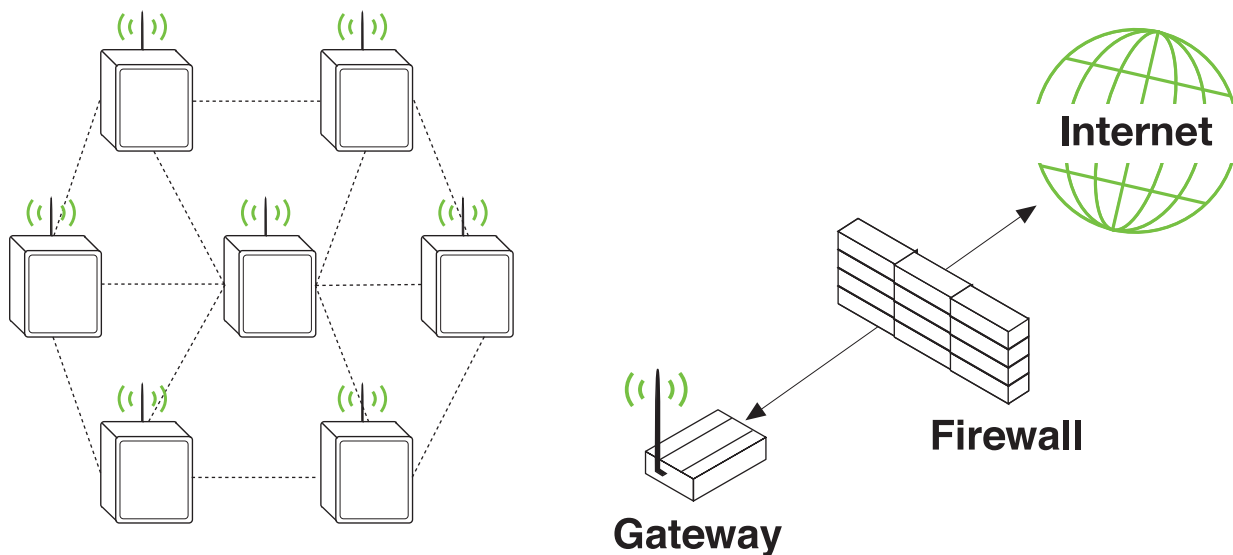
Voltage & Temp Accuracy

- 1V - 1020V - (+/- 1%)
- 40°C to 90°C - (+/- 2°C)



Self-Detecting and Self-Healing Wireless Network

In the SNAPShot™ wireless network there are no single points of failure, any node can talk directly to any other node that is in range, and any node can talk indirectly to any other node via intermediate nodes. These routes between nodes do not have to be pre-configured by the user, as the networks are self-forming (the network establishes itself). When a new node is powered-up, it is automatically integrated into the network and becomes fully operational in a fraction of a second. Furthermore, SNAPShot™ wireless networks are self-healing – if a node fails for any reason, other nodes will automatically route signals around the failed node.



Technical Information

	STG.CBC.12.S	STG.CBC.14.S	STG.CBC.16.S	STG.CBC.24.S	STG.CBC.32.S
Voltage Rating (VDC)	600	600	600	1000	1000
Maximum DC Current (A)	240	280	320	480	640
Max. Continuous Current (A)	154	179	205	308	410
Max. Positive Input Wire Size (mm ²)	8.4	8.4	8.4	8.4	8.4
Max. Negative Input Wire Size (mm ²)	4.2	4.2	2.1	2.1	2.1
Output Wire Size (mm ²)	21.1 - 180	21.1 - 180	21.1 - 180	21.1 - 180	21.1 - 180
Overall Dimensions (cm)	50.8 x 61 x 20.3	50.8 x 61 x 20.3	50.8 x 61 x 20.3	91.4 x 76 x 25.4	91.4 x 76 x 25.4
Enclosure Rating	NEMA 4X	NEMA 4X	NEMA 4X	NEMA 4X	NEMA 4X
Number of Fuse Poles	12	14	16	24	32
Max. Input Fuse Rating (A)	30	30	30	30	30
Operating Temperature (C°)	-40 to 50	-40 to 50	-40 to 50	-40 to 50	-40 to 50



WIRELESS GATEWAY

A RUGGED, EMBEDDED NETWORK APPLIANCE BUILT TO DIRECTLY INTERFACE WITH SNAPSHOT WIRELESS NETWORKS. DESIGNED FOR THE COLLECTION AND PROCESSING OF MONITORING DATA, THE SNAPSHOT WIRELESS GATEWAY CAN TRANSMIT DATA VIA TCP/IP WITHOUT REQUIRING FIREWALL CONFIGURATION OR POLICY EXCEPTIONS.

