

LED Lighting



Products, Systems & Services
**SettWay Energy
Technology**



SettWay Energy Technology Corporation
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SETTWAY

Contents

Quality Management System in accordance with
ISO 9001:2015



The scope of this QMS includes:
LED Lighting Fixtures of Research & Development,
Manufacturing, and Sales & Marketing;
Solar PV System and Water Purification Treatment
Of Sales and Marketing.

SettWay Energy Technology Products Lineup

Energy-Saving LED Lighting

- Indoor/Outdoor use
- New design – Marine LED Light
- Customized design on request
- LED Lighting specifications

Monocrystalline, Solar Photovoltaic Energy System

Selected projects:

- Panya Tum Monastery, Cambodia
- Omni-photovoltaic power harvest, Solar farm field
- Solar power compliment for plant floor, Easy solar power for farm field

Grid-tied, Off-grid, Hybrid solar systems

Flexible Solar Module/Panel, Advantages Processing and Technological, Specifications

Rigid Solar Panels – Specifications

Applications of Water Purification Device and System

- Selected project: Solar energy DC pumping system & Gravity water purification system
- Selected project: Solar energy AC pumping system & Gravity water purification system
- Water purification device (tank) for Household, Community, Industry usage
- Gravity powered ACT water purification vs. Gravity powered RO purified water

Implementation of New Energy-Saving Technologies

- Upgrade to magnetic bearing oil-free variable frequency drive centrifugal chillers
- Implementation of building heat preservation and thermal insulation technologies
- CB nanometer water within HVAC circulatory systems

Business Contact



Renewable Resources
Energy Conservation
Eco-friendly Technology

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開源、發展、節能、環保 Renewable Resources Energy Conservation Eco-friendly Technology

Settway, headquarters located in Kaohsiung Southern Taiwan, has 50 years of experience in manufacturing lighting ballasts and power supplies. Settway has been designing high-standard optical solutions for demanding lighting applications since year 2006.

Settway proudly launched solar PV systems and production from 2014, in expanding business category as well as enhancing customer service.

Water purification treatment technology in providing clean and safe drinking water is needed by people living in rural areas without city power utility. Solar energy system facilitating healthy drinking water supply is honorably implemented by branch office Settway Asia in Cambodia from year 2018.

Settway excels in providing customized service with product development and design capability as well as manufacturing plant operations. Today, Settway continues R&D work over innovative, prospective applications of renewable green products, inspired by solar energy like resources featured low pollution, accessibility and inexhaustibility.

Objective : Settway is manufacturing high quality, competitive-edge products with sustainability aspects for growth and development. Settway is engaged in reproducing alternative energy system, dedicated herself to environmental protection and energy conservation.



High Performance LED Lighting
 Electrical: 100-277V ~, 47-63Hz, PF>0.95
 Mechanical: effective thermal solution
 Efficacy up to 130lm/w
 Life time 60,000 hours

LED Down Light (Circular) LED Recessed Panel Light LED T8/T5 Tube Light

High quality LED driver and component chips
 Slim design with edge-lit technology
 Production & quality service guaranteed

LED Flood Light
 LED Street Light
 LED High Bay Light



Marine LED Light

Engine room utility light

Mechanical
 Aesthetics slim surface-mount design
 Designed for wet environments
 Mounting Method: Screw Mount

Electrical
 Low-profile design with outstanding lumen per-watt efficacy
 High illumination glare free non-heat emitting and long life span
 Dual power source: AC and DC
 Available for AC or DC power
 Integrated Drive Protection (Combiner)

Safety & protection compliance
 CE
 IP65

Ingress Protection: IP65
 CE Standards standards complied
 3-year limited warranty

LED Lighting designs - **Customized solutions available**
 Designing high standards of optical solution
 Experienced in high performance of LED driver solution
 LED lighting in replacing of traditional ones can achieve minimal 50% energy saving
 As of its low thermal rise nature, LED lighting uses 50% less energy in power consumption

SettWay LED Lighting Features

Well adopted of high efficiency Japanese LED chips and Taiwanese LED chips
 In-house power driver designs, illumination engineering and designing
 Non-flammable, flame-retardant materials for manufacturing processes
 EMI shields and filters protection (CNS1415 compliant), anti-blue light blocking for eye protection
 Lifespan of 60,000 hours achieved at lumen maintenance 70%

Panel Light

High Efficacy: 130 lm/W
 Extended Lifetime with LM-80 certified test report
 IEC62471 Certified for eye protection
 DLC Certified

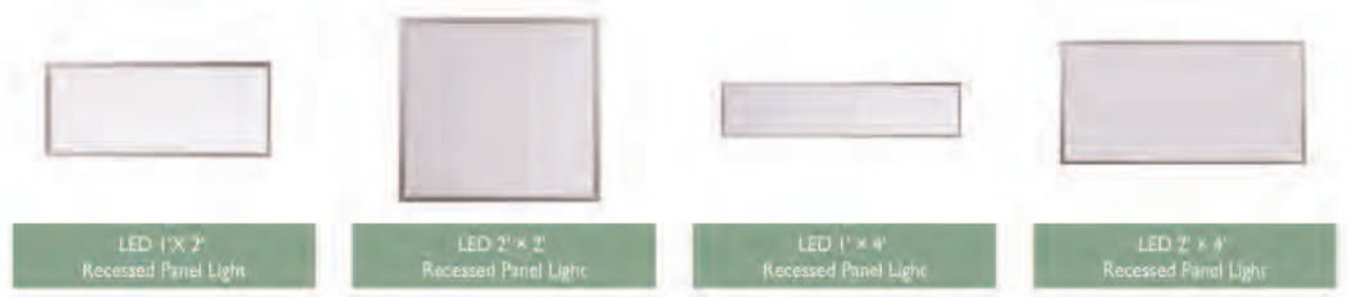


High standard LED sources applied

During the past 100 years, the luminaire lighting manufacturers have been devoted to producing standard products and standardization has been a practical model for enterprises to meet clients' basic needs. Customer's requirements and service requests are getting extensively varied with technology innovations and industry multiple applications. To maximize the satisfactory needs of customers, Settway admittedly holds the belief of user-friendly products while carrying out customized designs, to be dedicated herself to protecting global environment.

