TOMMATECH GmbH

GERMAN-based company

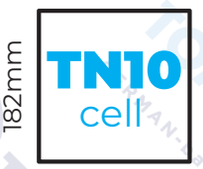
MARINE

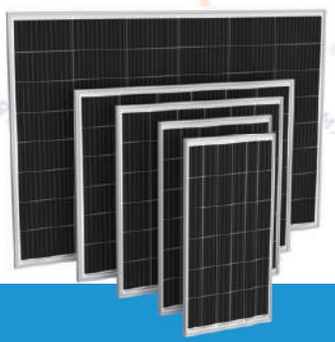
Boat and Caravan Systems

2023

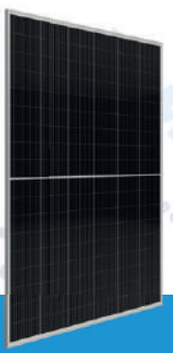
MARINE CATALOG

SOLAR PANELS





TommaTech
M12 PERC Monocrystalline
Small Panels
45-240Wp



TommaTech M6 Half-Cut
MB PERC Monocrystalline
Solar Panels
108PM12 550Wp

TommaTech TN10 Half-Cut
TOPCON Monocrystalline
Solar Panels
108TN10 425Wp

TommaTech Flexible Series
Solar Panels
170-110-Wp

TommaTech Easy Life Series
Mobile Solar Charging Panels
25-15Wp

www.tommatech.de
mail@tommatech.de

PERC MONOCRYSTALLINE 36-48PM12

TOMMATECH GmbH

GERMAN-based company

- TT240-48PM12
- TT120-36PM12
- TT090-36PM12
- TT060-36PM12
- TT045-36PM12

2 YEARS Product Warranty

High Conversion Efficiency
High panel efficiency to guarantee high power output

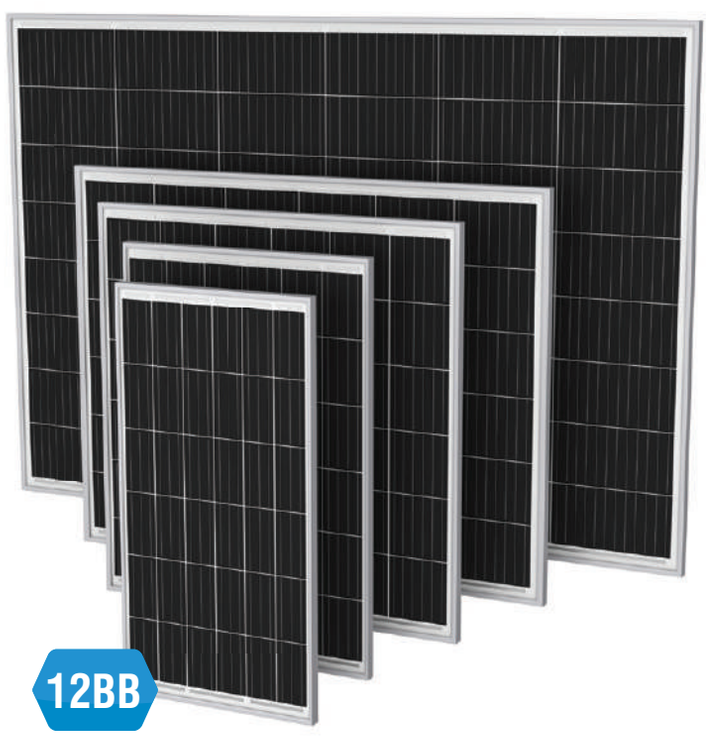
Self-Cleaning And Anti-Reflection Glass
Coating glass for self-cleaning reduces surface dust

Outstanding Low Irradiation Glass
Outstanding panel performance even in weak light conditions

