

The Best Solution For the Next Generation,  
**Photovoltaic Energy!**

# Photovoltaic System

# Leading you toward a greater future than you imagine!

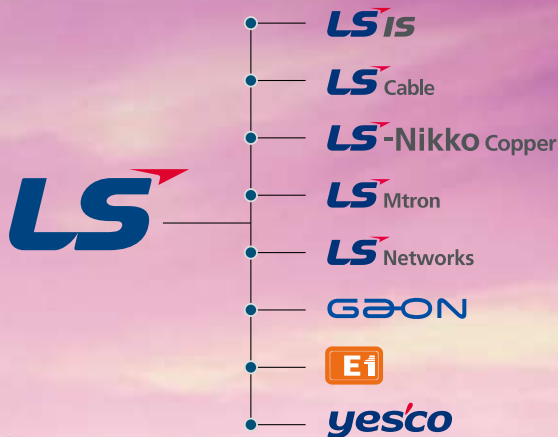
LSIS is an industrial solution specialist, from electric power control to the most advanced ubiquitous solutions, playing an important role in creating a more convenient and productive society.

## Growing into world's best from nation's first!

The company that serves its customers!

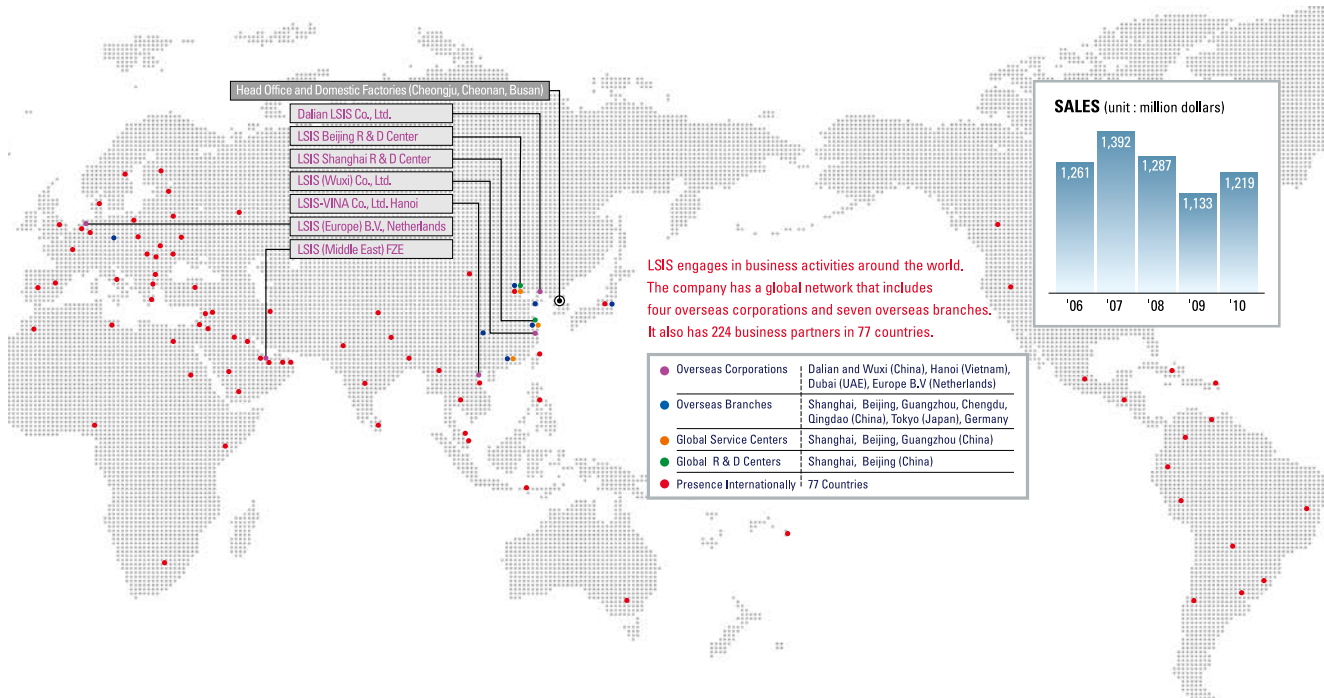
Leading company in the industrial electric, electronics, materials and energy field following its separation from LG in 2003.

LS aims to develop into a company that provides its clients with leading solutions, contributes to the overall society, and offers a business environment where employees can realize their dreams.



# LSIS in the Global Market

LSIS is very active in its business worldwide. At present, the company has a global network that includes four overseas corporations and seven overseas branches. It also exports goods to 77 countries with the help of 224 business partners who serve as sales bases. With an average annual growth rate of 27 percent, it is also laying the foundation to rapidly grow as a global leader.



## Innovators in industrial electrical and automation systems

LSIS goes toward a global leading company in the Industrial electric & Automation field, providing customers with the total solution. We provide customers with distinctive and eco-friendly products & Win-Win Strategy in the various fields such as Power Transmission & Distribution; Electric Equipment; Automation Equipment & Systems and Industrial IT Systems.