Settway has 50 years of experience in manufacturing lighting ballasts and power supplies. Settway has been designing high-standard optical solutions for demanding lighting applications for more than 10 years. Key components are well adopted and sourced from recognized first tier parts manufacturers, designs as well featured with over-heat, over-voltage and over-current protection, especially patented thermal dissipation system enabling fast thermal conductivity, that ensures high efficacy performance, reduces power consumption, facilitates ease of installation and low maintenance needs during product long lifespan. Using SettWay's LED lighting helps 80% of electricity bill cut than compared with the traditional lighting fixtures applied. Required national safety standards of LED lightings are complied with and relevant laboratory tests are passed, including TAF2262, CNS-14335 and IEC-60598, which SettWay LED lightings provide eye protection, eliminate hazardous emissions, as well as meet environmental protection obligations.

Settway's lighting solutions are met with comprehensive product lineup and integrated system services to fulfill customer needs, which are used for variety applications in places such as schools, offices, exhibition halls, vehicles, medical facilities, both commercial and industrial buildings. Settway adhering to green energy and environmental protection as concept for business operation and development, conforms with the global act of energy conservation and carbon emission reduction among lighting designs, energy-saving plans, technologies engineering, and projects management.

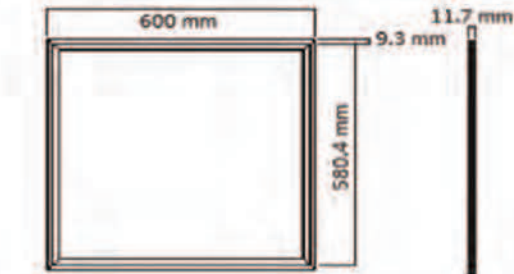


LED 1' x 2' Panel Light

Model	Size mm	Weight(g)
C14386A	300x600x11.7	1,800

LED 2' x 2' Panel Light

Model	Size mm	Weight(g)
C22426A	599x599x11.7	3,700



LED 1' x 2' Panel Light (LED 2' x 2' Panel Light)

Electrical & Mechanical Specification and Requirements			
Electrical	Input Nominal Voltage	100~240Vac	Input Frequency Range 50~60Hz
	Light Source	Solid-State LED	
	THD	20%(Max)/100Vac and 240Vac at Full Load	
	Power Factor	PF=0.90(Min)/100Vac and 240Vac at full Load	
Optical	Power Consumption 100%	18~22W 20W(Typ)at full load/rated input range after bum-in 60mins (25~44W 38W(Typ)at full load/rated input range after bum-in 60mins)	
	Lumens Output	2,400±10% Lumens @ CCT 6,000K (3,650±10% Lumens @ CCT 6,000K)	
	Correlated Color Temperature	2,700K~6,500K	
	C.R.I	>80	
	Illuminate Angle	120 Degrees	
Safety	Illuminous Decay	<30%/60,000Hours	
	Comply with BSMI		
Environmental and Reliability	Lifetime	60K hours min. At ambient 25°C	
	MTBF	60K hours min. At ambient 25°C	
	RoHS Compliant		
Warranty	IP20		
	Operation Temperature and Humidity Range:-20~+40°C and 20~90% RH		
	Storage Temperature and Humidity Range:-25~+85°C and 10~90% RH		
	3years		
	*Brightness three-stage switch(Brightness 100%>>>40%>>>10%)		

Recessed Downlight

High Quality
Extended Lifetime with LM-80 certified test report
IEC62471 Certified for eye protection



LED Recessed Down Light(7.5/12.5/16.5CM)

LED Recessed Down Light(9/15/18CM)

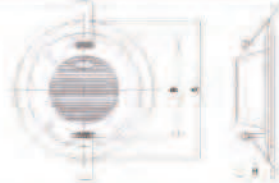
Recessed Downlight Circular Type -7.5cm cut (w/ glass) (Circular Type - 15cm cut)

Electrical & Mechanical Specification and Requirements			
Electrical	Input Nominal Voltage	100-240Vac	Input Frequency Range 50-60Hz
	Light Source	Solid-State LED	
	THD	20%(Max)/100Vac and 240Vac at Full Load	
	Power Factor	PF=0.90(Min)/100Vac and 240Vac at Full Load	
Optical	Power Consumption 100%	5W at full load/rated input range after burn-in 60mins (1.2W at full load/rated input range after burn-in 60mins)	
	Lumens Output	590±10% Lumens @ CCT 6,500K (1,490±10% Lumens @ CCT 4,500K)	
	Correlated Color Temperature	6,500K	
	C.R.I	>80	
	Illuminate Angle	95±10 Degrees	
Safety	Illuminous Decay	<30%/60,000Hours	
	Comply with BSMI		
Environmental and Reliability	Lifetime	60K hours min. At ambient 25°C	
	MTBF	60K hours min. At ambient 25°C	
	RoHS Compliant	IP20	
Warranty	Operation Temperature and Humidity Range:	20~+40°C and 20~90% RH	
	Storage Temperature and Humidity Range:	-25~+85°C and 10~90%RH	
3years			

*All specifications are subject to change without notice. E. & O. E.

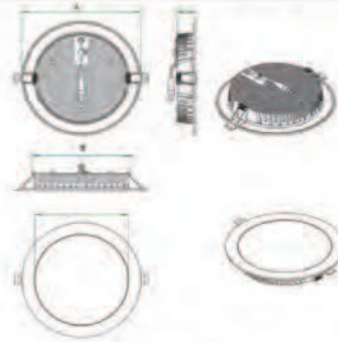
Circular Type - 7.5cm cut (w/ glass)

Model	(A) Outer Dims. (mm)	(B) Inner Dims. (mm)	Weight (g)
DC075	ø100X37	ø75	208



Circular Type - 15cm cut

Model	(A) Outer Dims. (mm)	(B) Inner Dims. (mm)	Weight (g)
DC150	ø164x52	ø143	394



High Bay Light

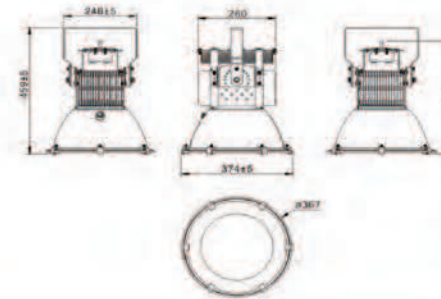
High Efficacy: 110 lm/W & 130 lm/W
Optional Illuminate Angle: 25°~100° / 60°~110°
Extended Lifetime with LM-80 certified test report
IEC62471 Certified for eye protection
IP65 Certified