Features

- Built upon fully accessible Linux services
- 32-bit RISC architecture
- 400MHz CPU
- 256MB Flash Memory, expandable via external USB drive
- 64MB RAM
- RP-SMA External Antenna
- SNAPSHOT RF Engine, 2.4GHz, IEEE 802.15.4
- 10/100 Mb Ethernet & USB 2.0 ports
- MODBUS TCP compatible



MC3 LOCKING CLAMSHELL

PROVIDES PROTECTION FROM
THE ELEMENTS AND ACCIDENTAL
DISCONNECTION OF MC3 CONNECTORS
PROVIDING FULL 2008 NEC 690.33(C)
COMPLIANCE FOR YOUR INSTALLATION.

Features

- 2008 NEC 690.33(C) compliant
- Canadian NEC Section 50-16 (D) compliant
- Requires tool to remove
- Sunlight resistant
- Available in black or yellow
- UL listed material



Yellow
Part Number: STG.CS.3.Y



Black
Part Number: STG.CS.3.B

SHOALS 2000V PV WIRE

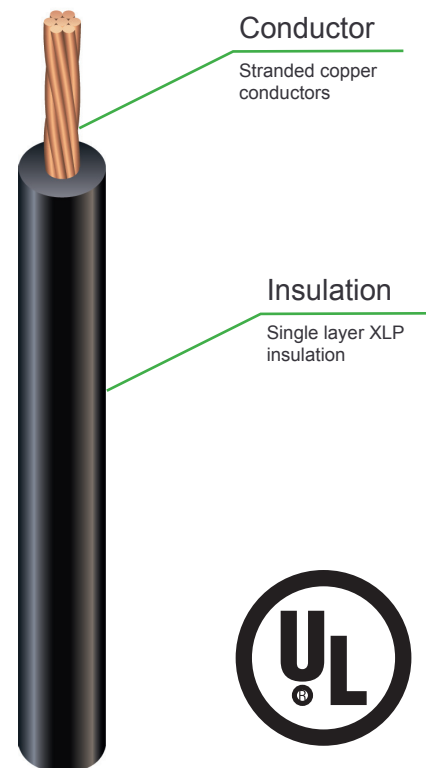
SHOALS 2000V PV WIRE IS A UL LISTED PV WIRE FEATURING A SINGLE LAYER XLP INSULATION DESIGNED FOR USE ON UNGROUNDED SYSTEMS WITHOUT THE NEED FOR CONDUIT WHEN INSTALLED EXPOSED.

Features

Meets newest National Electric Code (NEC) Article 690 standards.
 Suitable for continuous operating temperature of 90°C wet or dry
 Direct burial 2kV
 Cold bend impact: -40°C
 UL listed as Sunlight Resistant
 Compatible with all major connectors

Ratings and Approvals

UL listed as 2000V Type PV
 UL listed as RHH/RHW-2
 90°C Temperature Rating
 UL Subject 4703: Outline of Investigation for Photovoltaic Wire, Type PV, Direct Burial
 Meets the requirement of UL 854 for TYPE USE-2



Technical Information

mm ²	# of Strands	Insulation Thickness (mm)	Nominal OD (mm)	Net Weight (kg/1000m)
2.5	19	1.905	5.59	47.47
4	19	1.778	6.02	61.46
6	19	1.905	6.63	84.23
10	19	2.159	7.92	127.54
2.5	7	1.905	5.59	47.47
4	7	1.905	6.02	61.46
10	7	1.905	6.63	84.23
8	7	1.905	7.92	127.54

SHOALS DUAL LISTED PV WIRE

THE FIRST U.S. MANUFACTURED SOLAR CABLE TO ACHIEVE TUV AND UL CERTIFICATION, BASED ON A VERSATILE SINGLE-CONDUCTOR DESIGN TO MEET THE VARYING NEEDS OF THE SOLAR INDUSTRY.

Features

Two low smoke halogen-free, flame retardant and sunlight resistant cross-linked compound outer layer and halogen-free thermoset polyolefin inner layer.