### Business Area

Green Biz. Solution | Power System Solution | Power Equipment Solution | Automation Solution | Drive Solution



Cheon-an Plant



Cheong-ju Plant



Power Testing & Technology Institute

# LSIS Photovoltaic Business

- Since 1986
- 140MW/year production capacity
- Made in South Korea

LSIS is the first Korean Company who started PV business since 1986. LSIS serves not only as a product provider but also as a total solution provider. LSIS PV business spreads to in overseas market. Especially in Japan, LSIS PV Systems sells more than 75million \$ per year.



“Always with our customers” LSIS intends to grow into a PV business that contributes to the global Community.

## LSIS Photovoltaic References



Young Gwang PV Plant(2.5MW)



Young Ju PV Plant(1MW)



GS Caltex Factory(50kW)



Incheon Airport(100kW)



Ehwa Women's Univ(20kW)



Chosun Univ(30kW)



Parking Place(90kW)



Daejeon City Hall(20kW)

## PV Home System in Japan

LSIS has become the first Korean firm delivering PV home systems to Japanese market .



Osaka-fu kanancho(2.8kW)



Saga-ken saga-shi(3.5kW)



Saga-ken Takeo-shi(4.2kW)



Kagoshima-ken Ibusuki-shi(4.2kW)



Kagawa-ken Sakaide-shi(4.2kW)



Kifu-ken kakamigahara-shi(4.2kW)



Yamaguchi-ken Iwakuni-shi(4.2kW)



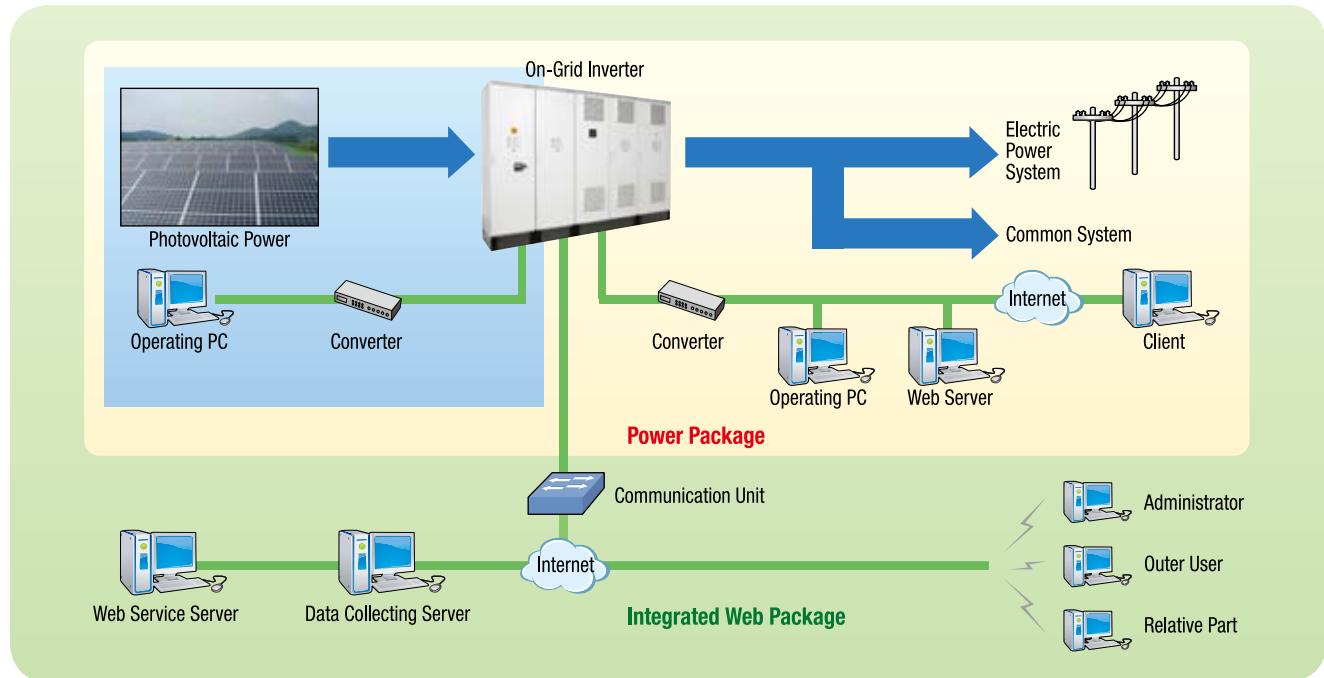
Fukuoka-ken Tagawagun(4.2kW)

# LSIS PV Total Solution

LSIS provides our customers with the highest technical service through whole process from consulting of Photovoltaic System to repairing service.



## System Configuration



- 2011** Providing Total Solution with own photovoltaic products
- 2009** Launched photovoltaic product in Japan (Certification : JET, J-PEC, J-MIC)
- 2007** The first overseas exportation (Mongolia 200kW). Development of BIPV module
- 2005** Technical development of power system interconnection
- 2001** Execution of study for BIPV Research project on alternative energy
- 1993** The first PV Production system in Korea
- 1986** Setting about the Photovoltaic Power System business

