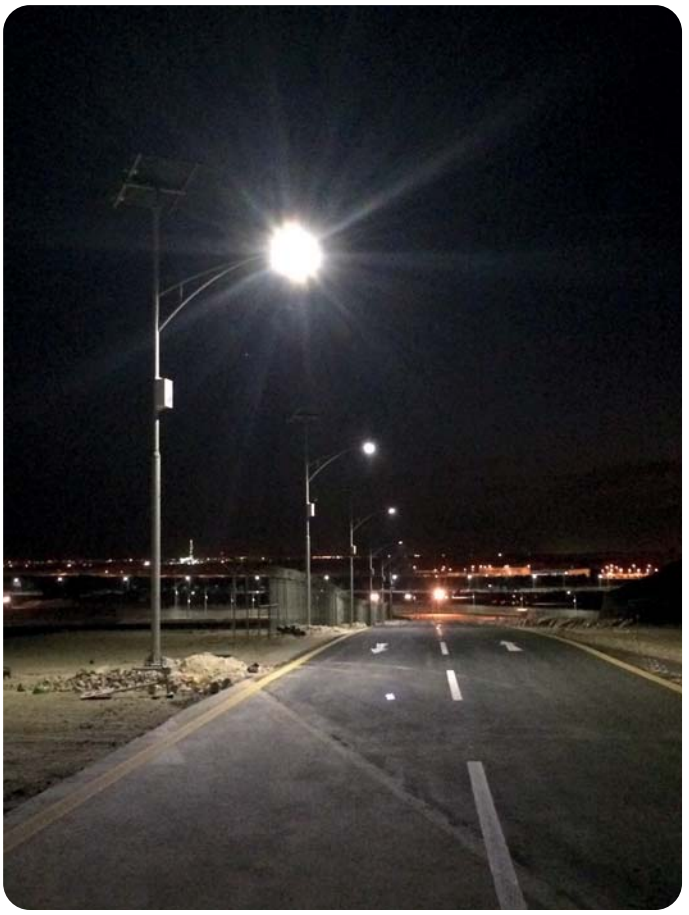
SLI
Solar Lighting International

solar outdoor lighting systems



X-SERIES LED

AMERICAN MADE X SERIES LED SOLAR LIGHTING SYSTEM:
X-8800-LED-280-T

SYSTEM OUTPUT	8800 LUMENS PER FIXTURE
SYSTEM VOLTAGE	INPUT 12/24 VDC – OUTPUT 12/24 VDC
SYSTEM CERTIFICATION	- ETL Listed compete system to – UL 1598 - Certified to CAN/CSA C22.2 No. 250.0 - Dark Sky Compliant
OPERATIONAL TEMPERATURES	System is operational from -60° Celsius (with un-frozen batteries) to maximum temperature range of 60° Celsius with 90% humidity
SOLAR MODULES	- High efficiency UL, CUL, and CE listed 1x280 watt panels - 20 year warranty
BATTERY ENCLOSURE	- Lockable aluminum battery enclosure - Pre-wired and tested - Designed for a harsh or marine environment - Optional raised ridge rubber battery mat for thermal protection
ELECTRONICS	- Pre-wired and mounted in battery enclosure box - Dual circuit breaker protected (no fuse replacement) - Maximum Power Point Tracking (MPPT) charge controller is reverse polarity protected and cannot be damaged by wiring incorrectly - Instant light test switch – no need to wait for sunset to confirm correct installation
LED LIGHT FIXTURE	- Dark Sky Compliant - Glass cut off optics Phillips Illumiled LED Chips Color Temperature Options: □ 4300k (standard option) □ 5300k
TOP OF POLE SOLAR MOUNT	Aluminum solar array mounting system to provide multiple degrees of adjustments for more precise alignment with the sun
GEL PACK BATTERY	- American Made - Zero maintenance gel pack battery - High capacity deep cycle - 3 days back up power - Automatic low-voltage shutdown to protect battery - Battery operating temperature: -60° Celsius to 60° Celsius

Solar Lighting International

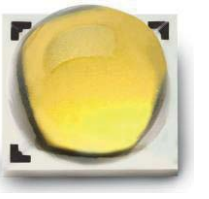
Product Benefits

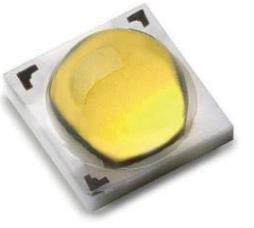
PHILIPS LUMILEDS LED LUMINOUS SORUCE

The new SLI Series LED street light is utilizing PHILIPS LUXEON®T LED luminous source, providing excellent lumen output, long-lasting stability and splendid sight.

Each PHILIPS LUXEON® T chip owns eletrostatic protection compoent, maximally avoid the damage of eletrostatic.

More information about the PHILIPS LUXEON® Rebel ES and solid-state lighting technologies can be found at www.philipslumileds.com.





Superior efficacy

Leading lumen output

Ultimate design flexibility

LUXEON® NEVER BEFORE POSSIBLE

RoHS Compliant

MEAN WELL LED DRIVER

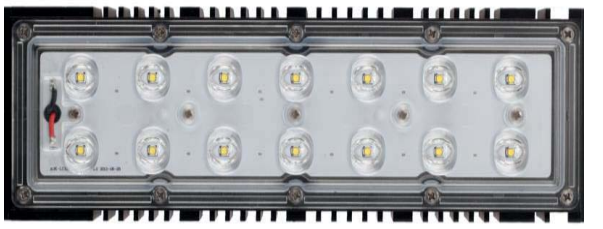
Full range SLI Series LED street light utilizing MeanWell HLG Series high-end driver. Providing great luminaire stability, lifespan and optimal performance status.

More information about the MeanWell HLG Series and LED driver technologies, please visit www.meanwell.com

TAIWAN EXCELLENCE 2011

BRAND-NEW LED MODULE DESIGN

Exquisite design with powerful thermaloutput, with more reliable waterproof performance.