LED High Bay Light (H Series)



LED High Bay Light (UFO Series)



LED High Bay Light - "H" Series (- "UFO" Series)

Electrical & Mechanical Specification and Requirements			
Electrical	Input Nominal Voltage	100-277Vac	Input Frequency Range 50-60Hz
	Light Source	Solid-State LED	
	THD	20%(Max)/100Vac and 240Vac at Full Load	
	Power Factor	PF=0.90(Min)/100Vac and 240Vac at Full Load	
Optical	Power Consumption 100%	120/150/175/200W ±5W at full load/rated input range after burn-in 60mins (120-150W ±5W at full load/rated input range after burn-in 60mins)	
	Lumens Output	14,400±10% Lumens @ CCT 5,700K(120W) 18,000±10% Lumens @ CCT 5,700K(150W) 21,000±10% Lumens @ CCT 5,700K(175W) 24,000±10% Lumens @ CCT 5,700K(200W) (15,500±10% Lumens @ CCT 6,000K)	
	Correlated Color Temperature	5,700K±500K (2,700K - 6000K)	
	C.R.I	>80	
	Illuminate Angle	25 45 60 90 100 Degrees Optional (60-110 Degrees Optional)	
Safety	Illuminous Decay	<30%/60,000Hours	
	Comply With UL FCC CE BSMI PSE		
Environmental and Reliability	Lifetime	60K hours min. At ambient 25°C	
	MTBF	60K hours min. At ambient 25°C	
	RoHS Compliant	IP65	
Mech	Operation Temperature and Humidity Range:	-40~+50°C and 20~90% RH	
	Storage Temperature and Humidity Range:	-25~+85°C and 20~90% RH	
Dimensions:ø367*459(H) mm. Net Weight:9.5Kg±5% (Dimensionsø240*180(H) mm. Net Weight:2.6Kg±5%)			
Warranty 3years			

*All specifications are subject to change without notice. E. & O. E.

Tubular Light

High Efficacy: 140 lm/W
Extended Lifetime with LM-80 certified test report
IEC62471 Certified for eye protection



LED T5 Tube Light

LED T8 Tube Light

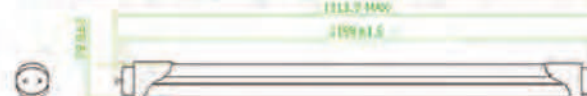
LED T5 Tube Light (LED T8 Tube Light)

Electrical & Mechanical Specification and Requirements			
Electrical	Input Nominal Voltage	100-240Vac	Input Frequency Range 50-60Hz
	Light Source	Solid-State LED	
	THD	20%(Max)/100Vac and 240Vac at Full Load	
	Power Factor	PF=0.90(Min)/100Vac and 240Vac at Full Load	
Optical	Power Consumption 100%	16-20W 18W(Typ)at full load/rated input range after burn-in 60mins (16-20W 18W(Typ)at full load/rated input range after burn-in 60mins)	
	Lumens Output	>2,000 Lumens (Typ)2,300 Lumens@ CCT 6,500K (≥2,000 Lumens (Typ)2,300 Lumens@ CCT 6,500K)	
	Correlated Color Temperature	2,700K-6,500K	
	C.R.I	>80	
	Illuminate Angle	>180 Degrees (Typ) 204 Degrees (≥120 Degrees (Typ) 135 Degrees)	
Safety	Illuminous Decay	<30%/60,000Hours	
	Comply with CE		
Environmental and Reliability	Lifetime	60K hours min. At ambient 25°C	
	MTBF	60K hours min. At ambient 25°C	
	RoHS Compliant	IP20	
Warranty	Operation Temperature and Humidity Range:	20~+40°C and 20~90% RH	
	Storage Temperature and Humidity Range:	-25~+85°C and 10~90%RH	
3years			

Model	(A) Outer Dims. (mm)	Base	Weight (g)
T5423XB	1,183x22.4x35.2	-	227



Model	(A) Outer Dims. (mm)	Base	Weight (g)
T8423XB	ø29x1,198	G13	326



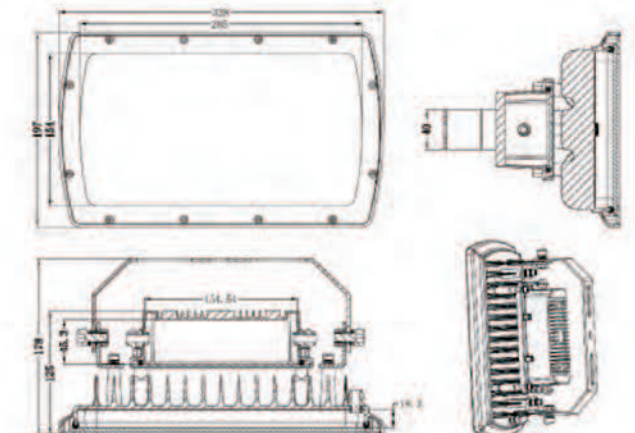
Flooding Light

High Efficacy: 105 lm/W
Illuminate Angle: 100°±10°
Extended Lifetime with LM-80 certified test report
IEC62471 Certified for eye protection
IP65 Certified



LED Flood Light

Model	Size (mm)	Base	Weight (g)
FL50GW	328x197x178	-	3,500



An overview of SettWay LED Lighting Products

Panel Light, Recessed Light, Tubular Light, High Bay Light, Flooding Light, Street Light, Yacht Light,

Model Name	Description	Power Consumption(W)	Luminosity (lm)	Efficacy (lm/W)	CRI (Note1)	Beam Angle (°)	Color Temperature	Dimension (mm)	Weight (g)	Lifetime (hrs.)	Warranty(Ys)
C235XB	2'X2' Panel Light	28	3500	130	80	115	(3000K/4000K/5000K/6500K)	599x599x11.7	3200	60000	3
C245XB	2'X2' Panel Light	38	4500	120	80	115	(3000K/4000K/5000K/6500K)	599x599x11.7	3700	60000	3
C2476XB	2'X4' Panel Light	76	7600	100	80	115	(3000K/4000K/5000K/6500K)	599x1200x11.7	7200	60000	3
CL435XB	1'X4' Panel Light	38	3500	95	80	115	(3000K/4000K/5000K/6500K)	300x1200x11.7	3650	60000	3