5 inch  
Cells

# PVM S190

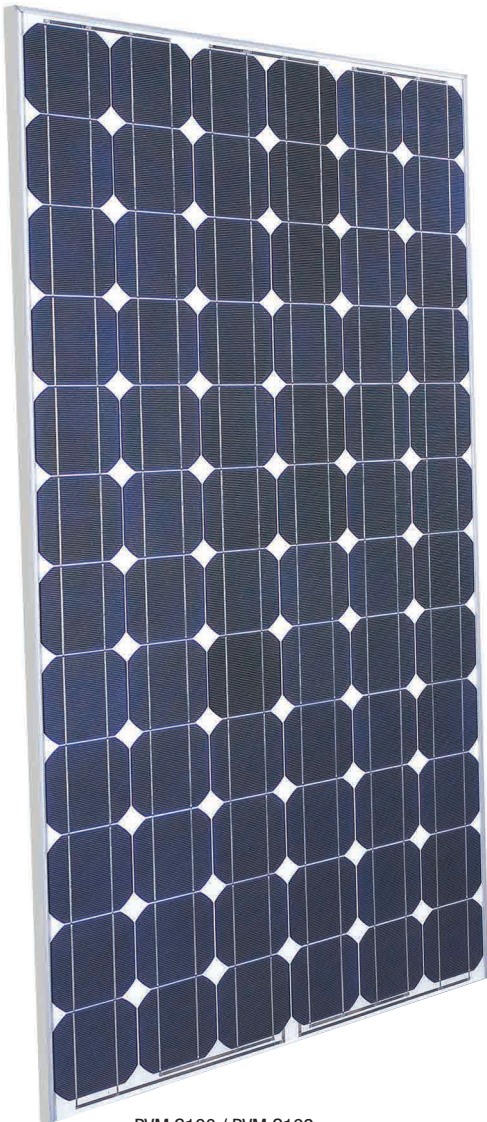
5 inch  
Cells

# PVM S192

## LSIS Mono-Crystalline Module

## LSIS photovoltaic system makes a difference.

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PVM S190 / PVM S192



### Field improved photovoltaic system since 1986

Long lasting product quality. LSIS photovoltaic plants built more than 26 years ago are still generating power. It remarks significant competitive edge on LSIS.



Plus Power Tolerance

### Plus Power Tolerance

LSIS delivers only reliable products  
Within a nominal power output tolerance from 0 to 3%.



### Warranty

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25 years for 80% power warranty.



### Successful case in Japan

LSIS PV products obtained Japanese certification (JET, J-PEC) in 2009. More than 20MW PV Systems installed each year.



### Proper module for total solution system

LSIS Power Testing & Technology institute is recognized as a testing and certification laboratory of KEMA (Inspection of Electrical Materials of Netherland), IEC, CE, CB, UL, and CESI. LSIS PV Module obtained certification TUV, UL, JET, J-PEC.



