Quality Maker®

Restarsolar, power the life

GLOBAL PROFESSIONAL PV PRODUCTS INTERGRATED SOLUTIONS SUPPLIER

WWW.RESTARSOLAR.COM

RTM-50P

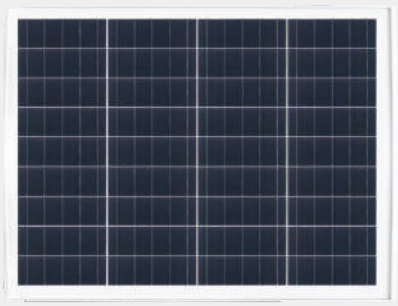
36 Cells
Poly-crystalline

50W
Power output

13.44%
The Highest Efficiency

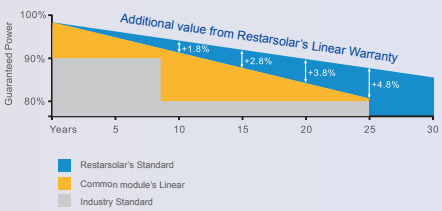
0~+5W
Tolerance

RTM-50P is a robust solar module with 36 solar cells.These modules can be used for on-grid solar applications.Our meticulous design and production techniques ensure a high-yield,long-term performance for every module produced.Our rigorous quality control and in-house testing facilities guarantee Resun Solar's modules meet the highest quality standards possible.



- **High module conversion efficiency (up to 13.44%), through superior manufacturing technology**
- **Guaranteed 0-+5W positive power output tolerance ensures high reliability**
- **Anti-reflective,hydrophobic coating improves light absorption and reduces surface dust**
- **Excellent performance under low light environments (mornings,evenings and cloudy days)**
- **Suitable for harsh environments,such as coasts, deserts and lakes Withstand high level of wind loads(2400pa) and snow loads(5400pa)**

0.5% Annual Degradation over 30 years



LINEAR PERFORMANCE WARRANTY
12 year Product Warranty / 30 year Linear Power Warranty

Full range of products and certification systems

ISO 9001 TUV PID-FREE CE IEC61215/61730/61701/62716

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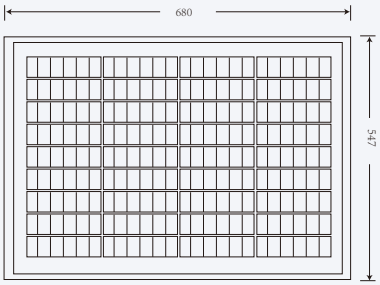
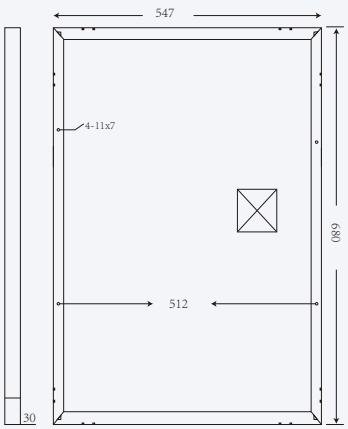
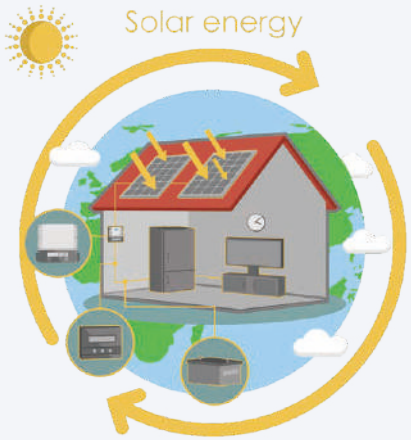
Dimension of PV Modules Unit: mm







GLOBAL PROFESSIONAL PV PRODUCTS
INTERGRATED SOLUTIONS SUPPLIER

ELECTRICAL DATA(STC)

Rated Power in Watts-Pmax(Wp)	**50W**
Open Circuit Voltage-Voc(V)	22.68V
Short Circuit Current-Isc(A)	2.94A
Maximum Power Voltage-Vmp(V)	18.54V
Maximum Power Current-Imp(A)	2.70A
Module Efficiency (%)	13.44%

STC: Irradiance 1000 W/m², Cell Temperature 25°C, Air Mass AM1.5 according to EN 60904-3.

ELECTRICAL DATA(NOCT)

Maximum Power-Pmax (Wp)	36.98W
Open Circuit Voltage-Voc (V)	21.70V
Short Circuit Current-Isc (A)	2.28A
Maximum Power Voltage-Vmp(V)	17.20V
Maximum Power Current-Imp(A)	2.15A

NOCT: Irradiance at 800 W/m², Ambient Temperature 20°C, Wind Speed 1 m/s.