Model Name	Description	Power Consumption(W)	Luminosity (lm)	Efficacy (lm/W)	CRI	Beam Angle (°)	Color Temperature	Outer/Inner Dimension (mm)	Weight (g)	Lifetime (hrs.)	Warranty(Ys)
D075	7.5cm Recessed Light	5	590	118	80	95	(3000K/4000K/5000K/6500K)	Ø100 x 35/Ø75	208	60000	3
D090	9cm Recessed Light	7	780	112	80	95	(3000K/4000K/5000K/6500K)	Ø114 x 48/Ø90	217	60000	3
D125	12.5cm Recessed Light	10	1180	118	80	95	(3000K/4000K/5000K/6500K)	Ø160 x 35/Ø125	390	60000	3
D150	15cm Recessed Light	12	1480	123	80	95	(3000K/4000K/5000K/6500K)	Ø164 x 52/Ø143	394	60000	3
D165	16.5cm Recessed Light	12	1500	125	80	95	(3000K/4000K/5000K/6500K)	Ø200 x 35/Ø165	599	60000	3
D180	18cm Recessed Light	15	1580	105	80	95	(3000K/4000K/5000K/6500K)	Ø220 x 34/Ø172	687	60000	3

Model Name	Description	Power Consumption(W)	Luminosity (lm)	Efficacy (lm/W)	CRI	Beam Angle (°)	Color Temperature	Dimension (mm)	Weight (g)	Lifetime (hrs.)	Warranty(Ys)
T5211XB	T5 2' Tube Light	9	1100	140	80	180(Typ)	(3000K/6500K)	563x22x35	129	60000	3
T5421XB	T5 4' Tube Light	15	2200	140	80	180(Typ)	(3000K/6500K)	1160x22x35	180	60000	3
T8211XB	T8 2' Tube Light	9	1100	140	80	120(Typ)	(3000K/6500K)	Ø28x580	157	60000	3
T8423XB	T8 4' Tube Light	18	2200	140	80	120(Typ)	(3000K/6500K)	Ø28x1199	290	60000	3

Model Name	Description	Power Consumption(W)	Luminosity (lm)	Efficacy (lm/W)	CRI	Beam Angle (°)	Color Temperature	Dimension (mm)	Weight (g)	Lifetime (hrs.)	Warranty(Ys)
HB120H	High Bay Light	120	14400	120	80	25/45/60/90/110	(3000K/4000K/5000K/6000K)	Ø367x459	9500	60000	3
HB150H	High Bay Light	150	18000	120	80	25/45/60/90/110	(3000K/4000K/5000K/6000K)	Ø367x459	10000	60000	3
HB175H	High Bay Light	175	21000	120	80	25/45/60/90/110	(3000K/4000K/5000K/6000K)	Ø367x459	10000	60000	3
HB200H	High Bay Light	200	24000	120	80	25/45/60/90/110	(3000K/4000K/5000K/6000K)	Ø367x459	11000	60000	3
UFO GPE1	UFO Light	120	15600	130	80	60°-110	(3000K/4000K/5000K/6000K)	Ø240x193.5	4900	60000	3
UFO GPE2	UFO Light	150	19500	130	80	60°-110	(3000K/4000K/5000K/6000K)	Ø280x193.5	5500	60000	3
FL50GW	Flood Light	50	5150	95	80	60°-110	(3000K/4000K/5000K/6000K)	328x197x178	3500	60000	3
FL55GW	Flood Light	55	5750	105	80	60°-110	(3000K/4000K/5000K/6000K)	328x197x178	4100	60000	3
FL100GW	Flood Light	100	11500	115	80	60°-110	(3000K/4000K/5000K/6000K)	437x237x189	6100	60000	3

Model Name	Description	Power Consumption(W)	Luminosity (lm)	Efficacy (lm/W)	CRI	Beam Angle (°)	Color Temperature	Dimension (mm)	Weight (g)	Lifetime (hrs.)	Warranty(Ys)
SL040LD	Street Light	40	4800	120	85	60	(3000K/4000K/5000K/6000K)	431.3x160x89.3	2200	60000	3
SL090LD	Street Light	90	10800	120	85	60	(3000K/4000K/5000K/6000K)	631.7x215x89.6	3300	60000	3
SL120LD	Street Light	120	14400	120	85	60	(3000K/4000K/5000K/6000K)	631.7x215x89.6	4200	60000	3

Model Name	Description	Power Consumption(W)	Luminosity (lm)	Efficacy (lm/W)	CRI	Beam Angle (°)	Color Temperature	Dimension (mm)	Weight (g)	Lifetime (hrs.)	Warranty(Ys)
CL1126A	Yacht Light	12	1440	120	80	120	(3000K/6500K)	295*145*29.5	800	60000	3

Note1: "CRI"→Color Rendering Index
Here described characteristics, properties or performance of materials are derived from data obtained under controlled test conditions.
All specifications are subject to change without notice. Errors and omissions excepted.

(Ver. dt 02212020)



Building high Performance PV arrays

Mechanical Engineering of Enforcement and structural construction

Panel orientation and position with regards to direct sunlight as well as the tilt angle of solar arrays



Cleaning and Maintenance

made easy

Electrical and Control Management
Battery Energy Storage System
Power Generation and Distribution



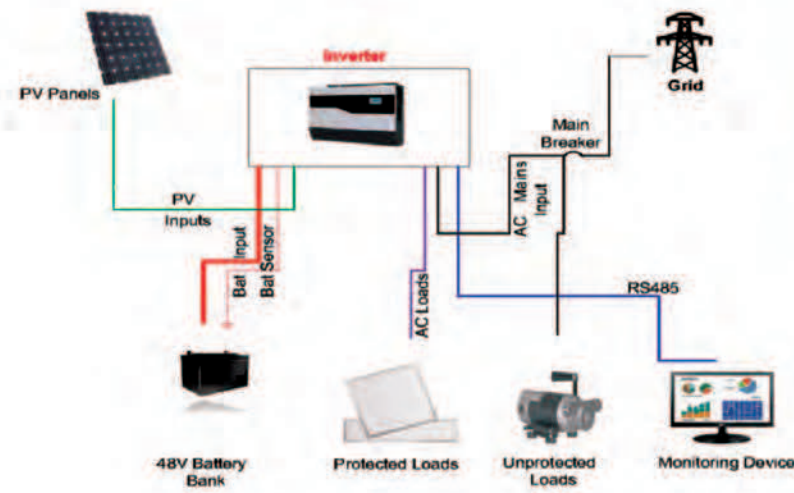
► Column rise design
- Omni-photovoltaic power harvest
(Taiwan Agricultural Research Institute)