Lancaster, SC USA
www.solarlightingitl.com

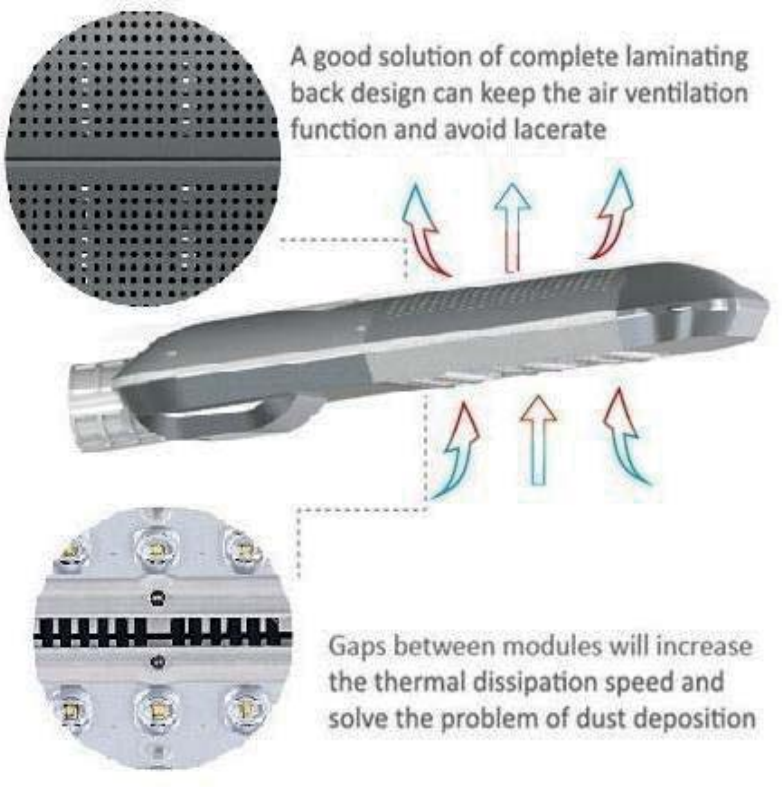
XTREME LUMINAIRE DESIGN

Equipped with exceptional 3rd-generation LED module, the brand-new SLI Series LED street light will give best luminous output, stability and super long life, and build the most cost-effective LED street light ever.

SLI has its own R&D center, and it reserves all related patents for the SLI Series LED street light.

Easy assemble/disassemble, neat wiring & connection, up to 100-110lm/w luminaire light output, IP67 rated, 90% plus driver efficiency, 5 years warranty for the whole luminaire.

More information about the SLI Series LED street light and LED lighting technologies, please visit www.solarlightingitl.com



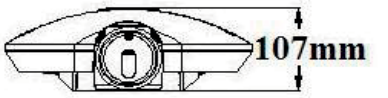
FLEXIBLE INSTALLATION

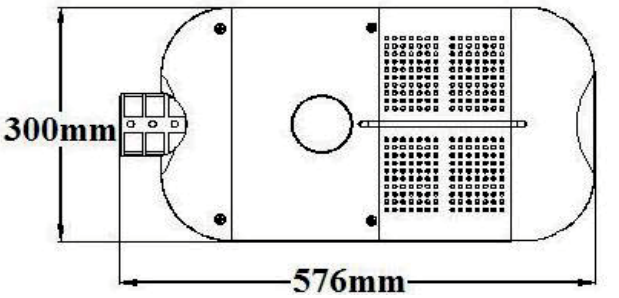
Lancaster, SC USA
www.solarlightingitl.com

SLI-80W

Introducing a New Premium Experience

160W-200W HID Replacement





Optical control function is supported by optional

Dimming functions are supported by optional

† Three in One (1-10V DC or PWM Signal or Resistance)

† Timer - Contact SLI for Details

Specifications

Electrical Specifications

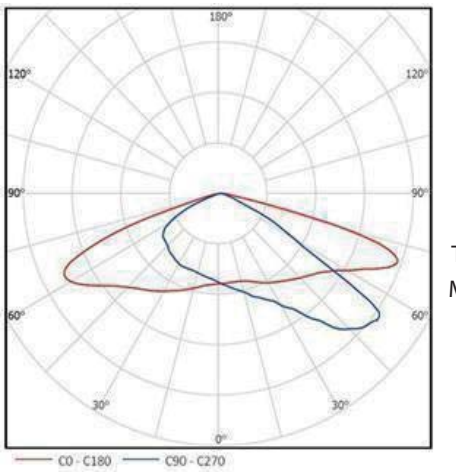
Model No.	SLI-80W
Nominal Wattage	80W
Nominal Voltage	AC 100-240V /277V, 50/60Hz DC 12 / 24V
Maximum Current	AC 0.9A (max) DC 0.3A (max)
Optimal Operating Temperature	-40 ºC to +50 ºC
Power Factor (PF)	> 0.95
Driver Efficiency	> 91%

Photomatic Specifications

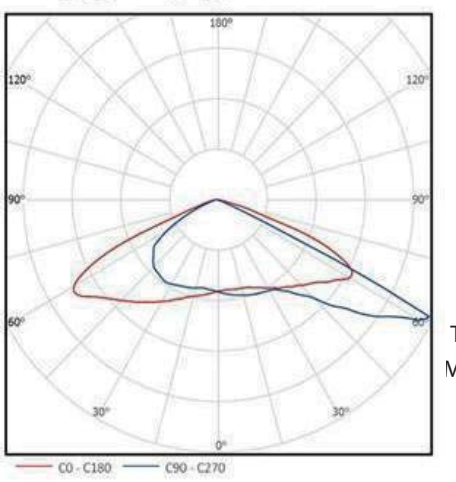
Lumen Output	+Lumen tolerance +/- 5%
3800-4100K	8000 lm
5000-6300K	8320 lm
CRI	Ra >= 78
CCT	3800-4100K 5000-5650K 5650-6300K