MECHANICAL DATA

Solar cells	Poly-crystalline 156x52mm 4 or 5 Bus bars
Cell configuration	36 cells(4x9)
Module dimensions	680x547x30 mm
Weight	5.0KGS
Front Cover	3.2mm Tempered Glass
Frame Material	Anodized Aluminum Alloy
J-BOX	IP65 or IP67, 2 Diodes
Cable	2.5mm2(IEC)/12AWG(UL),900mm
Connectors	MC4 or MC4 Comparable
Standard Packaging	5pcs/suite box

TEMPERATURE & MAXIMUM RATINGS

Nominal Operating Cell Temperature (NOCT)	45°C±2°C
Temperature Coefficient of Voc	-0.32%/°C
Temperature Coefficient of Isc	0.05%/°C
Temperature Coefficient of Pmax	-0.39%/°C
Operational Temperature	-40~+85°C
Maximum System Voltage	1000V(IEC)/600V(UL)
Max Series Fuse Rating	10A
Limiting Reverse Current	10A

Intelligent Solar Charge Controller

User's Manual

--FD15.22.V01

Please read this manual carefully before you use this product.

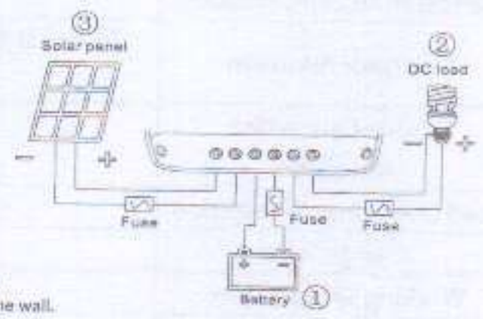
1. Product Introduction

AT.LT.FT controller is a kind of intelligent, multi-purpose solar charge and discharge controller. Fixed LCD display with a very friendly interface is used in this product; various control parameters can be flexibly set, fully meet your various application requirements. series controller has following features:

- Image of LCD graphic symbol
- Automatic Identification of System Voltage level
- Automatic Temperature Compensation (custom)
- Settable Operating mode of Load
- Battery Low Voltage Disconnection (LVD)
- Overcurrent protection.
- Simple button operation
- Intelligent PWM charging mode
- Adjustable charge-discharge control parameters
- Battery reverse-discharge protection
- Battery reverse connection protection

2. Installation

3. Install:



2.1 Ready tools and cables. Right cables are recommended. Ensuring that the current density $<4mm^2$, which is conductive to reducing the line voltage drop. Recommended: 20A with $6mm^2$ cable. Check weather the installation sites compliance with the relevant safety requirements. Please avoid using or installing the controller in damp, dusty places or places with flammable, explosive and corrosive gases.

2.2 Install the controller into a fixed vertical plane. In order to ensure good ventilation and heat dissipation, please keep the instance over 10cm around the inverter and also between the backboard of the inverter and the wall.

2.3 To connect the controller and the battery by cables with right polarity. The battery indicator light on the controller will be on if successfully connected, otherwise, to check and reconnect

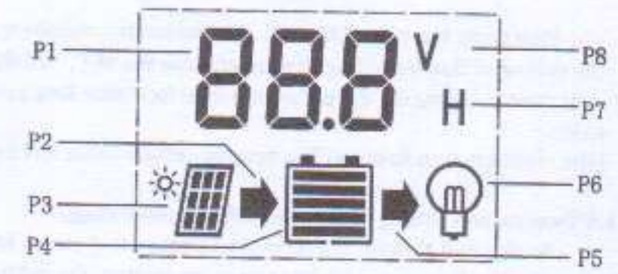
2.4 To connect the solar panel and the controller by cables with right polarity. If there is sunshine, the battery indicator light will be on in a circular manner to indicate right connection, otherwise, to check and reconnect.

2.5 To connect your load and the cables with right polarity and then connect with the load output port of the controller. Pay special attention to +-polarity to avoid reversed connection, otherwise, your load may be damaged.

Demolition: In case of any accident, please disconnect the solar panel, battery and load with controller in order.

Note : Reversed battery polarity will not damage the controller, but you may bear security risks on your load equipments.

3. Operation



1 Description of LCD graphic symbol

P1: Digital parameters.

P2: Charging indication. This symbol indicates that the solar panel is charging the battery; without this symbol means solar panel can not charge the battery because of low voltage. If the symbol is flickering, means the battery is fully charged and has entered float charging state.

P3: Indication for solar panel. This symbol indicates that the connection of solar panel is detected by controller; without this symbol means the connection of solar panel can not be detected, or there i no sunshine on the solar panel.

P4: 5 bars battery power indication.

P5: Discharging indication. This symbol indicates that controller is in output state, otherwise not in the output state. The flickering of thi symbol indicates the damages of internal control devices.

P6: load indication. This symbol indicates that controller is in output state, otherwise not in the output state. The flickering of this symbo indicates overload or the damage of the load.

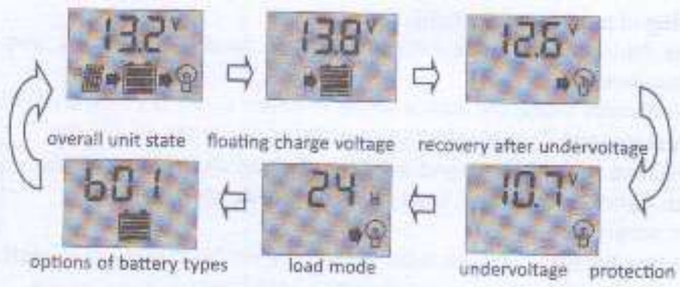
P7: H stands for hour.