Excellent Durability
Wind load up to 2400 Pa, Snow load up to 5400 Pa

0～+5W Positive Power Tolerance

Easy Installation



ISO PV CYCLE CE

ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

SOMPO SİGORTA

www.tommatech.de
mail@tommatech.de

Half Cut

TOMMATECH GmbH
GERMAN-based company

Model Type	TT045 36PM12	TT060 36PM12	TT090 36PM12	TT120 36PM12	TT240 48PM12
Peak Power (P_{max})	45 Wp	60 Wp	90 Wp	120 Wp	240 Wp
Maximum Power Voltage (V_{mp})	20.77	20.77	20.77	20.77	27.70
Maximum Power Current (I_{mp})	2.17	2.90	4.34	5.78	8.67
Open Circuit Voltage (V_{oc})	24.37	24.37	24.37	24.37	32.50
Short Circuit Current (I_{sc})	2.34	3.04	4.55	6.06	9.11
Cell per Module	36 (6x6)	36 (6x6)	36 (6x6)	36 (6x6)	48 (6x8)
Cell Dimensions (mm)	53x105	70 x 105	105 x 105	140 x 105	210x105
Panel Dimensions (mm)	362x692x20	464x692x20	674x692x20	884x692x20	931x1303x30
Weight (kg)	3.25	4.00	5.54	7.10	13.46
Operating Temperature	-40 ~ +85°C				

MECHANICAL SPECIFICATIONS

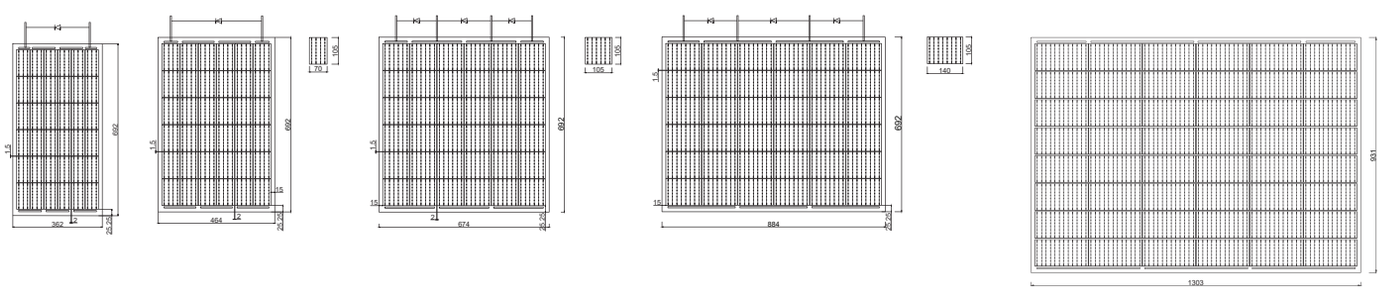
Solar Glass	3.2mm Low iron, Tempered Glass
Frame	Anodized Aluminum
IP Rating	IP67 / IP68
Cable Diameter	4mm²
Cable Length	500mm

TEMPERATURE CHARACTERISTICS

Temp. Coeff. of (I_{sc})	0.050%/°C
Temp. Coeff. of (V_{oc})	-0.270%/°C
Temp. Coeff. of (P_{max})	-0.350%/°C

PHYSICAL CHARACTERISTICS

Unit: mm



45 Wp 60 Wp 90 Wp 120 Wp 240Wp

* The specifications are obtained under the standard test conditions: 1000W/m2 solar irradiance, 1.5 Air Mass and cell temperature of 25°C. Measurement uncertainty for all panels is 6%. The actual transactions will be subject to the contracts. These parameters are for reference only and it is not a part of the contracts. The technical specifications in this document may vary. For more information, refer to the "Installation Manual".

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PERC MONOCRYSTALLINE
108PM12