► Solar farm field – 3Mega Watt

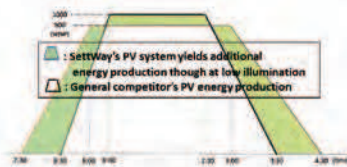


► Solar power compliment for plant floor

► Easy solar power for farm area



Off-Grid /
Grid-Tied /
Hybrid Solar PV System



Settway's Solar PV System
Outperforms Competitor's

High Performance Solar Panels & Intelligence Enabled Inverter

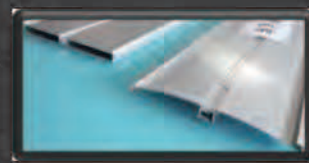
Nanometer Texturing sheet on panels works to water and dust proof level, enables energy conversion in light rainy, or cloudy days.

Inverters utilized proprietary control circuit in keeping the maximum power available from PV characteristic curve dynamics.

Reduce the use of panels when high performance panels are employed, as well as cutting down the usage of complementary parts, achieving overall saving in either materials or applied wires.

Flexible Solar Module/Panel

The easier adaptation in field installation: Lightweight flexible modules on aluminum frame with holding brackets securing panels on the rooftop



- Cell: size 6", 0.5V/5.5W each
- 5 cells in serial connection
- Total module watt : 26 W
- Size : 873*197*1.65mm
- Voltage/Current : 3V / 8.5 A
- Conversion efficiency : 23%



To accommodate needed PVs on rooftop, each FLX module slides into top-bottom brackets holding into place.



Flexible panels can be serial or parallel connected to achieve desired power output, e.g. 300wP output acquired by 10 pcs of 5-cell flexible PV module wired



FLX solar panels on an electric scooter
26W *2 /14~17V
Each 14-cell (1/3 sized) in serial connection
For high voltage applied device

PROCESSING ADVANTAGES

- Solar cell manufacturing processes by solid state nano imprinting lithography.
- Ion-implanting solar cell materials are polarized in the high electric field, and are laminated onto a substrate based on UV-curing process.
- The process provides additional energy levels and enhances light absorption over different wavelengths. Impact ionization carriers are increasingly excited in the process resulting in extra electron-hole pairs generation.
- Green manufacturing with absolute pollution-free processes in opposition to traditional contaminated etching or packaging phases

TECHNOLOGICAL ADVANTAGES

- Optimized stable solar cells does not suffer from performance loss, in contrast to dye-sensitized solar cells that are easily impaired by light or heat damaging effect due to molecular cracking phenomenon.
- Multiple excitons are produced thanks to the impact ionization technology; that partial shades or disfigured areas do not affect efficiency decline in energy production.
- Lightweight - flexible: solar cell epitaxials are applied on pliable substrates; achieving for water-proofing, corrosion free (salt-spray test), and weathering resistance.
- Increased operating voltages are attainable for the needed high voltage range of applications (e.g. 3V~8.5V by adding up cell voltages in a series circuit)



Technology edge - 19 multi ribbon and wire busbars, more electrons channels than traditional make.



High energy production assured by module characteristics of high impact-resistance and of superior temperature coefficient.

Flexible photovoltaic modules/panels

Generate more energy than competing modules

Operation Conditions

Maximum System Voltage : 1000V

Operating Temperature : -40 ~ + 85°C

Maximum Static Load : Snow load 5400pa;
Wind load 3600pa

Product Warranty 10 years limited product warranty (materials and workmanship)

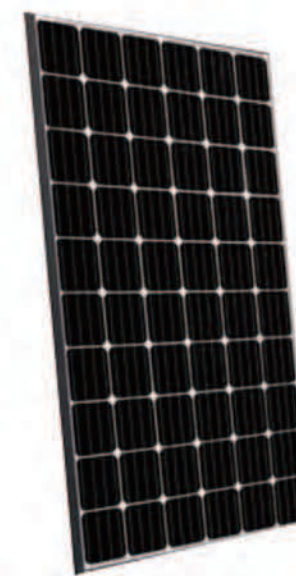
Performance Warranty 90% for 10 years guaranteed output
80% for 25 years guaranteed output

Flexible Solar Panel - 330W

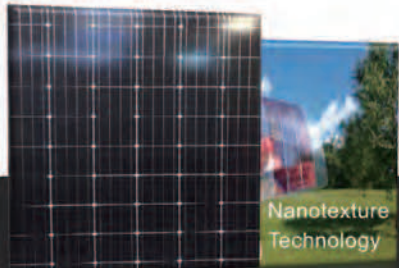
- 60-cell PV bare board with junction box, cable length 90cm
- Power voltage 30~33.6Vdc, power current [A]: 10.8A max.
- 1632 x 995 x 32 mm, net weight 4.2 Kgs

Flexible Solar Panel - 390W

- 72-cell PV bare board with junction box, cable length 90cm
- Power voltage 36~40Vdc, power current [A]: 10.8A max.
- 1948 x 995 x 32 mm, net weight 6 Kgs



Settway Energy Technology Corp



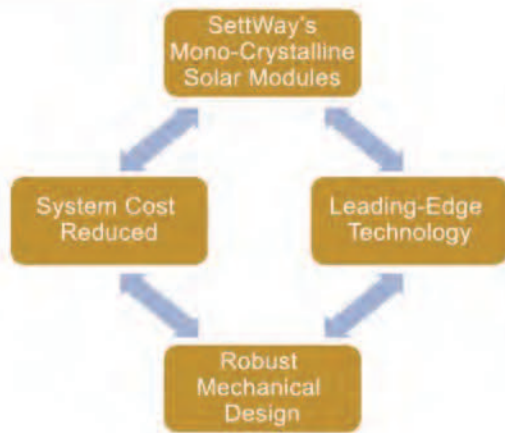
SETTWAY RIGID SOLAR PV TYPE HIGHER KWH/KW SERIES