P8: V stands for the unit of voltage.

2 Description of Button Function:

MENU: Interface loop switch button, use the button to cycle between pages in each switch cycle sequence shown in (figure 1). Moreover, this button can perform the function of "add" in the parameter setting state.

SET: This button can open or shut off load in the main interface. It can perform the function of "minus" in the parameter setting state.



3 Viewing and setting the parameters:

The controller will default entry "battery voltage" interface after correct power-on. This is the main interface. Use the button **MENU** could in turn visit the following parameters interface. If the parameters in that interface could be set, long press the button **MENU** (> 5seconds, numbers start flashing) to enter the parameter setting interface; calling off the parameter interface after long press the button **MENU** again. (The numbers stop flashing)

3.1 Overall unit state

This interface shows the overall unit state (pictured at right)

It is the default interface after correct power-on, showing charging and discharging state, 5 bars battery power indication and the voltage of the battery.

3.2 Opening and shutting off the load

You can use the **SET** button on the faceplate to open or shut off the load in the default interface.

Note: There is no such function for this button in other interface.

3.3 Viewing and setting the floating voltage.

As pictured at right, the floating charge voltage is showed. When the battery reaches the floating voltage, the controller will maintain the voltage values by PWM charging mode to avoid overcharge.

long press the button **MENU** （>5seconds，numbers start flashing）to finish the setting of floating voltage values and use the **SET**、**MENU** button to adjust the parameter; calling off the parameter interface after long press the button **MENU** again.

(The numbers stop flashing) The floating voltage value will be conserved by controller.

3.4 Viewing and setting of recovery after undervoltage

As pictured at right, the recovered voltage is showed. After the controller performs the function of under-voltage protection, the output of the load will be recovered as soon as the battery voltage recovers to higher than the under-voltage value.

long press the button **MENU** （>5seconds，numbers start flashing）to enter the setting interface of recovery after undervoltage; long press the button **MENU** again

(The numbers stop flashing) to call off the parameter interface after finish setting.

Setting value will be conserved by controller.

3.5 Viewing and setting of under-voltage protection

As pictured at right, the value for under-voltage protection is showed. The controller will cut off load circuit when batter voltage is lower than this value, in order to avoid over discharge of the battery.

long press the button **MENU** （>5seconds，numbers start flashing）to enter the setting interface of under-voltage protection and use the **SET**、**MENU** button to adjust the parameter; long press the button **MENU** again (The numbers stop flashing) to call off the parameter interface after finish setting. Setting value will be conserved by controller.

3.6 Viewing and setting of load working mode

As shown in the figure at right, the interface of load mode is displayed, and different numbers represent different load modes.

24h represents Normal Mode; the load is always in power under the fault-free circumstance.

1h～23h represents Light Control with Time Control Mode; at this mode, the controller will start the load after darkness and will close the load after setting hours.

0h—represents Light Control Mode; Load will be on power after darkness, turn off the load after drawn.

long press the button **MENU** （>5seconds，numbers start flashing）at this interface to activate the setting interface of load working modes and use the **SET**、**MENU** button to adjust the parameter; long press the button **MENU** again (The numbers stop flashing) to call off parameter interface after finish setting. Setting value will be conserved by controller.

3.7 Viewing and setting of battery types

As pictured at right, different numbers represent different types of Battery.

b00：Lithium battery (other controls parameters need to be adjusted to match the battery)

b01：Sealed battery (default type for the controller)

b02：Vented battery

b03：Gel battery

long press the button **MENU** （>5seconds，numbers start flashing）at this interface to activate the battery type and use the **SET**、**MENU** button to adjust the parameter; long press the button **MENU** again (The numbers stop flashing) to call off parameter interface after finish setting. Setting value will be conserved by controller.

4. Common Fault and Handling

4.1Under-voltage protection and treatment:

shows up and flash on the screen means the battery voltage is lower than the under-voltage protection voltage. The controller has enter the under-voltage protection state and the output has been stopped.

Solution: Using solar panel or battery charger to charge battery, when the battery voltage reaches the recovery value, the load will be on power again and enter normal working state.

4.2Overload protection and treatment:

shows up and flash on the screen, it means the occurrence of overcurrent or short circuit. The controller will stop output and enter overload protection state.

Solution: After solving the problem of output short circuit and reducing the load, press the button **SET** to restore power to the load.

4.3Input overvoltage and handling:

shows up and flash on the screen means the battery input voltage of the controller is higher than rated input voltage, controller will stop output and enter overvoltage protection state.

Solution: 1. please choose battery with appropriate voltage grade to connect with controller; 2. other charger for the battery to be removed.

5. Quality Assurance

1. Quality assurance should be carried out according to the following rules:

- the product is guaranteed of replacement, returning and repairing within 7 days after Sale.
- the product is guaranteed of replacement and repairing within 1 month after sale.
- the product is guaranteed of repairing within 12 months after sale.