Continuous operating temperature of 90°C wet or dry

UL listed as Sunlight Resistant

Vertical Flame Performance: EN 60332-1

Excellent UV and Ozone resistant

Suitable for wet, damp and humid locations

Specially designed for excellent flexibility

Compatible with all major connectors

Ratings and Approvals

TUV Certification 2 Pfg 1169/08.2007

TUV Listed as PV1-F; 1000V

UL Listed as Type USE-2

UL Listed as RHW-2

UL Standard 44: Thermoset Insulated Wires & Cables, Type RHW-2

UL Standard 854: Standard for Safety for Service Entrance Cables, Type USE-2; 600V

ASTM B-3: Standard Specification for Soft or Annealed Copper Wire

ASTM B-33: Standard Specification for Tinned Soft or Annealed Copper Wire for Electrical Purposes

90°C Temperature Rating; Temperature index in excess of 120°C



Technical Information

mm ²	# of Strands	Inner Insulation Thickness (mm)	Outer Insulation Thickness (mm)	Nominal OD (mm)	Net Weight (kg/1000m)
2.5	45	0.114	0.076	0.622	61.01
4	52	0.114	0.076	0.673	71.43
6	78	0.114	0.076	0.726	92.26

IN-LINE FUSES

REDUCE BOTH THE TIME AND MONEY NECESSARY TO COMPLETE AND MAINTAIN YOUR PV INSTALLATION BY REDUCING THE NUMBER OF REQUIRED COMBINER BOXES.

Features

Replace combiner boxes
Units range from 2A to 20A
Available in 600VDC or 1000VDC
IP-67 Ingress Protection Rating
Built-In Blocking Diode (Optional)



Technical Information

	In-Line Fuse
Ampere Rating (A)	2 - 20
Dielectric Strength (VDC)	3000
Maximum Ambient Temperature (C°)	50
Flammability Rating	V0 per UL94
Plastic Type	PPE
Maximum Wire Size (mm ²)	6
Connector Type	Any approved PV Connector



INTERCONNECT SYSTEM

SHOALS' PATENTED INTERCONNECT SYSTEM™ AND PRE-FABRICATED HARNESSES REDUCE THE SPECIALIZED LABOR, INSTALLATION TIME AND MATERIAL COST REQUIRED IN ANY PV PROJECT.

Features

- Resistance Welded Joints
- Shoals SS Sealing Technology
- Custom manufactured to the install
- Pre-labeled to decrease installation time and errors

Benefits

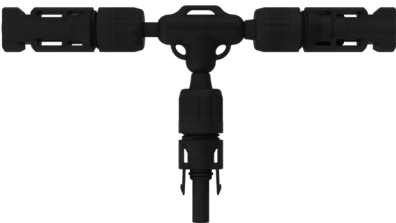
- Reduced potential points of failure
- Reduced maintenance costs
- Line failures reduced over 90%
- Average 20% reduction in labor cost
- Average 50% reduction in material cost



Part Number: STG.ICX.M3.M
Part Number: STG.ICX.M3.F



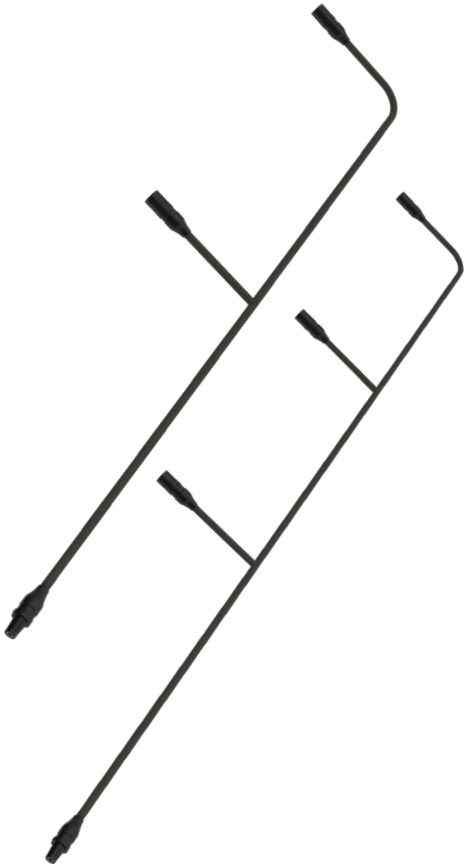
Part Number: STG.ICU.M4.M
Part Number: STG.ICU.M4.F



Part Number: STG.ICT.M4.M
Part Number: STG.ICT.M4.F



Part Number: STG.ICY.M3.M
Part Number: STG.ICY.M3.F



Technical Information

Shoals Interconnect™ System	
Maximum System Voltage (VDC)	600V UL / 1000V IEC
Maximum Current (A)	20A (4mm ²) / 30A (10mm ²)
Maximum Operating Temperature (C°)	90
Minimum Pull Out Force (N)	578.3
Wet Hi-Pot Leakage Current (µA)	<1

FLEXLINE JUNCTION BOX

ORIGINALLY DESIGNED FOR FLEXIBLE PV MODULES, THE FLEXLINE JUNCTION BOX PROVIDES AN UNPARALLELED ADHESION STANDARD TO THE BACK OF ALL MODULE TYPES.