Mechanical Specifications

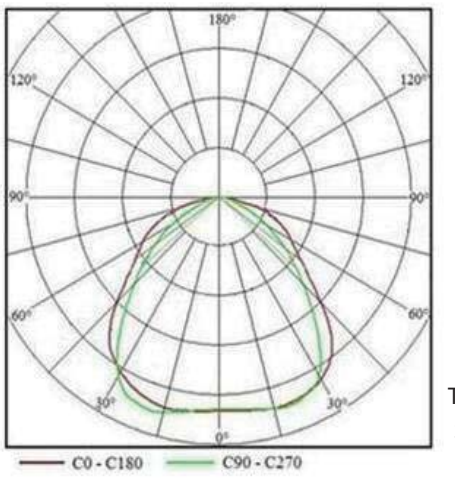
IP&IK Rating	IP67&IK08
Lifetime	50000 hours - L70, @25 ºC
Heat Radiator	Anodized Aluminum
Lens	PC
Fixture Dimension	576*300*107mm (22.7*11.8*4.2 inches)
Fixture Weight	6.9 kg



TypeII
Medium



TypeIII
Medium



Type V
Short

Lancaster, SC USA
www.solarlightingitl.com

DC-DC Step-Up Constant Current LED driver

LDH-45 series

Features :

- DC/DC step-up converter
- Constant current output : 350mA to 1050mA
- Wide output LED string voltage up to 126VDC
- High efficiency up to 95%
- Built-in EMI filter,comply with EN55015 without additional input filter and capacitors
- PWM + analog dimming and remote ON/OFF control
- Protections: Short circuit / Over voltage / Under voltage
- Cooling by free air convection
- Fully encapsulated
- 3 years warranty

CE

LDH-45□-350○ □=A or B; A: 9~18VDC input range, B: 18~32VDC input range
○=Blank or W; Blank:pin style, W:wire style

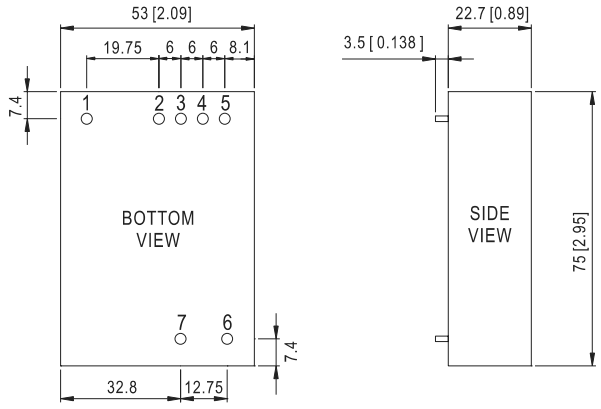
SPECIFICATION

MODEL		LDH-45A-350○	LDH-45A-500○	LDH-45A-700○	LDH-45A-1050○	LDH-45B-350○	LDH-45B-500○	LDH-45B-700○	LDH-45B-1050○
OUTPUT	RATED CURRENT	350mA	500mA	700mA	1050mA	350mA	500mA	700mA	1050mA
	CURRENT ACCURACY(Typ.)	±5% at 12VDC input				±5% at 24VDC input			
	VOLTAGE RANGE Note.3	12~86VDC	12~86VDC	12~64VDC	12~43VDC	21~126VDC	21~86VDC	21~64VDC	21~43VDC
	NO LOAD OUTPUT VOLTAGE(max.)	100V	100V	75V	50V	146V	100V	75V	50V
	RATED POWER	30.1W	43W	44.8W	45.15W	45.15W	43W	44.8W	45.15W
	RIPPLE & NOISE (max.) Note.2	2.5Vp-p	2.5Vp-p	1.9Vp-p	1.9Vp-p	2.5Vp-p	1.7Vp-p	1.2Vp-p	1.2Vp-p
INPUT	RATED VOLTAGE	12VDC				24VDC			
	VOLTAGE RANGE	9~18VDC				18~32VDC			
	EFFICIENCY (max.)	91%	90%	90%	91%	93%	94%	95%	95%
	DC CURRENT (Typ.)	2.8A	4.1A	4.2A	4.2A	2.1A	2.1A	2A	2A
PWM DIMMING & ON/OFF CONTROL	REMOTE ON/OFF	Leave open if not used							
		Power ON with dimming: PWM DIM~DIM- >2~8VDC or open circuit							
		Power OFF : PWM DIM~DIM- <0.5VDC or short or PWM duty is equal to 0%							
	PWM DIMMING FREQUENCY	1K~10KHz							
	QUIESCENT INPUT CURRENT IN SHUTDOWN MODE(Typ.)	7mA at PWM dimming OFF							
ANALOG DIMMING & ON/OFF CONTROL	REMOTE ON/OFF	Leave open if not used							
		Power on with dimming: Analog DIM~DIM- >0.25~8VDC or open circuit							
		Power off : Analog DIM~DIM- <0.2VDC or short							
	DIM INPUT VOLTAGE RANGE	0.25~1.3VDC							
	MAX OPERATION VOLTAGE	8V; The output current remains constant when voltage changes from 1.3V to 8V							
	QUIESCENT INPUT CURRENT IN SHUTDOWN MODE(Typ.)	7mA at Analog dimming OFF							
PROTECTION	SHORT CIRCUIT	Protection type : Power OFF and fuse open							
	OVER VOLTAGE (max.)	100V	100V	75V	50V	146V	100V	75V	50V
		Protection type : Constant output voltage and shut off o/p current, recovers automatically after fault condition is removed							
ENVIRONMENT	WORKING TEMP.	-40 ~ +70℃ (Refer to "Derating Curve")							
	WORKING HUMIDITY	20 ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH							
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)							
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes							
EMC	EMC EMISSION	Compliance to EN55015							
	EMC IMMUNITY	Compliance to EN61547,EN61000-4-2,3,4,6,8; light industry level, criteria A							
OTHERS	MTBF	1179.3Khrs min. MIL-HDBK-217F (25℃)							
	DIMENSION	75*53*22.7mm (L*W*H)							
	PACKING	138g;100pcs/14.8Kg/0.83CUFT(Blank Type),1.04CUFT(W Type)							
NOTE	1. All parameters are specified at normal input(12VDC,24VDC), rated load, 25℃ 70% RH ambient. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf parallel capacitor. 3. Output voltage will always step up by 3 Volts from input DC voltage.								