2. If it is not possible to identify the using date of the controller, we would refer to the ex-work date, and prescribe 18 months as the warranty period. We need to charge beyond the warranty period. The controller can be repaired for life no matter when and where you use it.

3. If the controller is damaged by the following causes, we need to charge even if it is in the guarantee period:

- do not operate according to the user's manual.
- use the controller under the condition which is beyond the using standard and technical requirements.
- Repair by yourself or reform by yourself.
- Any inappropriate environmental condition which can cause the breakdown and aging of the apparatus.
- Improper carrying or storage.

- Regarding to the service of replacement, returning and repairing, you need to retreat the product to our company, and we decide whether to replace or repair after we make clear who should be responsible.

6. Technical data

Max. charge Current	10A	20A	30A
System voltage	12/24V		
Max. input voltage	50V		
Suitable Battery type	Sealed、GEL 、Flood		
LVD	11.0V ADJ 9V..12V		
LVR	12.6V ADJ 11V..13.5V		
Float Voltage	13.8V ADJ13V..15V		
Boost Charging	14.4V		
BatteryOverVoltageProtection	16.5V		
Temperature Compensation	-24mV/℃ for 12V system		
Points for Attention	Technical data for 12V battery system at 25 ℃, twice in 24V battery system		
ReverseConnection Protection	yes		
Load OverCurrent Protection	Yes, each two minutes restsrt once		
Charge Type	PWM		
Working Temperature	-20℃---+55℃		
Terminal Scale	28---10 AWG		
Waterproof Grade	IP32		

KB12180 12V 18Ah

The KB Standard series consists in VRLA batteries - AGM technology (Absorbent Glass Mat), with a design life of 3-5 years and it is designed for general applications such as UPS, telecommunications and electrical applications.

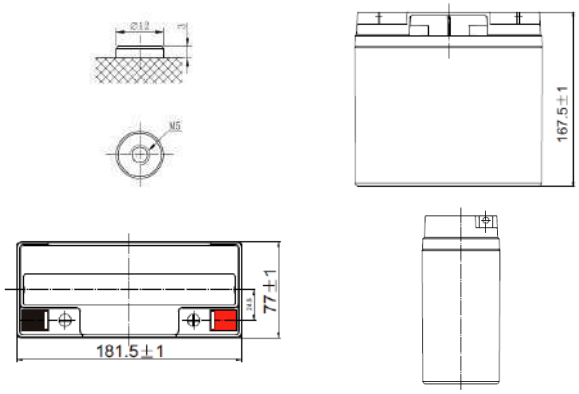
Performance Characteristics

Nominal Voltage	12V	
Dimensions	Length (mm / inch)	181.5 / 7.14
	Width (mm / inch)	77 / 3.03
	Height (mm / inch)	167.5 / 6.59
	Total Height (mm / inch)	167.5 / 6.59
Approx Weight	(Kg / lbs)	5.4 / 11
Design Life	5 years	
Terminal	M5	
Container Material	ABS	
Rated Capacity	18.0Ah / 0.90A	(20hr, 1.80V / cell, 25ºC / 77ºF)
	16.7Ah / 1.67A	(10hr, 1.80V / cell, 25ºC / 77ºF)
	15.1Ah / 3.03A	(5hr, 1.75V / cell, 25ºC / 77ºF)
	11.1Ah / 11.1A	(1hr, 1.60V / cell, 25ºC / 77ºF)
Max. Discharge Current	270A (5s)	
Internal Resistance	Approx 16mΩ	
Operating Temp. Range	Discharge : -15 ~ 50ºC (5 ~122ºF)	
	Charge : 0 ~ 40ºC (32 ~ 104ºF)	
	Storage : -15 ~ 40ºC (5 ~ 104ºF)	
Nominal Operating Temp. Range	25 ± 3ºC (77 ± 5ºF)	
Cycle Use	Initial Charging Current less than 5.4A	
	Voltage: 14.4V ~ 15.0V at 25ºC (77ºF)	
	Temp. Coefficient: -30mV/ºC	
Standby Use	No limit on Initial Charging Current	
	Voltage: 13.5V ~ 13.8V at 25ºC (77ºF)	
	Temp. Coefficient: -20mV/ºC	
Capacity affected by Temperature	40ºC (104ºF)	103%
	25ºC (77ºF)	100%
	0ºC (32ºF)	86%
Self Discharge	Fully charged Kaise Standard Series batteries may be stored for up to 6 months at 25ºC (77ºF) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

Discharge Constant Current (Amperes) at 77ºF (25ºC)

Volts/cell	5min	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	40.8	30.2	25.9	16.7	9.79	4.34	2.94	1.67	0.900
1.75V	45.8	33.0	27.8	17.4	10.2	4.49	3.03	1.70	0.918
1.70V	49.9	35.4	29.7	18.1	10.6	4.63	3.09	1.72	0.929
1.65V	53.8	37.7	31.1	18.9	10.9	4.73	3.14	1.74	0.938
1.60V	57.9	39.6	31.9	19.3	11.1	4.82	3.20	1.76	0.945