TOMMATECH GmbH

GERMAN-based company

- TT550-108PM12 550 Wp
- TT545-108PM12 545 Wp
- TT540-108PM12 540Wp
- TT535-108PM12 535 Wp
- TT530-108PM12 530 Wp

15 - YEARS - Product Warranty

30 - YEARS - Performance Warranty

High Conversion Efficiency
High panel efficiency to guarantee high power output

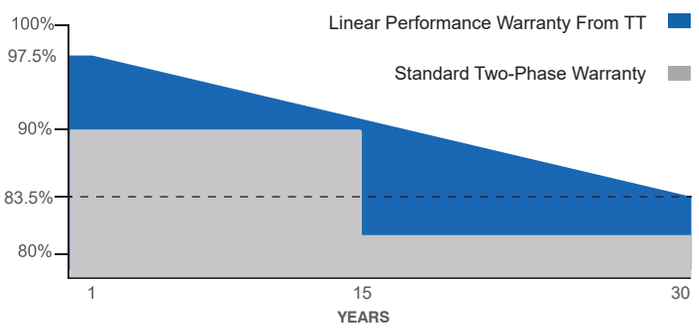
Self-Cleaning And Anti-Reflection Glass
Coating glass for self-cleaning reduces surface dust

Outstanding Low Irradiation Glass
Outstanding panel performance even in weak light conditions

Excellent Durability
Wind load up to 2400 Pa, Snow load up to 5400 Pa

0～+5W Positive Power Tolerance

Easy Installation



30 Years Performance Warranty

12 Years Product Warranty

HalfCut

IEC 61215, IEC 61730-1, IEC 61730-2
IEC 62804 PID (POTENTIAL INDUCED DEGRADATION)
IEC 61701 SALT MIST CORROSION
IEC 62716 AMMONIA CORROSION
ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

SOMPO SiGORTA

TommaTech GmbH - Garching b. München / GERMANY

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mail@tommatech.de

Half-Cut

TOMMATECH GmbH
GERMAN-based company

Model Type	TT530 108PM12	TT535 108PM12	TT540 108PM12	TT545 108PM12	TT550 108PM12
Peak Power (Pmax)	530 Wp	535 Wp	540 Wp	545 Wp	550 Wp
Module Efficiency	20.70	20.90	21.09	21.29	21.48
Maximum Power Voltage (Vmp)	30.7	30.9	31.1	31.3	31.5
Maximum Power Current (Imp)	17.27	17.31	17.36	17.42	17.46
Open Circuit Voltage (Voc)	37.0	37.2	37.5	37.7	37.9
Short Circuit Current (Isc)	18.28	18.33	18.38	18.45	18.49
Power Tolerance	0~+5W				
Maximum System Voltage	1500V DC				
Operating Temperature	-40 ~ +85°C				
Protection Class	Class				
Maximum Series Fuse Rating	30A				

MECHANICAL SPECIFICATIONS

Cell Dimensions(mm)	210x105
Cells per Module(pcs)	108 (6x18)
Weight(kg)	28.5
Panel Dimensions(mm)	1965x1303x35
Max. Wind/Snow Load(Pa)	2400/5400
Junction Box	IP68
Junction Box Cable Length(mm)	350-1600

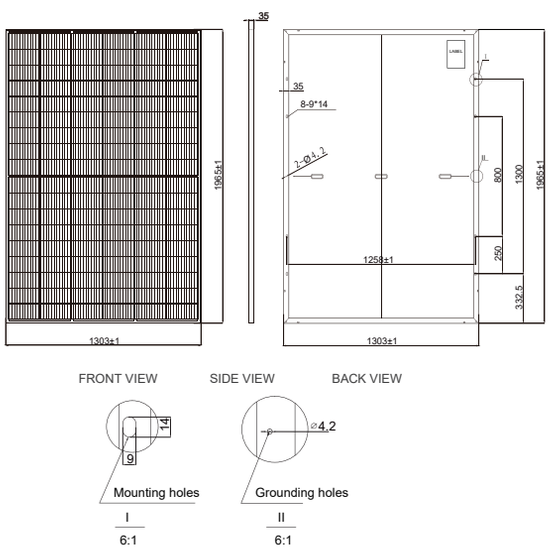
TEMPERATURE CHARACTERISTICS

Temp. Coeff. of (Isc)	0.05%/°C
Temp. Coeff. of (Voc)	-0.27%/°C
Temp. Coeff. of (Pmax)	-0.35%/°C