■ Mechanical Specification

LDH (Pin Style):

Unit: mm (inch)

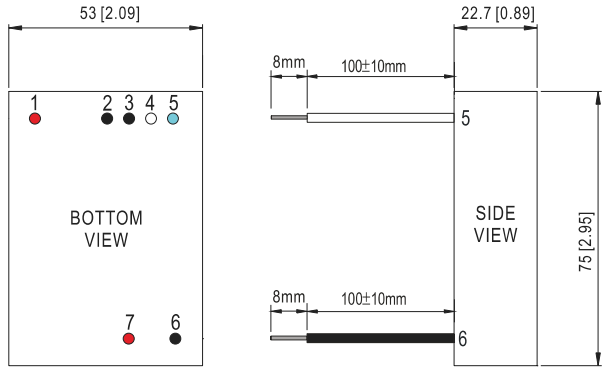


NOTE:Pin size tolerance 1.0 ϕ ±0.05mm

■ Pin Configuration

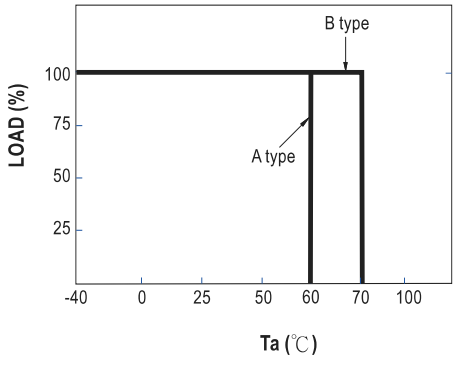
Pin No.	Output	Description
1	Vin+	DC Supply
2	Vin-	Don't connect to Vout-
3	DIM-	GND of DIM signal Don't connect to Vout- or Vin-
4	Analog DIM	ON/OFF and analog voltage dimming (leave open if not used)
5	PWM DIM	ON/OFF and PWM dimming (leave open if not used)
6	Vout-	LED - connection
7	Vout+	LED + connection

LDH (Wire Style):

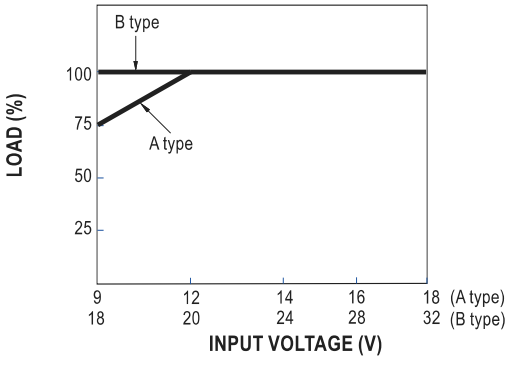


Pin No.	Output	Description
1	Vin+(red)	DC Supply
2	Vin-(black)	Don't connect to Vout-
3	DIM-(black)	GND of DIM signal Don't connect to Vout- or Vin-
4	Analog DIM (white)	ON/OFF and analog voltage dimming (leave open if not used)
5	PWM DIM (blue)	ON/OFF and PWM dimming (leave open if not used)
6	Vout-(black)	LED - connection
7	Vout+(red)	LED + connection

■ Derating Curve



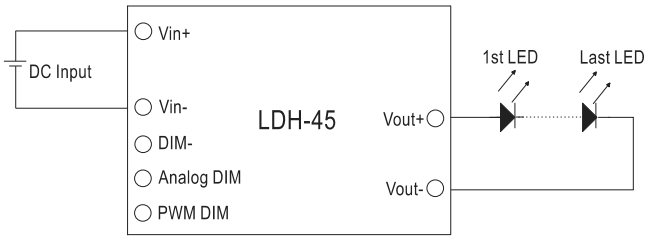
■ Static Characteristics



■ Standard Application

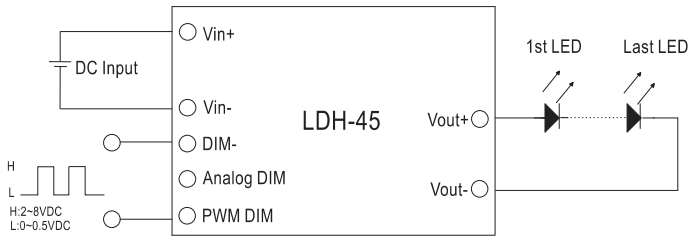
Operation without dimming:

Io operates at rated current without dimming function when the pins of analog DIM and PWM DIM keep open

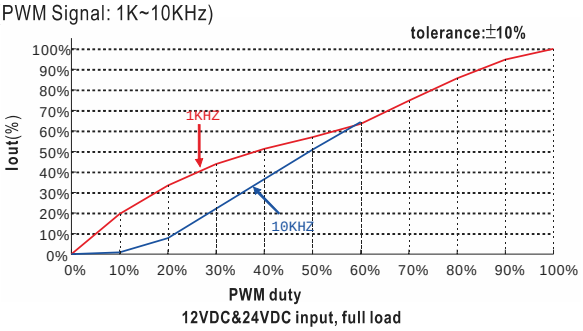


PWM Dimming Control:

Io adjustment by PWM Signal

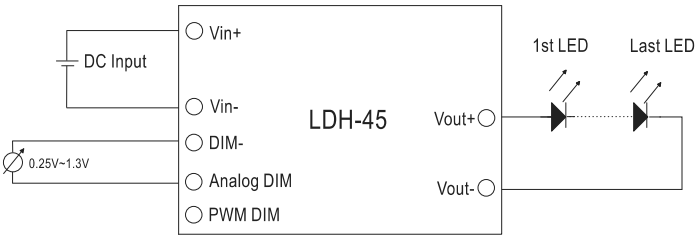


During PWM dimming operation, Io will change with the PWM duty (PWM Signal: 1K~10KHz)

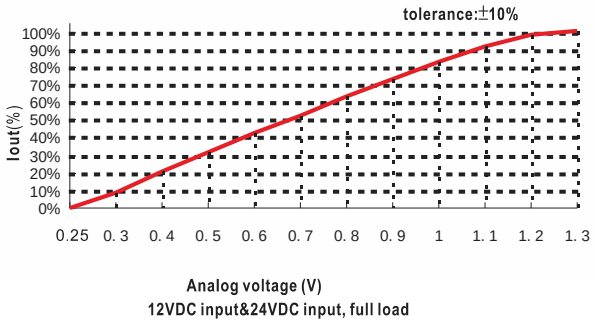


Analog Dimming Control:

Io adjustment by DC voltage



During analog dimming operation, Io will change with DC input voltage



Sunmodule® Plus
SW 280 MONO BLACK

SOLARWORLD
REAL VALUE

TUV Power controlled:
Lowest measuring tolerance in industry

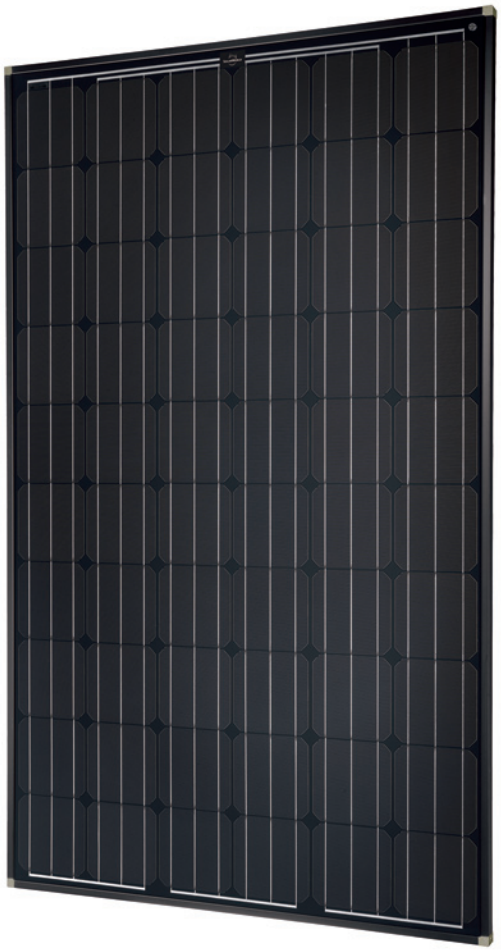
Every component is tested to meet
3 times IEC requirements

Designed to withstand heavy
accumulations of snow and ice

Sunmodule Plus:
Positive performance tolerance

25-year linear performance warranty
and 10-year product warranty

Glass with anti-reflective coating



World-class quality
Fully-automated production lines and seamless monitoring of the process and material ensure the quality that the company sets as its benchmark for its sites worldwide.

SolarWorld Plus-Sorting
Plus-Sorting guarantees highest system efficiency. SolarWorld only delivers modules that have greater than or equal to the nameplate rated power.

25-year linear performance guarantee and extension of product warranty to 10 years
SolarWorld guarantees a maximum performance digression of 0.7% p.a. in the course of 25 years, a significant added value compared to the two-phase warranties common in the industry. In addition, SolarWorld is offering a product warranty, which has been extended to 10 years.*

*in accordance with the applicable SolarWorld Limited Warranty at purchase.
www.solarworld.com/warranty

• Qualified, IEC 61215
• Safety tested, IEC 61730
• Periodic Inspection
• Blowing sand resistant

• Ammonia resistance tested
• Periodic Inspection
• Power Controlled

PERFORMANCE TESTED
SALT MIST RESISTANT
PHOTOVOLTAIC PRODUCT

UL 1703

ISO 9001
ISO 14001
Certified

Home Innovation
NGBS GREEN CERTIFIED

MADE IN USA OF US
AND IMPORTED PARTS

solarworld.com

Sunmodule® Plus
SW 280 MONO BLACK

SOLARWORLD
REAL VALUE

PERFORMANCE UNDER STANDARD TEST CONDITIONS (STC)*

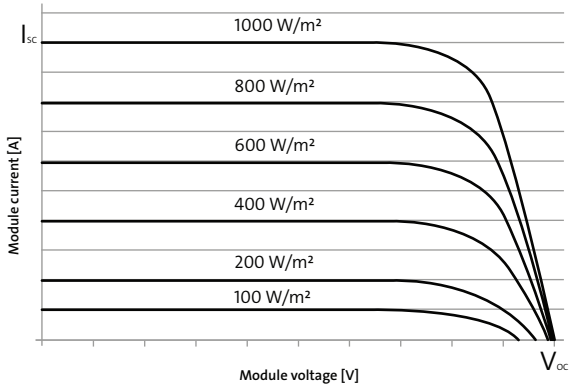
Maximum power	P_{max}	280 Wp
Open circuit voltage	V_{oc}	39.5 V
Maximum power point voltage	V_{mpp}	31.2 V
Short circuit current	I_{sc}	9.71 A
Maximum power point current	I_{mpp}	9.07 A
Module efficiency	η_m	16.7 %

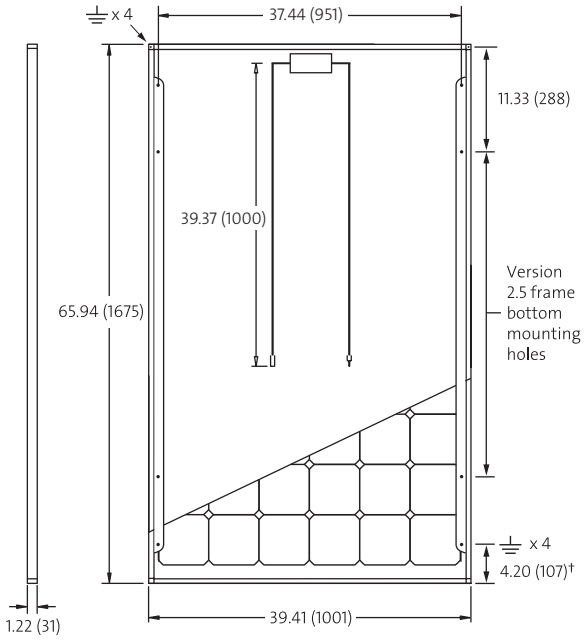
*STC: 1000 W/m², 25°C, AM 1.5

1) Measuring tolerance (P_{max}) traceable to TUV Rheinland: +/- 2% (TUV Power Controlled).