Dimensions and Terminal (Unit: mm (inches))



Applications

Alarm systems
Cable television
Communications Equipment
Control Equipment
Computers
Electronic Cash Registers
Electric Test Equipment
Emergency lighting systems
Fire & Security
Geophysical equipment
Marine equipment
Medical equipment
Micro processor based office machines
Portable cine & Video lights
Solar powered systems
Telecommunications systems
Television & Video recorders
Toys
Uninterruptible power supply systems
Vending machines

Certifications

ISO 9001:2008 ISO 14001:2008

Discharge Current vs. Discharge Voltage

Final discharge voltage V/CELL	1,8	1,75	1,7	1,6
Discharge current (A)	I ≤ 0,1CA	0.25CA ≥ I > 0.1CA	0.55CA ≥ I > 0.25CA	I > 0.55CA

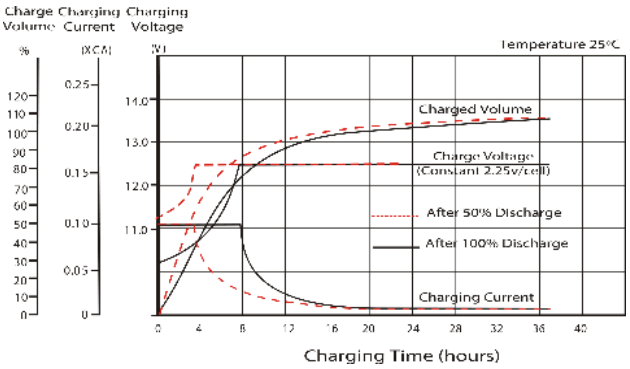
Discharge Constant Power (Watts per cell) at 77ºF (25ºC)

Volts/cell	5min	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	76.3	57.2	49.5	32.4	19.2	8.59	5.86	3.36	1.81
1.75V	84.8	62.0	52.8	33.6	20.0	8.87	6.02	3.39	1.82
1.70V	91.1	65.6	55.7	34.7	20.6	9.06	6.08	3.42	1.83
1.65V	96.6	68.8	57.5	35.8	21.0	9.19	6.15	3.43	1.84
1.60V	101.5	70.8	58.0	36.0	21.3	9.31	6.22	3.45	1.85

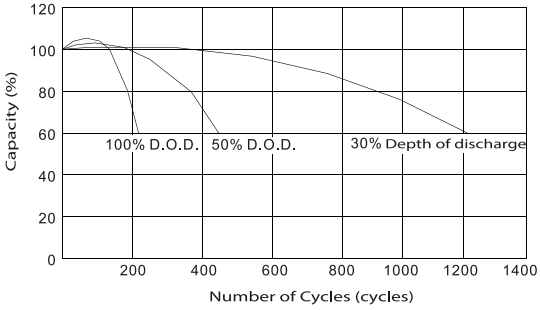
(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the mimimum values.

KB12180 12V 18Ah

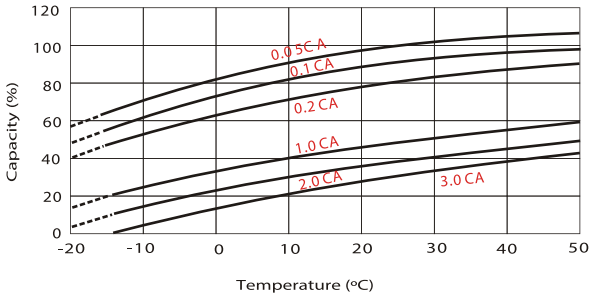
Charging Characteristics (float use)



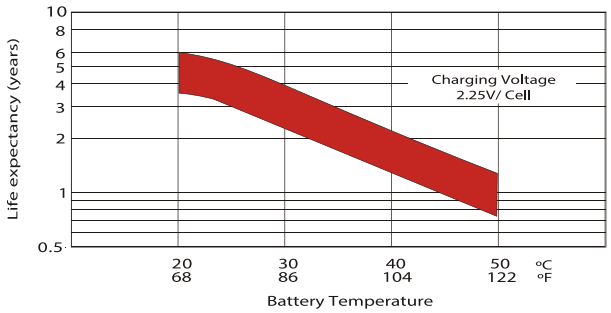
Cycle Life in Relation to Depth of Discharge



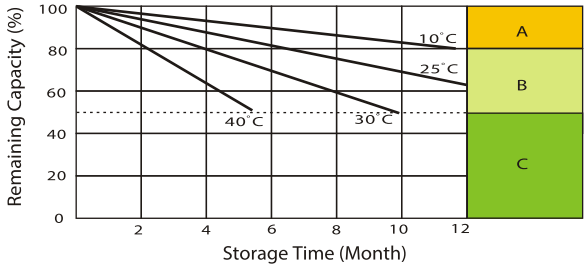
Temperature Effects in Relation to Battery Capacity



Effect of Temperature on Long Term Float Life



Self Discharge Characteristics



A No supplementary charge required
(carrry out supplementary charge before use if 100% capacity is required)

B Supplementary charge required before use . Optional charging way a below:
1. Charged for above 3 days at limited current 0.25 CA and constant voltage 2.25V / cell.
2. Charged fo above 20 hours limited current 0.25CA and constant voltage 2.45V / cell.
3. Charged for 8-10 hours ar limited current 0.05 CA.