5 inch  
Cells

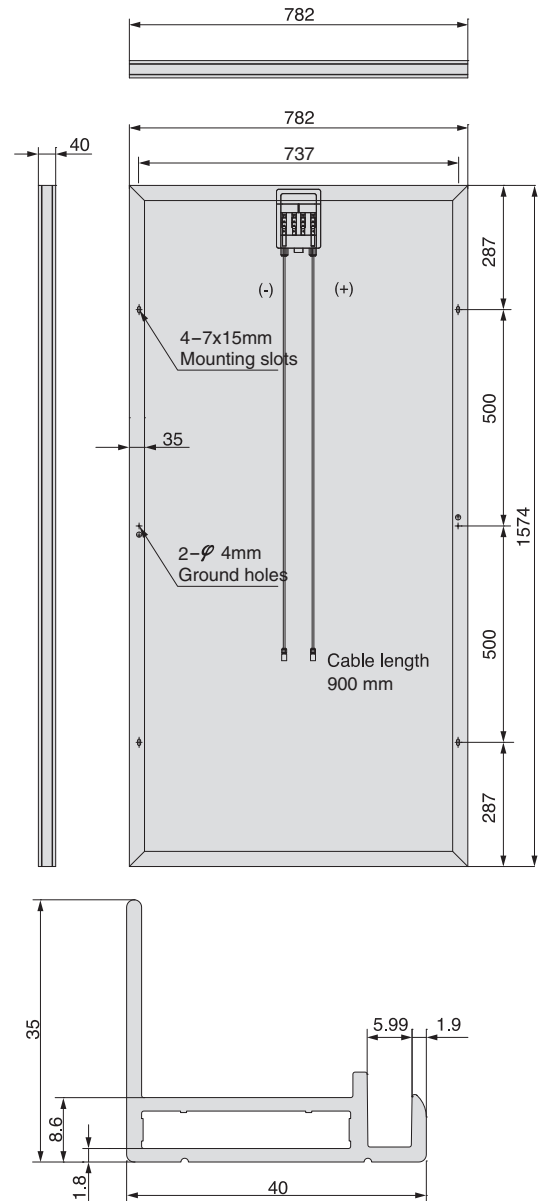
# PVM S190

5 inch  
Cells

# PVM S192

## LSIS Mono-Crystalline Module

DESCRIPTION		190W	192W
<b>MECHANICAL DATA</b>		<b>5 Inch Cell Module</b>	
Cell Type		Mono-Crystalline	
Cell Dimensions [mm]		125 x 125	
Cell Quantity per Module		72ea	
Number of Busbar		2	
Dimensions [L x W x T]		1574 x 782 x 40 mm	
Weight		15.5 kg	
Bypass Diodes		3	
Connection Type		MC4 Compatible	
Length of Cable		900 mm	
Maximum Load [Pa]		2400pa	
<b>ELECTRICAL DATA</b>			
Nominal Power (Pmax)	[Wp]	190	192
Performance tolerance	[%]	0 ~ +3	0 ~ +3
Efficiency	[%]	15.36	15.59
Open-Circuit Voltage	[V]	45.23	45.29
Short-Circuit Current	[A]	5.70	5.70
Voltage at Maximum-Power Point	[V]	35.31	35.47
Current at Maximum-Power Point	[A]	5.38	5.41
Temperature Coefficient of Isc	[A/k]	0.0017	
Temperature Coefficient of Isc	[%/k]	0.0305	
Temperature Coefficient of Voc	[v/k]	-0.1491	
Temperature Coefficient of Voc	[%/k]	-0.3297	
Temperature Coefficient of Pmax	[W/k]	-0.8438	-0.8527
Temperature Coefficient of Pmax	[%/k]	-0.4441	
Maximum System Voltage	[V]	1000V	
Series Fuse Rating	[A]	10	
<b>CERTIFICATION AND WARRANTY</b>			
Certification		TUV(IEC61215, IEC 61730), JET, CE	
Product Warranty		5 years	
Output Warranty		10 / 90 [years / %]	
Output Warranty		25 / 80 [years / %]	



6 inch Cells

# PVM S240

6 inch Cells

# PVM S242

6 inch Cells

# PVM S245

6 inch Cells

# PVM S247

## LSIS Mono-Crystalline Module

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Photovoltaic energy is no longer the exclusive property of the specific group. LSIS (former LG Industrial Systems) has been manufacturing solar modules for more than 26 years. This experience provides convenience and high efficiency that anytime, anywhere, anyone can use. All LSIS photovoltaic products are **Made in South Korea**.