THERMAL CHARACTERISTICS

NOCT	48 °C
TC I_{sc}	0.044 %/°C
TC V_{oc}	-0.31 %/°C
TC P_{mpp}	-0.43 %/°C
Operating temperature	-40°C to 85°C





PERFORMANCE AT 800 W/m², NOCT, AM 1.5

Maximum power	P_{max}	207.2 Wp
Open circuit voltage	V_{oc}	35.8 V
Maximum power point voltage	V_{mpp}	28.3 V
Short circuit current	I_{sc}	7.85 A
Maximum power point current	I_{mpp}	7.33 A

Minor reduction in efficiency under partial load conditions at 25°C: at 200 W/m², 100% (+/-2%) of the STC efficiency (1000 W/m²) is achieved.

COMPONENT MATERIALS

Cells per module	60
Cell type	Mono crystalline
Cell dimensions	6.17 in x 6.17 in (156.75 x 156.75 mm)
Front	Tempered glass (EN 12150)
Frame	Black anodized aluminum
Weight	39.5 lbs (17.9 kg)

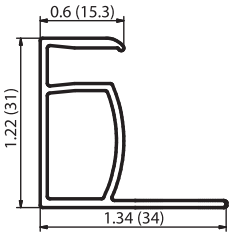
SYSTEM INTEGRATION PARAMETERS

Maximum system voltage SC II / NEC		1000 V
Maximum reverse current		25 A
Number of bypass diodes		3
*Design Loads**	*Two rail system*	113 psf downward 64 psf upward
*Design Loads**	*Three rail system*	170 psf downward 71 psf upward
*Design Loads**	*Edge mounting*	30 psf downward 30 psf upward

* Please refer to the Sunmodule installation instructions for the details associated with these load cases.

ADDITIONAL DATA

Power sorting[1]	-0 Wp / +5 Wp
J-Box	IP65
Module leads	PV wire per UL4703 with H4 connectors
Module type (UL 1703)	1
Glass	Low iron tempered with ARC



VERSION 2.5 FRAME

- Compatible with both "Top-Down" and "Bottom" mounting methods
- ⏚ Grounding Locations:
  - 4 corners of the frame
  - 4 locations along the length of the module in the extended flange†

All units provided are imperial. SI units provided in parentheses.
SolarWorld AG reserves the right to make specification changes without notice.

Solar Lighting International, Inc.
www.solarlightingitl.com
Phone: 803-233-3461

SLI 3000i – Easy to use, set up and packed full of features not found in other controllers.

Solar Lighting International's new solar charge controller charges 12V batteries at up to 30 amps from conventional 36 cell 12V PV modules. Patented MPPT technology operates the modules electrically in a manner that harvests all available PV power and can increase charge current up to 30% or more compared to conventional PWM type controllers.

The voltage step-down operation of the MPPT power converter also allows use of higher voltage lower cost 60 cell grid-tie PV modules at up to 22 amps of output current. The process of converting the much higher 60 cell input voltage down to battery voltage may produce a charge current increase approaching 200%.

SLI's sophisticated 3-stage charge control plus auto/manual equalization optimally charges flooded, GEL and AGM lead-acid chemistry batteries. A user configurable auxiliary output is also provided which can serve as either a 20 amp LVD load controller, 20 amp lighting controller with LVD, or 2 amp auxiliary battery charger for a second battery such as the engine start battery in an RV.

The low power LED display combines excellent readability with very low power consumption, includes an automatic night time diming feature and may be turned off completely if desired. The high accuracy display shows battery voltage, input & output current, auxiliary battery voltage, and computes total solar charge amp-hours produced. To provide optimal charge control for various battery types all digital setpoints for charge control and load control are user adjustable.

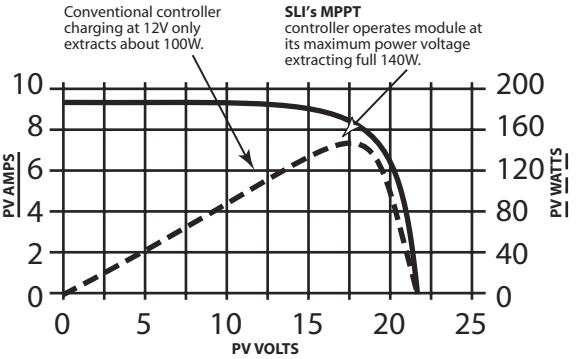
Our controller may also operate as an IPN Network Master controlling up to 7 remote IPN compatible charge controllers. Our IPN Network allows multiple charge controllers to communicate with each other and coordinate their activities to charge the battery as a single coordinated charging machine. All networked controllers display through the digital display and may share a battery temperature sensor, IPN-ProRemote display for high accuracy battery system monitoring, or Universal Communication Module (UCM) for remote access over the Internet.

- Maximum Power Point Tracking (MPPT) increases charge current up to 30% or more compared to conventional charge controllers
- Accepts up to 400W of 36 cell PV modules or 290W of higher voltage 60 cell grid-tie PV modules
- 3-Stage charge control with auto/manual equalization optimally charges flooded, GEL and AGM batteries improving battery performance & life
- Multifunction low power LED digital display with automatic night time dimming provides excellent readability
- Auxiliary output serves as 2 amp auxiliary battery charger or 20 amp load/lighting controller
- Lighting controller provides separate PostDusk & PreDawn timers plus variable middle of the night PWM dimming
- IPN network interface coordinates multiple charge controllers & shares optional battery sensor and IPN-ProRemote display
- Optional Universal Communication Module (UCM) allows remote access over the Internet.
- Anodized face plate and conformal coated electronics resists corrosion
- 5-Year limited parts & labor warranty

How Do Solar Lighting Int'l Controllers Increase Charge Current?

Our charge controllers cannot create power from where it doesn't exist but rather harvest power that would have been left behind by a conventional controller. When the battery is discharged a conventional controller simply connects the PV module to the battery. When the 140W module in this example is connected directly to a battery charging at 12 volts its power production is artificially limited to about 100 watts. This leaves 40 watts or nearly 30% of the available power behind.

Patented MPPT technology in the SLI3000i operates in a very different fashion. The SLI3000i continually computes the module's maximum power voltage, in this case 17 volts. It then operates the module at its maximum power voltage to extract maximum available power. The additional power extracted from the module is then provided to the battery in the form of increased charge current. In cool comfortable temperatures most applications see about a 10 - 20% increase, with an increase of 30% or more easily achieved in freezing temperatures with a highly discharged battery.