C Supplementary charge often fail to recover the capacity.
The battery should never be left standing till this is reached.

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.

2018/V1/L

Contacto
energy@tempelgroup.com
www.tempelgroup.com

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SANTIAGO DE CHILE · BOGOTÁ · SÃO PAULO · CIUDAD DE MÉXICO · CIUDAD DE PANAMÁ · MONTEVIDEO
· QUITO

FICHA TÉCNICA DE PRODUCTO

DESVIADOR DE RAYOS

DESCRIPCIÓN DEL PRODUCTO	DESVIADOR DE RAYOS
El desviador de rayos es implementado en las cercas eléctricas cumpliendo la función de proteger el impulsor contra las descargas atmosféricas.	

ESPECIFICACIONES TÉCNICAS

PESO:	344 gramos
DIMENSIONES:	9,0 cm de largo x 9,0 cm de ancho aproximadamente
MATERIAL:	Lámina de hierro tropicalizada, chisperos en abs
COLOR:	Negro
PRESENTACIÓN:	Individuales

RECOMENDACIONES DE USO

Se instala al inicio de la cerca , su función es disipar la potencia que alcanza a llegar a la cerca de una descarga eléctrica logrando evitar una afectación en el impulsor, se requiere de al menos 3 varillas copperweld para que haga una buena conductividad a tierra y la descarga eléctrica pueda ser dirigida a tierra. Se recomienda la instalación de más desviadores de rayos en todo el cercado, ya que entre más de ellos esten instalados mejor protección tendrá la cerca.

VENTAJA COMPETITIVA

1. Evita que la descarga se dirija hacia el sistema eléctrico de la casa por medio del impulsor en caso de estar conectado a la red domiciliaria.
2. El impulsor es protegido de las descargas eléctricas por medio del desviador de rayos.
3. Material totalmente aislante.

Manufacturado por Grupo Empresarial DRG S.A.S
Más información en www.tauruscolombia.co
Carrera 48 N° 67-59 Medellin - Antioquia
Email: accesoriostaurus@gmail.com
Contacto: +57 3115469249

CONECTORES SOLARES MC4

MODELOS: CTR-MC4-H-8AWG, CTR-MC4-M-8AWG y CONEC-MC4-HEMBRA, CONEC-MC4-MACHO

ESPECIFICACIONES

Conector MC4 marca CONNERA especiales para conexiones rápidas y versátiles entre los polos positivos y negativos de una instalación fotovoltaica con la finalidad de reducir tiempo y dinero.

VENTAJAS

- Instalación más ágil
- Resistente
- Ligero
- Compatible con cualquier conector MC4
- Fácil de usar
- Dos tipos de conectores (vendidos por separado):
  CTR-MC4-H-8AWG y CTR-MC4-M-8AWG
  CONEC-MC4-HEMBRA y CONEC-MC4-MACHO

CARACTERÍSTICAS DE OPERACIÓN

Máximo voltaje:	2000 Vcd
Máxima corriente:	60 A (Para calibre de 8 AWG)
Máxima corriente:	30 A (Para calibre de 10 AWG)
Grado de protección:	IP68
Rango de temperatura:	-40°C~+85°C

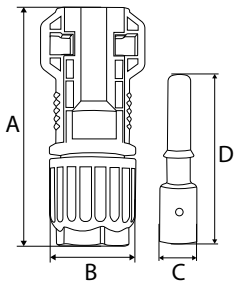
TABLA DE ESPECIFICACIONES

Código	Calibre del cable	Tipo de conexión	Máximo Voltaje (Vcd)	Máxima corriente (A)
CTR-MC4-H-8AWG	8 AWG	HEMBRA	2000	60
CTR-MC4-M-8AWG		MACHO		
CONEC-MC4-HEMBRA	10/12 AWG	HEMBRA		30
CONEC-MC4-MACHO		MACHO		

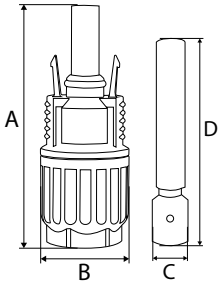
DIMENSIONES Y PESO

Dimensiones	Dimensiones en milímetros				Peso (g)
Modelo	A	B	C	D	
CTR-MC4-H-8AWG	59	21.5	4.6	30	10
CTR-MC4-M-8AWG				37	
CONEC-MC4-HEMBRA	59.8	18.5	3.6	28	
CONEC-MC4-MACHO	58.4			34	