PVM S240 / PVM S242 / PVM S245 / PVM S247



### Field improved photovoltaic system since 1986

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Plus Power Tolerance

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6 inch Cells

# PVM S240

6 inch Cells

# PVM S242

6 inch Cells

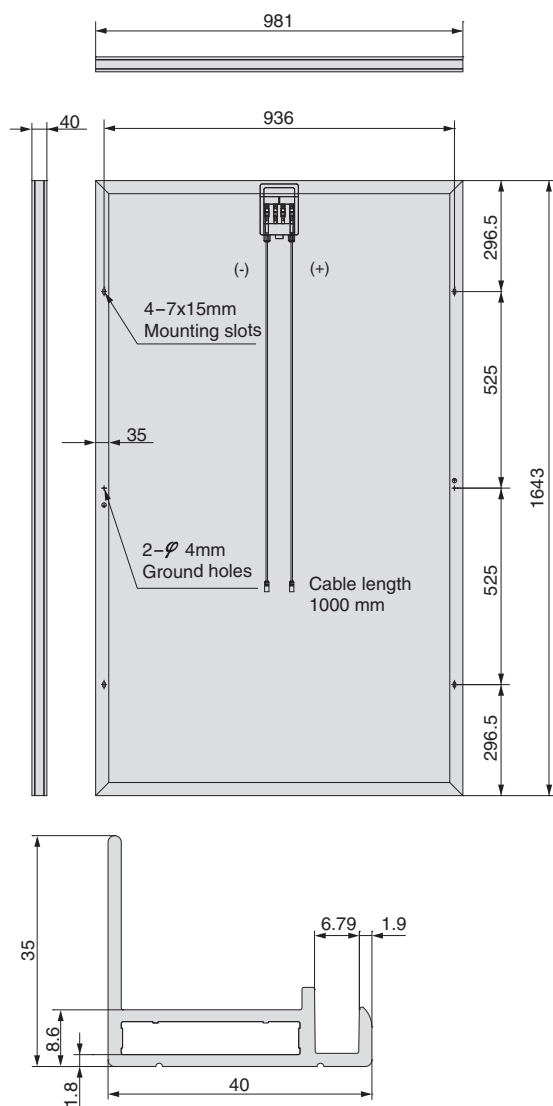
# PVM S245

6 inch Cells

# PVM S247

## LSIS Mono-Crystalline Module

DESCRIPTION		240W	242W	245W	247W
<b>MECHANICAL DATA</b>		<b>6 Inch Cell Module</b>			
Cell Type		Mono-Crystalline			
Cell Dimensions [mm]		156 x 156			
Cell Quantity per Module		60ea			
Number of Busbar		3			
Dimensions [L x W x T]		1643 x 981 x 40 mm			
Weight		22.5 kg			
Bypass Diodes		3			
Connection Type		MC4 Compatible			
Length of Cable		1000 mm			
Maximum Load[Pa]		5400pa			
<b>ELECTRICAL DATA</b>					
Nominal Power (Pmax)	[Wp]	240	242	245	247
Performance tolerance	[%]	0 ~ +3	0 ~ +3	0 ~ +3	0 ~ +3
Efficiency	[%]	14.58	14.70	15.20	15.32
Open-Circuit Voltage	[V]	37.90	37.87	37.61	37.67
Short-Circuit Current	[A]	8.61	8.75	8.77	8.82
Voltage at Maximum-Power Point	[V]	29.80	29.62	30.36	30.95
Current at Maximum-Power Point	[A]	8.18	8.18	8.04	7.95
Temperature Coefficient of Isc	[A/k]	0.0017	0.0018	0.0018	0.0018
Temperature Coefficient of Isc	[%/k]	0.0200	0.0200	0.0200	0.0200
Temperature Coefficient of Voc	[v/k]	-0.1137	-0.1137	-0.1128	-0.1130
Temperature Coefficient of Voc	[%/k]	-0.3000	-0.3000	-0.3000	-0.3000
Temperature Coefficient of Pmax	[W/k]	-1.0320	-1.0406	-1.0535	-1.0621
Temperature Coefficient of Pmax	[%/k]	-0.4300	-0.4300	-0.4300	-0.4300
Maximum System Voltage	[V]	1000V(TUV), 600V(UL)			
Series Fuse Rating	[A]	20			
<b>CERTIFICATION AND WARRANTY</b>					
Certification		TUV(IEC61215, IEC 61730), UL, JET, CE			
Product Warranty		5 years			
Output Warranty		10 / 90 [years / %]			
Output Warranty		25 / 80 [years / %]			



5<sup>inch</sup>  
Cells

# PVM S188

5<sup>inch</sup>  
Cells

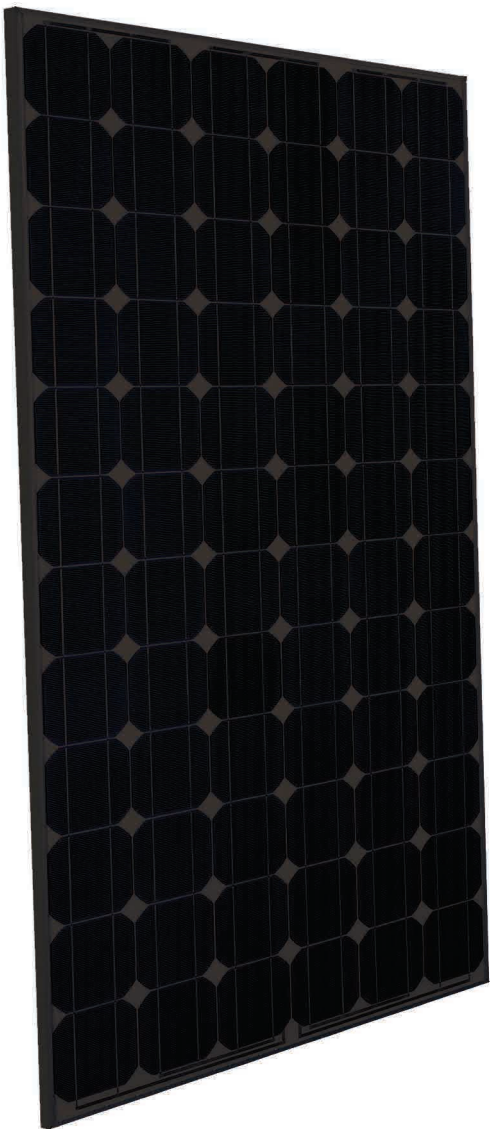
# PVM S190

## LSIS Mono-Crystalline

### *Black-Back Sheet Module*

## LSIS photovoltaic system makes a difference.

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PVM S188 / PVM S190



### LSIS cares not only quality, but also design.

Black-back sheet monocrystalline module for your house PV system.



### Field improved photovoltaic system since 1986

Long lasting product quality. LSIS photovoltaic plants built more than 26 years ago are still generating power. It remarks significant competitive edge on LSIS.



Plus Power Tolerance

### Plus Power Tolerance

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Within a nominal power output tolerance from 0 to 3%.



### Warranty

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### Successful case in Japan

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### Proper module for total solution system