Features

- Suitable for flexible or rigid modules
- Suitable for 600V or 1000V systems
- Low profile, 20mm, design to reduce material and installation costs
- Customizable wire lengths
- IP67 protection rating, IP68 when attached to module
- Customizable connector solutions
- Designed in conformity with TÜV and UL standards



Flexline Junction Box
Part Number: STG.FL.JB.21



Technical Information

STG.FL.JB.21

Rated Current (A)	10
Rated Voltage (VDC)	600 UL / 1000 IEC
Diodes	Customizable
Installation	Adhesive Tape
Connection of Contact Ribbons	Soldering
Insulation Material	PPE/PS
Degree of Protection	IP67
Safety Class	II
Flame Class	5VA
Ambient Temperature Range (C°)	-40 to 90
Cable Size (mm ²)	4 - 2.5
Connectors	Any Approved PV Connector



SHOALS CONNECT JUNCTION BOX

A LOW PROFILE DESIGN (ONLY 17.5MM), OPTIMIZED DIMENSIONS REDUCING MATERIAL AND INSTALLATION COSTS WHILE STILL ALLOWING FOR DIODE INSTALLATION AND BUILT IN STRAIN RELIEF MAKE THIS THE PREMIERE JUNCTION BOX FOR RIGID MODULES.

Features

- Built-in strain relief feature to protect wire
- Low profile design to reduce material and installation costs
- Customizable wire lengths
- Customizable connector solutions
- Designed in conformity with TÜV and UL standards

Technical Information

STG.SC.JB.32

Rated Current (A)	10
Rated Voltage (VDC)	600 UL / 1000 IEC
Diodes	Customizable
Installation	Adhesive Tape
Connection of Contact Ribbons	Soldering
Insulation Material	PPE
Degree of Protection	IP67
Safety Class	II
Flame Class	UL94-V0
Ambient Temperature Range (C°)	-40 to 90
Cable Size (mm ²)	4 - 2.5
Connectors	Any Approved PV Connector



Shoals Connect™ Junction Box
Part Number: STG.SC.JB.32

STAND-ALONE POWER OPTIMIZERS



POWER OPTIMIZATION INCREASES PV SYSTEM ENERGY HARVEST AND MAXIMIZES ROI BY CORRECTING HIDDEN IMBALANCE AND EXTENDING SYSTEM LIFE. IMBALANCE IS CAUSED BY CURRENT OR VOLTAGE MISMATCH AND CAN PREVENT SYSTEMS FROM MEETING PERFORMANCE EXPECTATIONS. SOLARMAGIC™ POWER OPTIMIZATION IMPROVES SYSTEM OUTPUT REGARDLESS OF ENVIRONMENTAL CONDITIONS, WEATHER, OR DESIGN. INDEPENDENT STUDIES HAVE SHOWN THAT SOLARMAGIC POWER OPTIMIZATION RECAPTURES UP TO 75% OF ENERGY LOST TO MISMATCH.

Features

- Maximizes system ROI
- Increases energy harvest
- Lowers maintenance costs
- Maximizes up-time and longevity
- Lower balance of systems (BOS) cost
- Higher lifetime PV system efficiency
- Lower installation & engineering cost
- Less than \$0.12 per Watt



Module Integration

The power optimizer establishes a new level of performance while maintaining ease of system design and installation. It includes enhanced features such as 350W module power handling capability, industry-best efficiency (99.5% peak), tri-mode buck-boost architecture for highest system efficiency, and patent pending pass-through panel mode. Panel mode operation continually monitors for the presence of mismatch. If no mismatch is found, the power optimizer will pass through the power of the module instead of operating on it, ensuring maximum possible efficiency is attained.