8 AWG

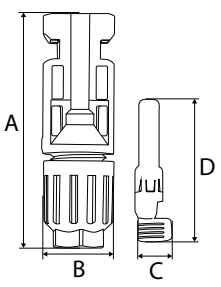


CONECTOR HEMBRA

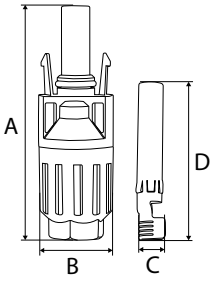


CONECTOR MACHO

10 AWG

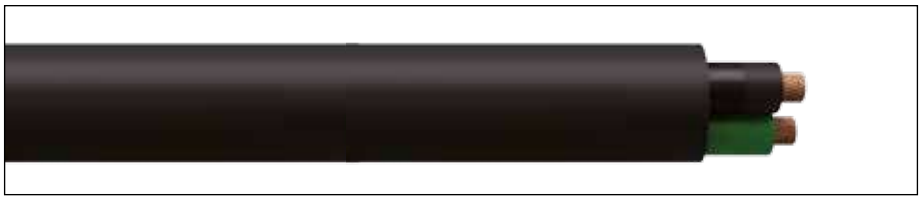


CONECTOR HEMBRA



CONECTOR MACHO

TERMOFLEX MULTIPROPÓSITO(*)



N° cond.	Calib.	Espesor de aislamiento				Espesor de chaqueta		Diámetro exterior		Masa total		Capacidad de corriente*		Capacidad de corriente**	
		PVC	Nailon	PVC	Nailon										
	AWG	mm	mm	mils	mils	mm	mils	mm	in	kg/km	lb/kft	A(1)	A(2)	A(1)	A(2)
2	18	0,51	0,1	20	4	0,76	30	6,6	0,26	60	40	-	10	-	20
3	18	0,51	0,1	20	4	0,76	30	7,0	0,276	72	48	7		16	
4	18	0,51	0,1	20	4	0,76	30	7,6	0,299	87	58				
2	16	0,51	0,1	20	4	0,76	30	7,2	0,283	76	51	-	13	-	25
3	16	0,51	0,1	20	4	0,76	30	7,7	0,303	94	63	10		21	
4	16	0,51	0,1	20	4	0,76	30	8,4	0,331	115	77				
2	14	0,51	0,1	20	4	0,76	30	8,0	0,315	102	69	-	18	-	35
3	14	0,51	0,1	20	4	0,76	30	8,5	0,335	126	85	15		30	
4	14	0,51	0,1	20	4	0,76	30	9,3	0,366	155	104				
2	12	0,51	0,1	20	4	0,76	30	9,0	0,354	139	93	-	25	-	40
3	12	0,51	0,1	20	4	0,76	30	9,6	0,378	174	117	20		35	
4	12	0,51	0,1	20	4	1,14	45	11,3	0,445	235	158				
2	10	0,64	0,1	25	4	1,14	45	11,5	0,453	226	152	-	30	-	50
3	10	0,64	0,1	25	4	1,14	45	12,2	0,480	282	189	25		45	
4	10	0,64	0,1	25	4	1,14	45	13,4	0,528	350	235				
2	8	0,89	0,13	35	5	1,52	60	15,0	0,591	381	256	-	40	-	65
3	8	0,89	0,13	35	5	1,52	60	15,9	0,626	475	319	35		60	
4	8	0,89	0,13	35	5	1,52	80	17,5	0,689	587	394				
2	6	0,89	0,13	35	5	2,03	80	18,8	0,740	589	396	-	55	-	90
3	6	0,89	0,13	35	5	2,03	80	19,9	0,783	731	491	45		85	
4	6	0,89	0,13	35	5	2,03	80	21,8	0,858	903	607				

* Capacidad de corriente permitida, basada en una temperatura de 60 °C en el conductor y 30 °C de temperatura ambiente. Temperatura límite 60 °C, según NTC 2050, numeral 110-14c.

** Capacidad de corriente permitida, basada en temperatura de 105 °C (221 °F) en el conductor y 30 °C (86 °F) de temperatura ambiente.

A(1), A(2): Capacidad de corriente bajo encabezado A(1) son para cables de tres conductores conectados a equipos de utilización de modo que sólo tres conductores transporten corriente. Las capacidades de corriente bajo el encabezado A(2) son para cables de dos conductores conectados a equipos de utilización de modo que sólo dos conductores transporten corriente.

Nota: Cableado clase K para calibres del 18 al 14 AWG. Cableado clase K o J, para calibres 12 AWG y mayores.

(*) Las certificaciones de este producto están otorgadas de manera individual y no integral.

Aplicaciones:

Pueden ser instalados casi en cualquier aplicación industrial, comercial o residencial así:

- Cordones flexibles para instalaciones de electrodomésticos y en instalaciones portátiles.
- Instalación de fuerza, control y alumbrado en lugares donde se requiere una mayor temperatura ambiente, resistencia mecánica y extra flexibilidad en la instalación.
- En conexión de máquinas herramientas (MTW) y en conexiones internas y externas de electrodomésticos en general (AWM).
- Como extensiones para alimentación de equipos de soldadores, taladros, caladoras, pulidoras cortadoras entre otros.
- Se usa en conexión de motores y en general en la distribución de la energía eléctrica.

Construcción:

Conductor de cobre extraflexible de dos, tres o cuatro fases, aislamiento en PVC, cubierta de nylon y chaqueta exterior en PVC. El PVC está formulado para alta resistencia a la propagación de la llama.