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5<sup>inch</sup>  
Cells

# PVM S188

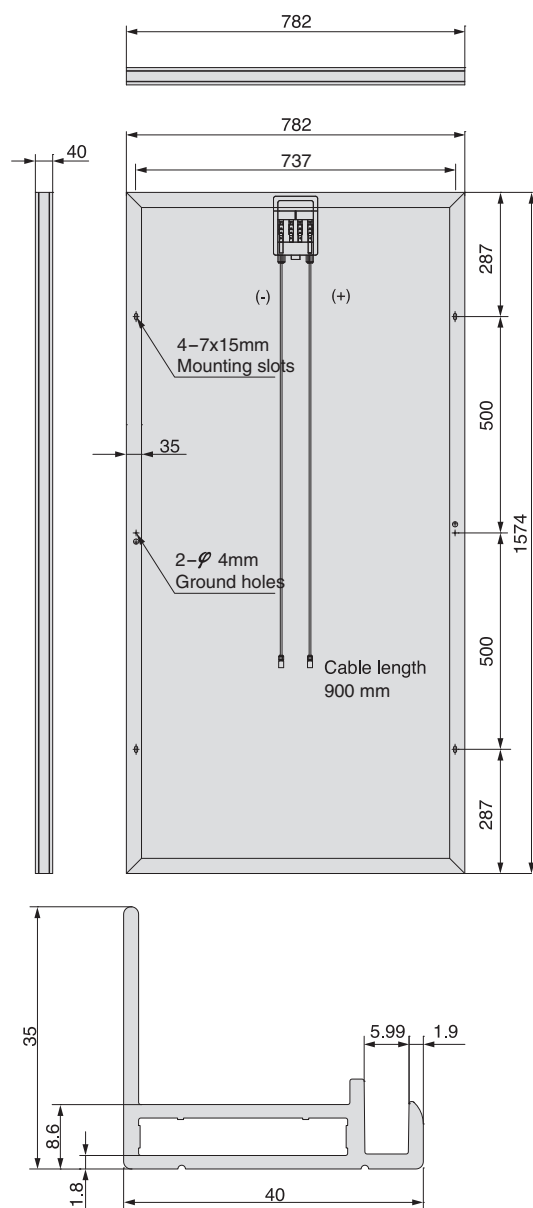
5<sup>inch</sup>  
Cells

# PVM S190

## LSIS Mono-Crystalline

*Black-Back Sheet Module*

DESCRIPTION		188W	190W
<b>MECHANICAL DATA</b>		<b>5 Inch Cell Module</b>	
Cell Type		Mono-Crystalline	
Cell Dimensions [mm]		125 x 125	
Cell Quantity per Module		72ea	
Number of Busbar		2	
Dimensions [L x W x T]		1574 x 782 x 40 mm	
Weight		15.5 kg	
Bypass Diodes		3	
Connection Type		MC4 Compatible	
Length of Cable		900 mm	
Maximum Load [Pa]		2400pa	
<b>ELECTRICAL DATA</b>			
Nominal Power (Pmax)	[Wp]	188	190
Performance tolerance	[%]	0 ~ +3	0 ~ +3
Efficiency	[%]	15.27	15.36
Open-Circuit Voltage	[V]	45.2	45.45
Short-Circuit Current	[A]	5.46	5.62
Voltage at Maximum-Power Point	[V]	36.1	35.54
Current at Maximum-Power Point	[A]	5.25	5.35
Temperature Coefficient of Isc	[A/k]	0.0017	0.0017
Temperature Coefficient of Isc	[%/k]	0.0305	0.0305
Temperature Coefficient of Voc	[v/k]	-0.1490	-0.1499
Temperature Coefficient of Voc	[%/k]	-0.3297	-0.3297
Temperature Coefficient of Pmax	[W/k]	-0.8349	-0.8438
Temperature Coefficient of Pmax	[%/k]	-0.4441	-0.4441
Maximum System Voltage	[V]	1000V	1000V
Series Fuse Rating	[A]	10	10
<b>CERTIFICATION AND WARRANTY</b>			
Certification		TUV(IEC61215, IEC61730)	
Product Warranty		5 years	
Output Warranty		10 / 90 [years / %]	
Output Warranty		25 / 80 [years / %]	



6 inch  
Cells

# PVM S240F

LSIS Mono-Crystalline

*Water Surface Module*

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PVM S240F



### Adaptable PV module on the WATER SURFACE

- Pb free module to prevent water pollution
- Enhanced resistance against humidity
- High protection grade : IP66 (IEC Standard grade : IP65)
- Enforced insulation strength ( Higher than 50MΩ )



Plus Power Tolerance

### Plus Power Tolerance

LSIS delivers only reliable products after stern quality control. Within a nominal power output tolerance from 0 to 3%.



### Warranty

5 years for product mechanical defect,  
10 years for 90% power warranty,  
25 years for 80% power warranty.



### Proper module for total solution system

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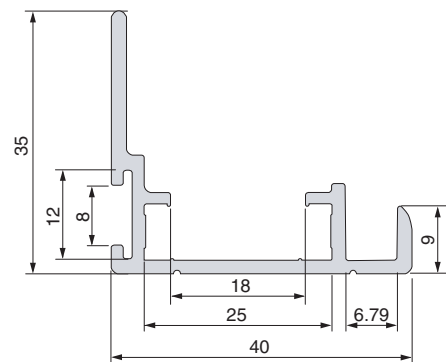
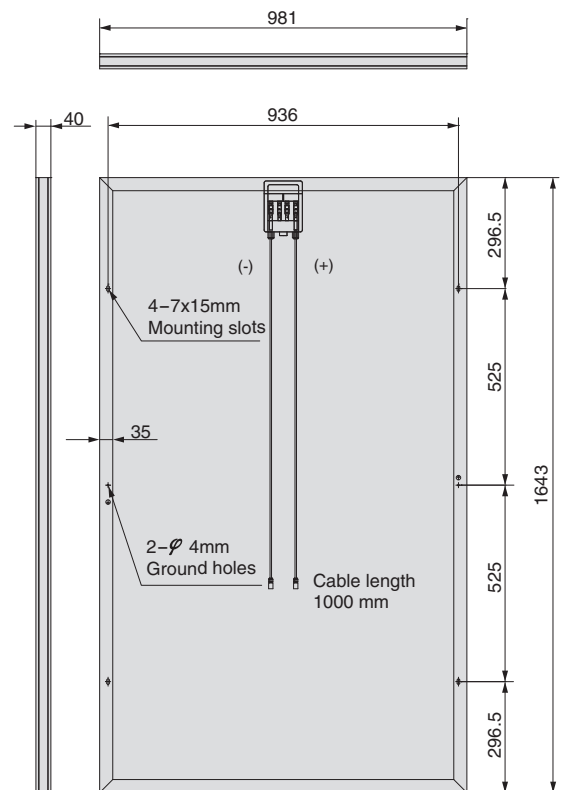
6 inch  
Cells