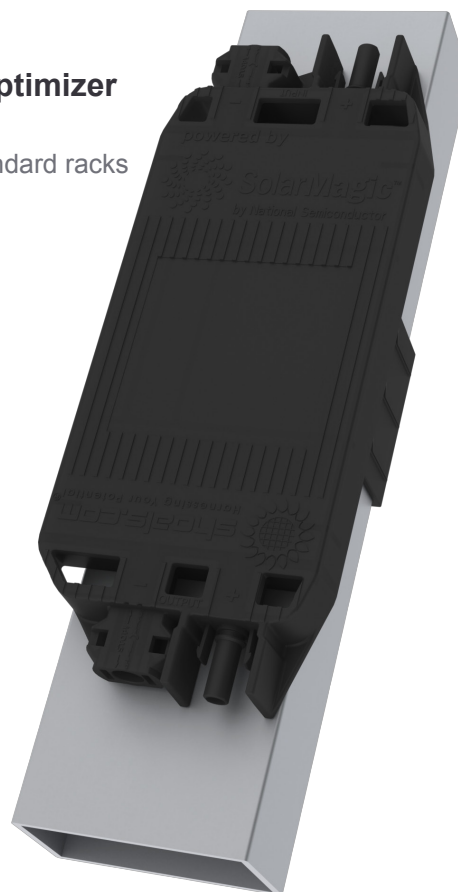
Rack-Mount Power Optimizer

Part Number: STG.SPO.RM.1

Mounts directly to most standard racks

Minimum installation time

Easily removable



Zip-Mount Power Optimizer

Part Number: STG.SPO.ZM.1

Suitable for any installation

Mounting tabs provide for multiple attachment methods



Frame-Mount Power Optimizer

Part Number: STG.SPO.FM.1

Mounts securely to module frame

Mounting clips reduce installation time

Easily removable



MultLink

Junction Box

THE MULTI-LINK JUNCTION BOX SYSTEM ELIMINATES THE RISK OF MODULE INTEGRATED POWER ELECTRONICS BY GIVING THE MODULE A UNIVERSAL AND INTERCHANGABLE NTERFACE COMPATIBLE WITH ALL OF TODAY'S LEADING ELETRONICS MANUFACTURERS.

Features

Universal interface with all leading PV electronics
Ensures "smart" module is "future proof"

Eliminates manufacturer's risk of integrating a single power electronic into the module

Available with or without diodes

Lower installation and engineering cost

Can ship as standard junction box with optional accessory module.

Additional accessory modules to be released
Summer of 2011



Technical Information

	STG.MLB.2	STG.MLB.2D
Rated Current (A)	10	10
Rated Voltage (VDC)	600 UL / 1000 IEC	600 UL / 1000 IEC
Diodes	No	Yes
Installation	Silicon Adhesive	Silicon Adhesive
Connection of Contact Ribbons	Soldering	Soldering
Insulation Material	PPE	PPE
Degree of Protection	IP67	IP67
Safety Class	II	II
Flame Class	UL94-V0	UL94-V0
Ambient Temperature Range (C°)	-40 to 90	-40 to 90



Standard Accessory Module

Part Number: STG-MLM2-1



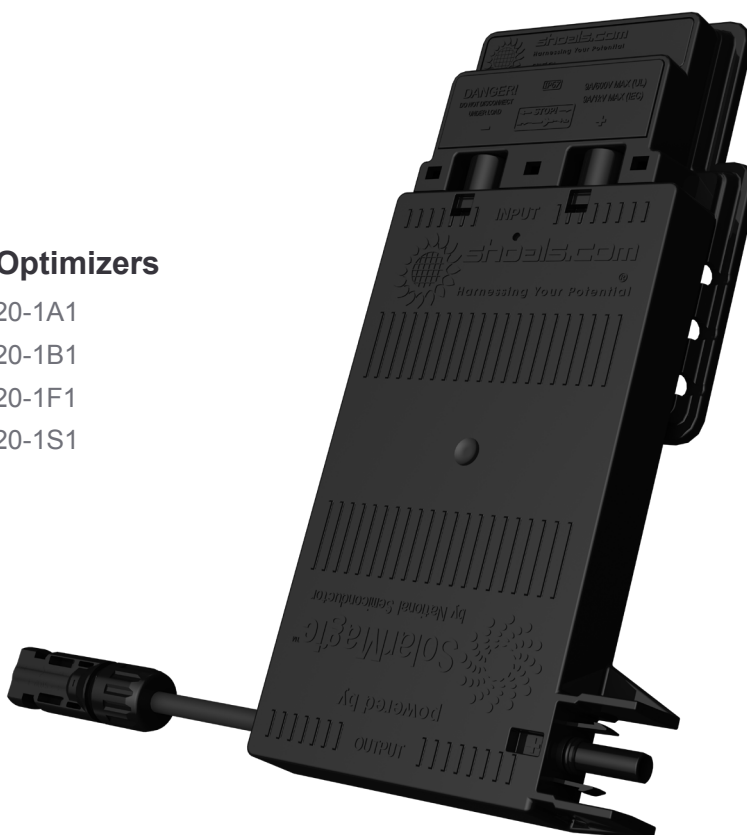
Available SolarMagic Power Optimizers

SolarMagic Power Optimizer - SM3320-1A1

SolarMagic Power Optimizer - SM3320-1B1

SolarMagic Power Optimizer - SM3320-1F1

SolarMagic Power Optimizer - SM3320-1S1



SolarMagic Accessory Module

Part Number: STG-MLM2-2