Características:

- Tensión máxima de operación: 600 V. (Puede operar a 1000 V en aplicaciones AWM).
- Temperatura máxima de operación: 105 °C.
- Tratamiento térmico adicional para ofrecer la ductilidad precisa en la aplicación de conductores extraflexibles.
- Resistencia a los aceites, a la luz solar y a la abrasión.
- Apto para instalación en bandejas portacables.
- Apto para enterrado directo y bombas sumergibles.

Normas:

- UL 1277
- UL 83 / UL 1063
- UL 758
- NTC 5521
- NTC 5916
- NTC 1332

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INTER ELECTRICAS

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Ficha técnica puente para batería genérico 16 encauchado 50 cm

✅ Fabricados con materiales conductores de alta calidad, como el cobre, para garantizar una conductividad eléctrica óptima.

✅ Diseñados para soportar corrientes eléctricas elevadas y condiciones ambientales adversas.

✅ Disponibles en diferentes longitudes y tamaños para adaptarse a las necesidades del sistema eléctrico.

✅ Fácil instalación utilizando herramientas estándar.

✅ Compatibles con diferentes tipos de baterías y sistemas eléctricos.

THHN/THWN-2 CT

Aplicaciones:

Se usa en instalaciones eléctricas de fuerza, control y alumbrados en interiores o exteriores de tipo residencial, comercial e industrial. Pueden instalarse en bandejas portacables (CT), ductos y canalizaciones, en sitios secos y mojados.

Construcción:

Conductor de cobre (blando, sólido, cableado concéntricamente o unidireccional combinado UDC), aislado con PVC para 90 °C, con chaqueta de nailon.

Características:

- Tensión máxima de operación: 600 V.
- Temperatura máxima de operación: 90 °C, en ambiente seco o mojado.
- Resistente a la humedad, al calor, abrasión, elementos químicos, aceites y gasolina.
- Retardante a la llama.
- Colores disponibles: negro, blanco, rojo, azul, verde y amarillo (calibres 14 a 8 AWG). Negro (calibres 6 AWG y mayores).

Normas:

- NTC 1332
- UL 83

Nota: De acuerdo con el RETIE, los cables de diámetro mayor o igual a 12 AWG son aptos para instalación en bandeja portacables.

Calibre	Nº hilos	Espesor de aislamiento		Espesor chaqueta de nailon		Diámetro exterior		Masa total		Capacidad de corriente	
AWG / kcmil	Nº	mm	mils	mm	mils	mm	in	kg/km	lb/kft	A*	A**
14	1	0,38	15	0,1	4	2,69	0,106	23,3	15,6	25	35
12	1	0,38	15	0,1	4	3,11	0,123	35,1	23,6	30	40
10	1	0,51	20	0,1	4	3,91	0,154	55,9	37,5	40	55
14	7	0,38	15	0,1	4	2,9	0,114	24,7	16,6	25	35
12	7	0,38	15	0,1	4	3,38	0,133	37,2	25	30	40
10	7	0,51	20	0,1	4	4,26	0,168	59,2	39,8	40	55
8	7	0,76	30	0,13	5	5,5	0,216	96,3	64,7	55	80
6	7	0,76	30	0,13	5	6,41	0,252	146,0	98,1	75	105
4	7	1,02	40	0,15	6	8,18	0,322	233,8	157	95	140
2	7	1,02	40	0,15	6	9,65	0,380	358,0	241	130	190
1	19***	1,27	50	0,18	7	11,2	0,442	454,2	305	150	220
1/0	19***	1,27	50	0,18	7	12,2	0,482	562,9	378	170	260
2/0	19***	1,27	50	0,18	7	13,3	0,525	698,8	470	195	300
3/0	19***	1,27	50	0,18	7	14,6	0,576	869,6	584	225	350
4/0	19***	1,27	50	0,18	7	16,00	0,632	1083	728	260	405
250	37	1,52	60	0,2	8	17,8	0,700	1286	864	290	455
300	37	1,52	60	0,2	8	19,1	0,753	1529	1027	320	500
350	37	1,52	60	0,2	8	20,4	0,803	1772	1191	350	570
400	37	1,52	60	0,2	8	21,5	0,848	2013	1352	380	615
500	37	1,52	60	0,2	8	23,7	0,931	2495	1676	430	700
600	61	1,78	70	0,23	9	26,2	1,032	3001	2017	475	780
750	61	1,78	70	0,23	9	28,8	1,134	3720	2500	535	850
1000	61	1,78	70	0,23	9	32,6	1,283	4914	3302	615	1055

* Capacidad de corriente permitida en conductores aislados para 90 °C: no más de tres conductores que transportan corriente en canalización, cable o tierra (directamente enterrados) con base en una temperatura ambiente de 30 °C.

** Capacidad de corriente al aire.

*** Cableado concéntrico o UDC para calibres del 1 al 4/0 AWG de 19 hilos.

Nota: La información que corresponde al conductor se encuentra en la referencia cable concéntrico de cobre.

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