Typical 140W PV Module Power/Voltage/Current
At Standard Test Conditions

The high efficiency voltage step-down action of the MPPT power converter also allows the efficient use of much higher voltage 60 cell PV modules. Since the voltage delivered by 60 cell modules is much higher than battery voltage charge current increase may approach 200%.

SPECIFICATIONS	SLI 3000i
Nominal Battery Voltage	12 VDC
Automatic Output Current Limit	30.0A with 36 cell PV input • 22.0A with 60 cell PV input
Maximum PV I_{SC} / Power	24.0A / 400W with 36 cell PV input • 11.8A / 290W with 60 cell PV input
Maximum Battery & PV Voltage	50.0VDC absolute maximum① (Recommend maximum PV V_{OC} at STC ≤ 40.0VDC)
Standby Power Consumption	30mA typical
Charge Algorithm	3-stage Bulk/Absorption/Float • Plus Auto/Manual Equalization
Power Conversion Efficiency	97% typical, 36 cell modules delivering 24A
Absorption / Float / EQ Voltage	14.4V / 13.2V / 15.2V②
Display Range & Accuracy	Bat / Aux voltage 30.0V±0.5% • PV voltage 55.0V±0.5% • Input / Output current 35.0A±0.5%
Auxiliary Output Functionality • Auxiliary Battery Charge • LVD Load Control • Lighting Control w/LVD & PWM Dimming	Single output field configurable as either: 20A load controller –or– 2A auxiliary battery charger 2 amp typical, same charge voltage as primary battery ON @ ≥12.6V / OFF @ ≤11.5V②, or based on battery amp-hours from full③ Separate Post-Dusk and Pre-Dawn timers (0.5 – 20.0 hours②) Middle Of The Night 100Hz PWM dimming (10% increments②)
Temperature Compensation	Optional battery temp sensor, -5.00mV/°C/cell (-0.00 – -8.00mV/°C/cell②) • sensor range -60 to +80°C
Communication	IPN Network Master allowing control of up to 7 additional IPN based controllers. Supports IPN-Remote and IPN-ProRemote displays, and Universal Communication Module (UCM) for remote Internet access.
Dimensions	6.4" (16.3cm) W x 4.6" (11.7cm) H x 2.2" (5.6cm) D
Environmental	-40 – +45°C, 10 – 90% RH non-condensing

As a part of our continuous improvement process specifications are subject to change without prior notice

①Exceeding this limit will damage the unit and void the warranty.
②Defaults shown, all settings user adjustable.
③With IPN-ProRemote

Solar Lighting International

Solar Lighting International, Inc.
www.solarlightingitl.com
Phone: 803-233-3461

SOLAR BATTERY

SPECIFICATIONS

Nominal Voltage (V)	12V
***Capacity at C/100**	137 Ah
***Capacity at C/20**	125 Ah
***Capacity at C/5**	110 Ah
Weight	85 lbs. (38.6 kg)
Plate Alloy	Lead Calcium
Posts	Forged Terminals & Bushings
Container/Cover	Polypropylene
Operating Temperature Range	-76°F (-60°C) - 140°F (60°C)
Vent	Self-sealing
Electrolyte	Sulfuric acid thixotropic gel
Terminal	(B) T876

Rated UN2794, wet filled with acid

Made in the U.S.A.

* *Capacities are based on peak performance.*

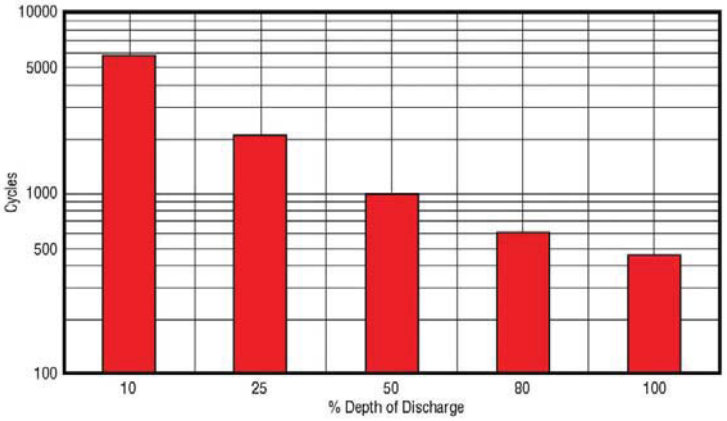
Valve-Regulated, Gelled-Electrolyte Battery

DIMENSIONS

Inches (mm)

Length	**13.58 (345 mm)**
Width	**6.77 (172 mm)**
Height	**11.42 (290 mm)**

Gel Cycle Life vs Depth of Discharge at +25°C (77°F)
Based on BCI 2-hour Capacity