# PVM S240F

## LSIS Mono-Crystalline

*Water Surface Module*

DESCRIPTION		240W
<b>MECHANICAL DATA</b>		<b>6 Inch Cell Module</b>
Cell Type		Mono-Crystalline
Cell Dimensions [mm]		156 x 156
Cell Quantity per Module		60ea
Number of Busbar		3
Dimensions [L x W x T]		1643 x 981 x 40 mm
Weight		22 kg
Bypass Diodes		3
Connection Type		MC4 Compatible
Length of Cable		1000 mm
Maximum Load [Pa]		5400pa
<b>ELECTRICAL DATA</b>		
Nominal Power (Pmax)	[Wp]	240
Performance tolerance	[%]	0 ~ +3
Efficiency	[%]	14.50
Open-Circuit Voltage	[V]	37.30
Short-Circuit Current	[A]	8.56
Voltage at Maximum-Power Point	[V]	29.90
Current at Maximum-Power Point	[A]	8.07
Temperature Coefficient of Isc	[A/k]	0.0017
Temperature Coefficient of Isc	[%/k]	0.0200
Temperature Coefficient of Voc	[v/k]	-0.1119
Temperature Coefficient of Voc	[%/k]	-0.3000
Temperature Coefficient of Pmax	[W/k]	-1.0320
Temperature Coefficient of Pmax	[%/k]	-0.4300
Maximum System Voltage	[V]	1000V
Series Fuse Rating	[A]	20
<b>CERTIFICATION AND WARRANTY</b>		
Certification		TUV(IEC61215, IEC61730)
Product Warranty		5 years
Output Warranty		10 / 90 [years / %]
Output Warranty		25 / 80 [years / %]



6 inch  
Cells

# PVM S300

## LSIS Mono-Crystalline Module

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PVM S300



### Field improved photovoltaic system since 1986

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Plus Power Tolerance

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LSIS delivers only reliable products after stern quality control. Within a nominal power output tolerance from 0 to 3%.



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### Successful case in Japan

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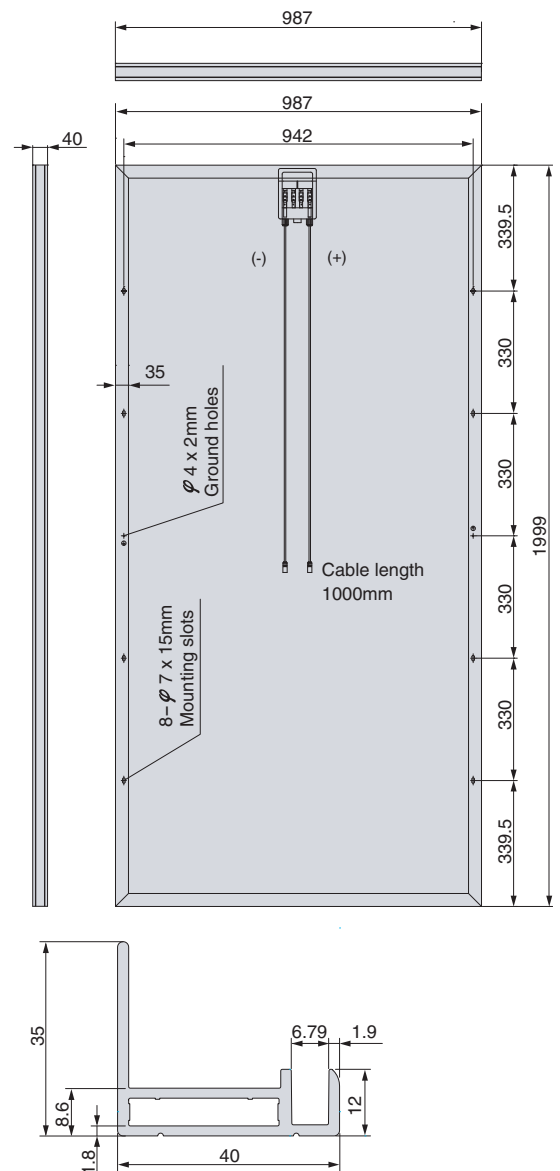


6 inch Cells

# PVM S300

## LSIS Mono-Crystalline Module

DESCRIPTION		300W
<b>MECHANICAL DATA</b>		<b>6 Inch Cell Module</b>
Cell Type		Mono-Crystalline
Cell Dimensions [mm]		156 x 156
Cell Quantity per Module		72ea
Number of Busbar		3
Dimensions [L x W x T]		1999 x 987 x 40 mm
Weight		27.8 kg
Bypass Diodes		3
Connection Type		MC4 Compatible
Length of Cable		1000 mm
Maximum Load [Pa]		5400pa
<b>ELECTRICAL DATA</b>		
Nominal Power (Pmax)	[Wp]	300
Performance tolerance	[%]	0~+3
Efficiency	[%]	15.30
Open-Circuit Voltage	[V]	45.00
Short-Circuit Current	[A]	8.77
Voltage at Maximum-Power Point	[V]	36.40
Current at Maximum-Power Point	[A]	8.28
Temperature Coefficient of Isc	[A/k]	0.0018
Temperature Coefficient of Isc	[%/k]	0.0200
Temperature Coefficient of Voc	[v/k]	-0.1350
Temperature Coefficient of Voc	[%/k]	-0.3000
Temperature Coefficient of Pmax	[W/k]	-1.2900
Temperature Coefficient of Pmax	[%/k]	-0.4300
Maximum System Voltage	[V]	1000V
Series Fuse Rating	[A]	20
<b>CERTIFICATION AND WARRANTY</b>		
Certification		TUV(IEC61215, IEC61730)
Product Warranty		5 years
Output Warranty		10 / 90 [years / %]
Output Warranty		25 / 80 [years / %]