Cell Size: 6", 60 pcs cell count
 Power range: 300/330W
 Power area: 1.632M²
 Solar conversion: 21%



SettWay solar cell/module goes to nanometer texturing technology

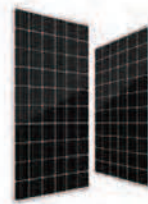
That better localizes light into the textured surface with 60% more light absorbent



- Converting UV light into electricity at weak light
- Efficiency outperforms when exposed at indirect daylight

- Advanced water and dust proof level
- Resistance to salt corrosion and humidity
- Strong mechanical load up to 5400Pa
- Easy and low maintenance need
- Quality performance assured across product lifetime

Mono-crystalline photovoltaic panels



Working conditions:
 Maximum System Voltage : 1000V
 Operating Temperature : -40 ~ + 85°C
 Maximum Static Load : Snow load 5400pa;
 Wind load 3600pa

S660 Series 290W-310W Mono-Crystalline Photovoltaic Modules

Electrical Performance @STC ¹	290	295	300	305	310
Maximum Power P _{max} [Wp]	290	295	300	305	310
Power Tolerance ²	+0%~3%				
Solar Cell Type	Mono-crystalline 6"				
Number of Solar Cells	60 (6 x 10)				
Maximum Power Voltage V _{mp} [V]	32.34	32.83	32.87	33.16	33.40
Maximum Power Current I _{mp} [A]	8.97	9.04	9.13	9.20	9.28
Open Circuit Voltage Voc[V]	39.12	39.36	39.60	39.84	40.02
Short Circuit Current I _{sc} [A]	9.88	9.73	9.84	9.94	10.06
Module Efficiency [%]	17.9%	18.2%	18.5%	18.8%	19.1%

¹ STC: Irradiance level 1000W/m²; Spectral AM1.5; Temperature 25°C
² Power tolerance can be adjusted upon request
³ NOCT: 46±2°C

Mechanical Characteristics	
Dimensions of the Module (WxHxD)(mm)	1632X995X40
Weight of the Module(kg)	19.5
Junction box	IP 67 or above with 3 bypass diodes ; cables 1M/p 4mm ²
Series fuse rating inside Junction Box	15A

SB60 Series 315w - 330w Mono-Crystalline Photovoltaic Modules

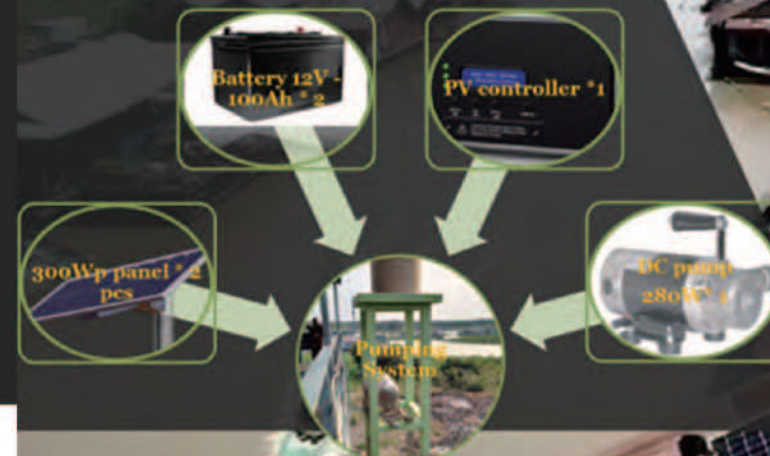
Electrical Performance @STC ¹	315	320	325	330
Maximum Output P _{max} [Wp]	315	320	325	330
Power Tolerance ²	+0%~3%			
Solar Cell Type	Mono-crystalline 6"			
Number of Solar Cells	60 (6x10)			
Maximum Power Voltage V _{mp} [V]	32.07	32.30	32.53	32.82
Maximum Power Current I _{mp} [A]	9.82	9.91	9.99	10.05
Open Circuit Voltage Voc[V]	39.27	39.58	39.88	40.12
Short Circuit Current I _{sc} [A]	10.35	10.43	10.52	10.61
Module Efficiency [%]	18.17%	18.46%	18.75%	19.04%

¹ STC: Irradiance level 1000W/m²; Spectral AM1.5; Temperature 25deg C
² Power tolerance can be adjusted upon request

Mechanical Characteristics	
Dimension of the Module (WxDxD)(mm)	1696X1022X40
Weight of the Module (kg)	21
Junction box	IP 67 or above with 3 bypass diodes; cables 1 M/p 4 mm ²
Series fuse rating inside Junction Box	15A

Solar Energy Pumping System

Gravity water Purification System



Pump capacity 3600L/hr
 Pump rate: 60L/min

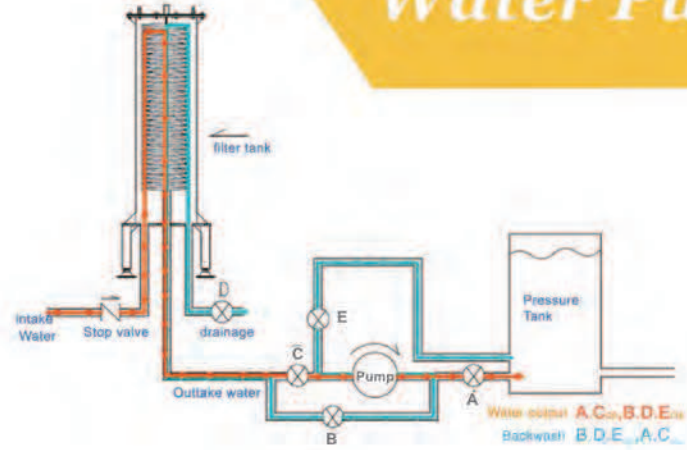
Potable water output rate: 5L/min
 *Water feed stands at 2.5M high required



Make Clean and Safe Drinking Water
 Immediate Accessible to All Pupples
 King of Monks School, Cambodia