Solar Lighting International

Lancaster, SC USA
Phone +1 803-233-3461
www.solarlightingitl.com

QY Frame - Miniature Circuit Breakers

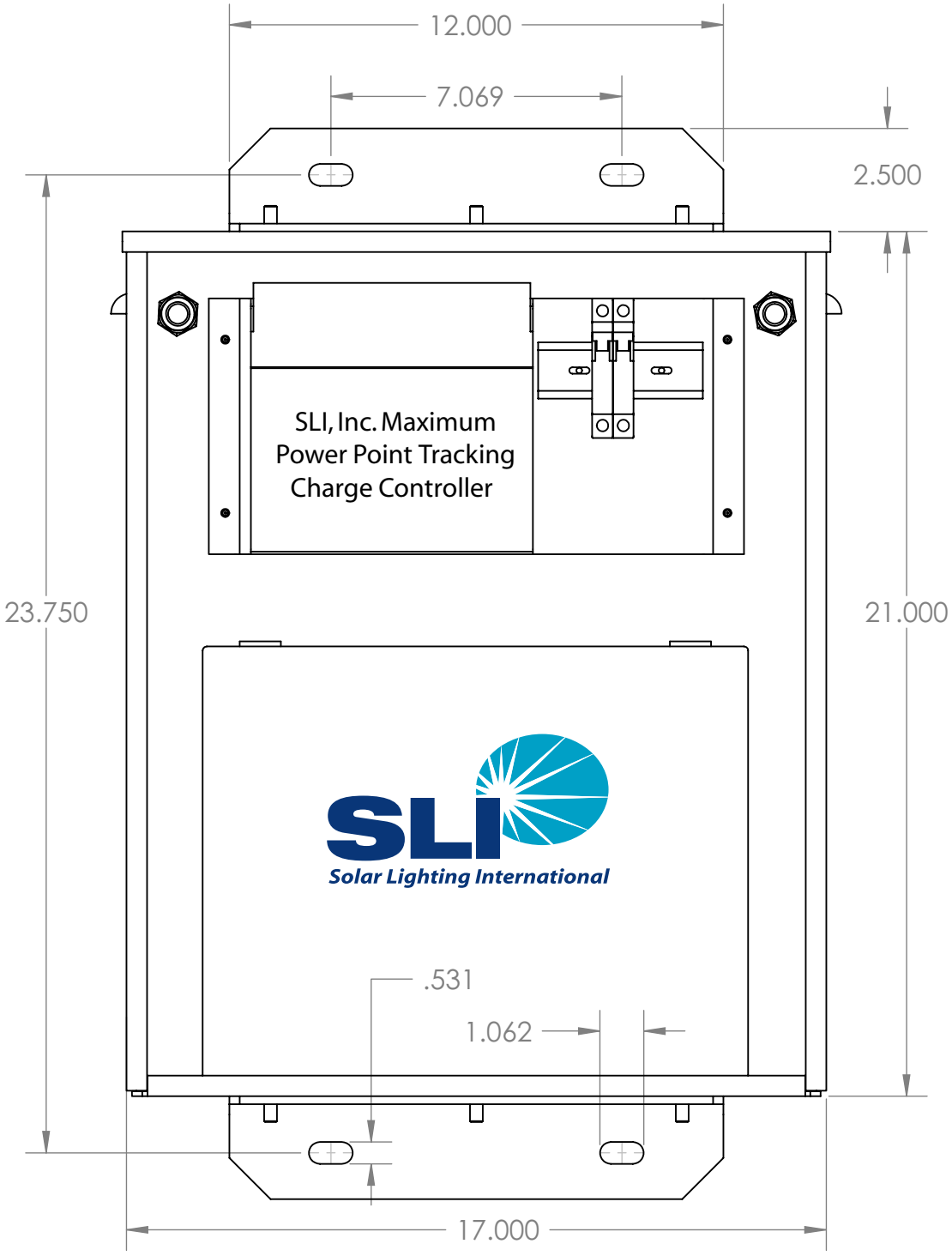
Features:

- **Hydraulic-magnetic technology ensures reduced nuisance tripping with temperature variance**
- **Always hold 100% rated current**
- **Wide range of time delays & operating currents**
- **Current limiting capabilities**
- **Ultra compact - 13 mm width module**
- **Din, Mini-rail or Dual mountable**

Poles:	**1, 2**
Max. Voltage:	**80 VDC**
Max. Interrupting Capacity:	**10 kA**
Current Rating:	**1 A** to **100 A**
Agency recognition of Approvals:	**IEC 60947-2** **UL 489A** **SANS VC8036**

Solar Lighting International

Solar Lighting International, Inc. 7073 Henry Harris Road Lancaster, SC 29720 Phone +1 803-233-3461 Fax +1 803-233-2096
www.solarlightingitl.com



Solar Lighting International, Inc. Lancaster, SC 29720
Phone +1 803-233-3461 Fax +1 803-233-2096 www.solarlightingitl.com

Intertek ETL SEMKO

AUTHORIZATION TO MARK

This authorizes the application of the Certification Marks shown below to the models described in the Products(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to the multiple listee model(s) identified on the correlation page of the Listing Report.

Applicant:	Solar Lighting International, Inc. 146 Rental Court Rock Hill, South Carolina 29732, USA
Contact:	Name: Mr. Dan Whigham Phone: 866-701-2472 Fax: 803-233-2096
Manufacturer:	Same as Applicant
Party Authorized To Apply Mark:	*Same as Manufacturer*
Report Issuing Office:	*3210 American Drive. Mississauga,Ontario*
Report No.:	*3090137TOR-001*
Product Covered:	Solar Powered Outdoor Lighting System Model No.: X35
Description:	The product covered by this Report is a Solar Powered Outdoor Lighting System intended for, commercial use in non-hazardous locations and installed in accordance with the National Electrical Code, NFPA 70 and with the rules of the Canadian Electrical Code, Part 1.
Standard(s):	The Bi-National Standard for Luminaires ANSI/UL 1598 2nd Edition & CSA-C22.2 No. 250.0-24 2nd Edition, dated December 30, 2004.

Authorized by: for Michelle Lake **Date:** March 16, 2007

William T. Starr, Certification Manager

Control Number: 3090547

This document supersedes all previous Authorizations to Mark for the noted Report number.

Intertek Testing Services NA Inc.
165 Main Street, Cortland, NY 13045
Telephone 800-345-3851 or 607-753-6711 Fax 607-756-6699

CERTIFICATE

This is to certify that

Custom Manufacturing Services, Inc.

142 Brick Street
Princeton, WV 24740
United States of America

with the organizational units/sites as listed in the annex

has implemented and maintains a **Quality Management System**.

Scope:
The provision of custom metal fabrication and systems level integration of electro-mechanical assembly.

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 9001 : 2008

Certificate registration no.	10000410 QM08
Date of original certification	1995-02-27
Date of certification	2012-07-17
Valid until	2015-07-16

UL DQS Inc.

Ganesh Rao
Managing Director

Annex to Certificate
Registration No. 10000410 QM08

Custom Manufacturing Services, Inc.

142 Brick Street
Princeton, WV 24740
United States of America

Extended Location	Scope
10002998 **Custom Manufacturing Services, Inc.** **400 Rogers Street** **Princeton, WV 24740** **United States of America**	The off-site at 400 Rogers Street, Princeton, WV performs the following primary functions: metal fabrication and assembly.

This annex (edition: 2012-07-17) is only valid in connection with the above-mentioned certificate.