5<sup>inch</sup>  
Cells

# GMG 01800

LSIS Mono-Crystalline Module

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GMG 01800



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**LSIS**

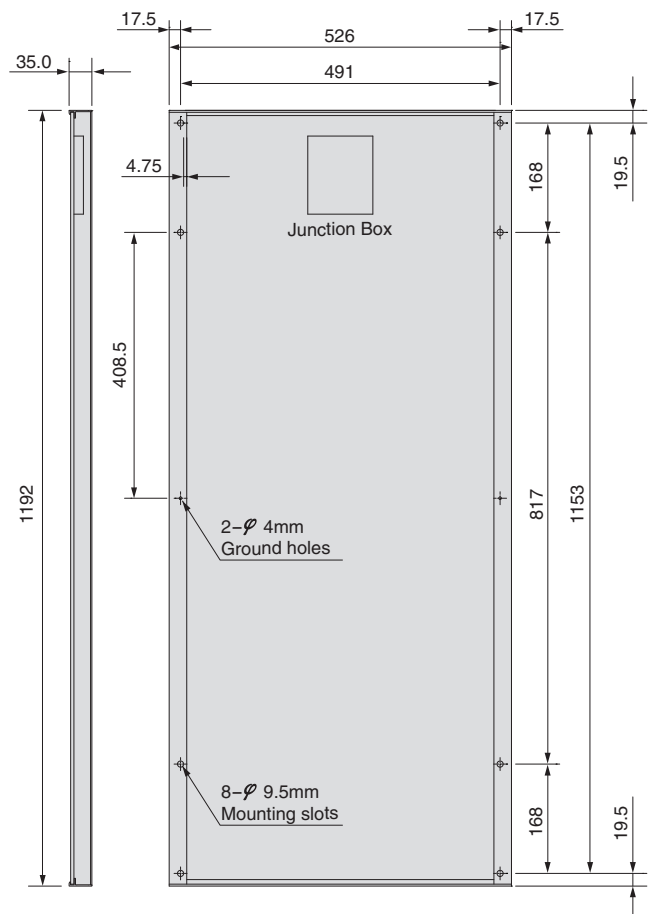


5<sup>inch</sup>  
Cells

# GMG 01800

## LSIS Mono-Crystalline Module

DESCRIPTION		80W
<b>MECHANICAL DATA</b>		<b>5 Inch Cell Module</b>
Cell Type		Mono-Crystalline
Cell Dimensions [mm]		125 x 125
Cell Quantity per Module		36ea
Number of Busbar		3
Dimensions [L x W x T]		1192 x 526 x 35 mm
Weight		7.5 kg
Bypass Diodes		2
Connection Type		MC4 Compatible
<b>ELECTRICAL DATA</b>		
Nominal Power (Pmax)	[Wp]	80
Performance tolerance	[%]	0~+3
Efficiency	[%]	12.7
Open-Circuit Voltage	[V]	21.81
Short-Circuit Current	[A]	4.75
Voltage at Maximum-Power Point	[V]	17.30
Current at Maximum-Power Point	[A]	4.35
Operating Temperature	[°C]	-40 ~ 85
Storage Temperature	[°C]	-40 ~ 85
<b>CERTIFICATION AND WARRANTY</b>		
Product Warranty		5 years
Output Warranty		10 / 90 [years / %]
Output Warranty		25 / 80 [years / %]

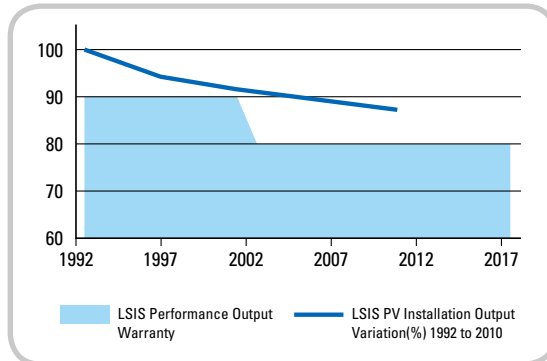




This catalogue was produced using environmentally-friendly paper recommended by environmental organizations.



LSIS PV installation in Wha Island, Korea, 1992



Through references since 1986, LSIS proves product's quality  
LSIS is demonstrating our commitment to our customers



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[www.lsis.biz](http://www.lsis.biz)

**Head Office**

LS Tower , 127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea

**Tel** +82-2-2034-4820, 4717

**Fax** +82-2-2034-4428

**Email** yleea@lsis.biz, json@lsis.biz