Solar Energy Pumping System
 Gravity Water Purification System

Water Purification System



Clean pure water, sanitation and hygiene supply for domestic/service water use

- √ Three years of product warranty
- √ No consumable parts needed for replacement
- √ Routine maintenance is made easy with auto backwash device equipped (Filter cleaning maintenance by season is recommended putting in place A more frequent cleaning and maintenance service is required in the poor water quality areas)

Water Production Capability

Model	Cylinder tank	Flow rate Liter/min
162103002	6"/150mm	2
162148006	6"/150mm	6
235195030	10"/250mm	30
365213120	16"/400mm	120

Note

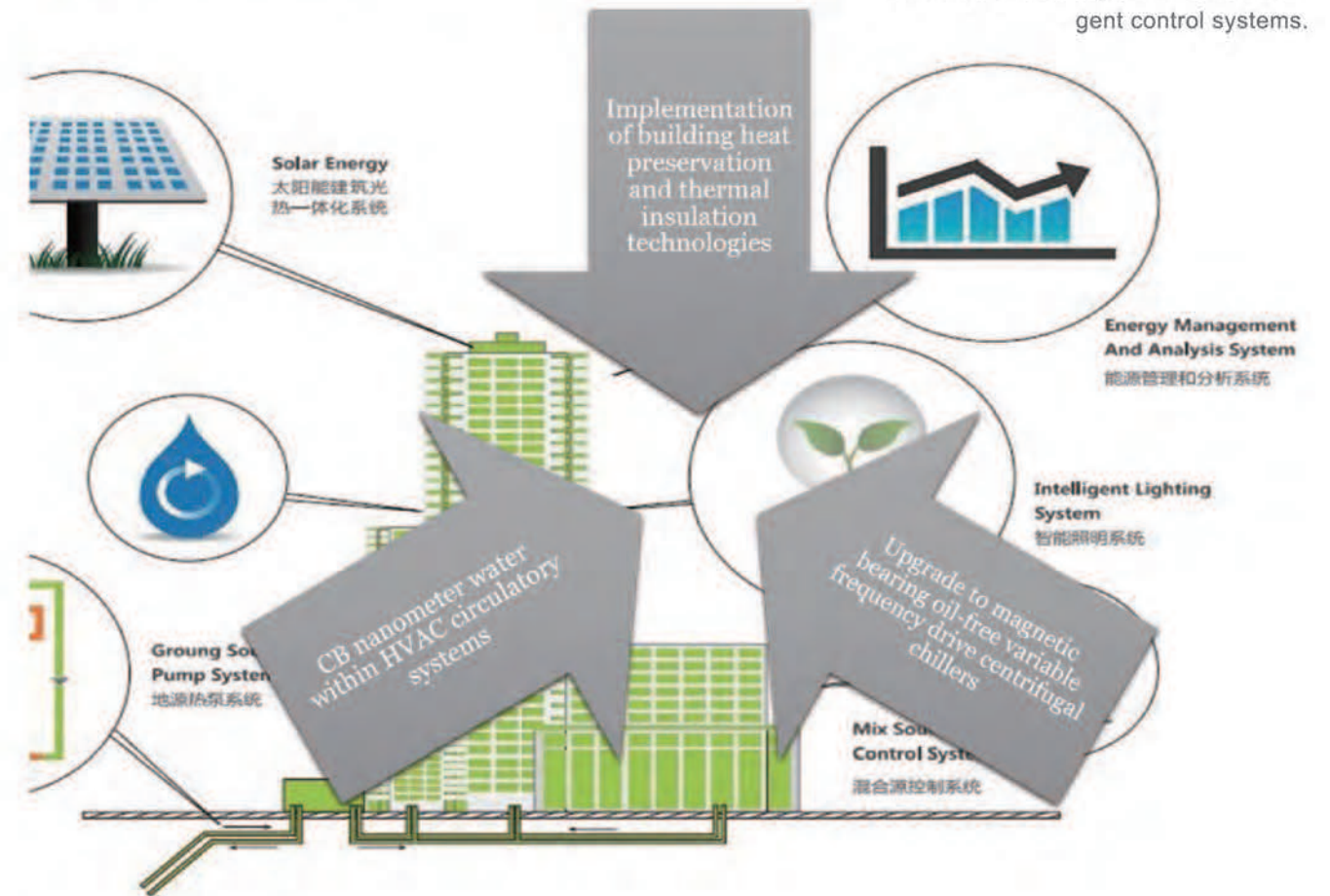
- Working pressure: 0.8~7Kg/cm²
- Minimum pressure 3kg/cm² required to match set flow rate respectively
- Flow rate measurement is on positive pressure force

Model Nr.: 365213120
Height: 1465mm
Dia.: 440mm



Implementation of New Energy-Saving Technologies

The deploying of feasible reliable technologies with commercially viable operation is benefited by energy conservation and efficient performance in optimal utilization of new advanced equipment and intelligent control systems.



Upgrade to magnetic bearing oil-free variable frequency drive centrifugal chillers



Employ the chiller units of energy label higher than the bureau of energy conservation announced, to effectively reduce energy consumption

Utilize centrifugal chiller units with variable frequency controls; Using well-performed chillers at partial (25~75%) load operation is required, which chillers maintain high running efficiency continuously.

Coefficient of performance (COP) at full load and Integrated part load value, IPLV are both considering factors with chillers operation cycle.

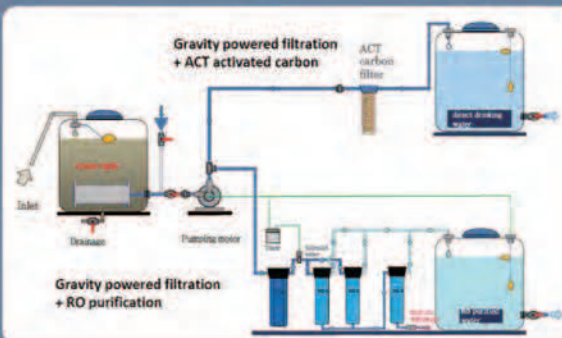


Output Rate	Via filter	Pros & Cons	Infrequent replacement with post-treatment filters
Gravity Powered 20~50LPM	ACT activated carbon 7.5LPM	Removal of soluble organic compounds Eliminating of Chlorine, color & foul taste	ACT (work with GP system) 3~6 months
	RO (8000 x 3pc) 3.5LPM	Removes heavy metals such as Pb, Hg, Cr, Cd, Al Bacteria removal efficiency up to 99.9%	ACT (work with GP system) 9~12 months
		Much reduced water generation rate (down to 40%) Electricity energy is required for RO purification system Auto-backwash mechanism keeps up stable supply of purified water	RO (work with GP system) 3 months RO (work with GP system) 9~12 months

The filtration system of gravity powered + ACT activated carbon suits your home needs in most cases. A PP resin filter is proposed if limescale removal in the drinking water is desired.
* Surface water such as river, lake, and rain water, produces no limescale deposits.

Reverse Osmosis purification system works to eliminate all contaminants, yet much reduced water generation rate than that of gravity powered filtration system.
** Electricity energy is required for RO purification system, meanwhile RO systems produce waste water.

**Save Lives, improve health
Make access to clean drinking water**

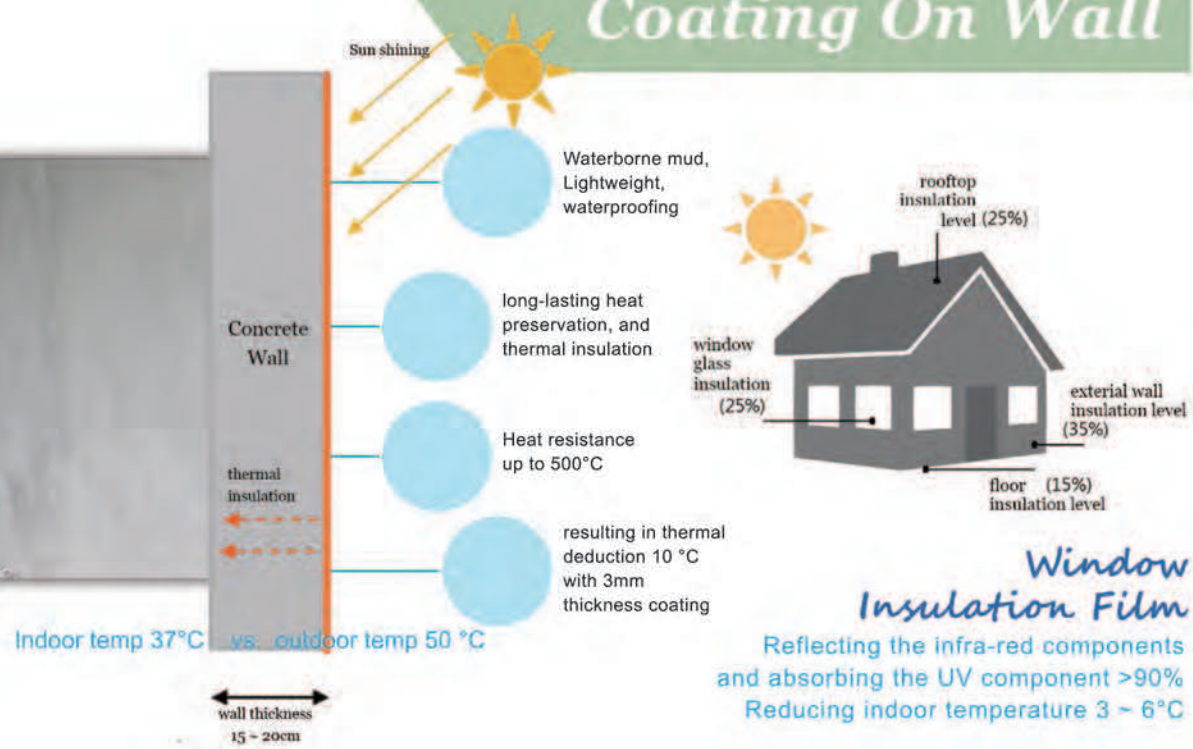


Contaminants	Gravity powered filtration	ACT carbon filter	PP exchange filter	Carbon filter	Filter type
Sand/Impurity/Rust	○	○	×	○	Sand/Impurity/Rust
Chlorine/VOC/Odor/Pesticide	○	○	×	○	Chlorine/VOC/Odor/Pesticide
Bacterial/Echinococcus/Microbes	○	○	×	×	Bacterial/Echinococcus/Microbes
<0.01um filtrable virus	○	○	×	×	<0.01um filtrable virus
Heavy metals, such as Pb, Hg, Cr, Cd, Al	○	○	△	×	Heavy metals, such as Pb, Hg, Cr, Cd, Al
Scale deposits (limescale)	×	○	×	×	Scale deposits (limescale)

Contaminants are processed per below illustrated:
○: effectively removed △: partially removed ×: no removal --: non-relevant



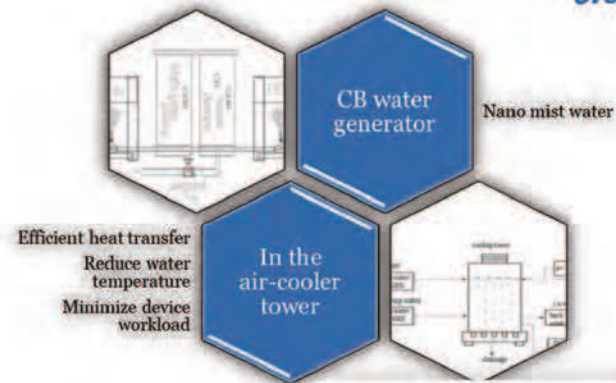
Thermal Insulation Coating On Wall



Window Insulation Film

Reflecting the infra-red components and absorbing the UV component >90%
Reducing indoor temperature 3 - 6°C

CB nano water generator system operates in the cooling tower intaking system



CB water generator creates nano mist water that produces highest surface contact areas in the air-cooler tower, operates efficient heat transfer to reduce water temperature at entering into next circulatory system.

Cold water out temperature at exiting tower needs to be lowest possible to minimize workload of next chiller device

Example:
 T_{in} : Warm Water entering tower, e.g.: 45°C
 T_{out} : Cold Water exiting tower, e.g.: 42°C
 T'_{out} : Processed mist water after CB generator works to decrease water temp exiting tower, e.g.: 38°C
 Est. energy bill conservation:
 $(42-38) \times (2-3)\% / C = 8-12\%$

Reducing energy use by 8-12% with a CB nano water generator building in place