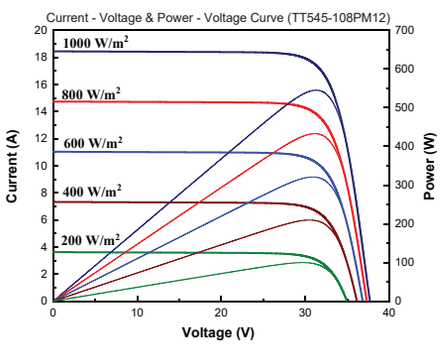
PACKING CONFIGURATION

Container	40' GP
Pieces per Pallet	31
Pieces Per Container	480
Pallet Per Container	16

PHYSICAL CHARACTERISTICS



ELECTRICAL CHARACTERISTICS



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TOPCON MONOCRYSTALLINE 108TN10

TOMMATECH GmbH

GERMAN-based company

- TT435-108TN10 435 Wp
- TT430-108TN10 430 Wp
- TT425-108TN10 425 Wp
- TT420-108TN10 420 Wp
- TT415-108TN10 415 Wp

15 YEARS Product Warranty

30 YEARS Performance Warranty

High Conversion Efficiency

High panel efficiency to guarantee high power output

Self-Cleaning And Anti-Reflection Glass

Coating glass for self-cleaning reduces surface dust

Outstanding Low Irradiation Glass

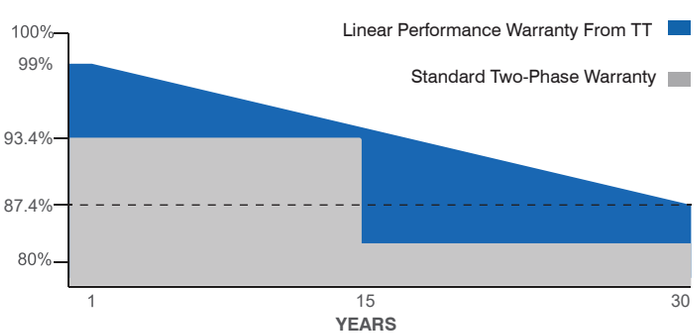
Outstanding panel performance even in weak light conditions

Excellent Durability

Wind load up to 2400 Pa, Snow load up to 5400 Pa

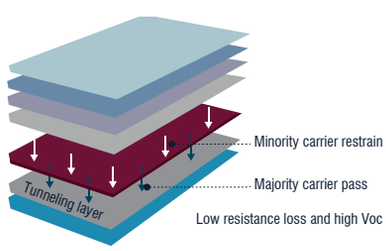
0~+5W Positive Power Tolerance

Easy Installation



30 Years Performance Warranty

15 Years Product Warranty



HalfCut

IEC 61215, IEC 61730-1, IEC 61730-2
IEC 62804 PID (POTENTIAL INDUCED DEGRADATION)
IEC 61701 SALZNEBELKORROSION
IEC62716 AMMONIAKKORROSION
ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

SOMPO SiGORTA

TommaTech GmbH - Garching b. München / GERMANY

www.tommatech.de
mail@tommatech.de

Half-Cut

TOMMATECH GmbH
GERMAN-based company

Model Type	TT415 108TN10	TT420 108TN10	TT425 108TN10	TT430 108TN10	TT435 108TN10
Peak Power (Pmax)	415 Wp	420 Wp	425Wp	430 Wp	435 Wp
Module Efficiency	21.25	21.51	21.76	22.02	22.28
Maximum Power Voltage (Vmp)	31.74	31.94	32.14	32.34	32.54
Maximum Power Current (Imp)	13.08	13.15	13.23	13.30	13.37
Open Circuit Voltage (Voc)	37.71	37.91	38.11	38.31	38.51
Short Circuit Current (Isc)	13.88	13.95	14.03	14.10	14.17
Power Tolerance	0~+5W				
Maximum System Voltage	1500V DC				
Operating Temperature	-40 ~ +85°C				
Protection Class	Class II				
Maximum Series Fuse Rating	25A				

MECHANICAL SPECIFICATIONS

Cell Dimensions(mm)	182x91
Cells per Module(pcs)	108 (6x18)
Weight(kg)	21.45
Panel Dimensions(mm)	1722x1134x30
Max. Wind/Snow Load(Pa)	2400/5400
Junction Box	IP68
Junction Box Cable Length(mm)	350-1600

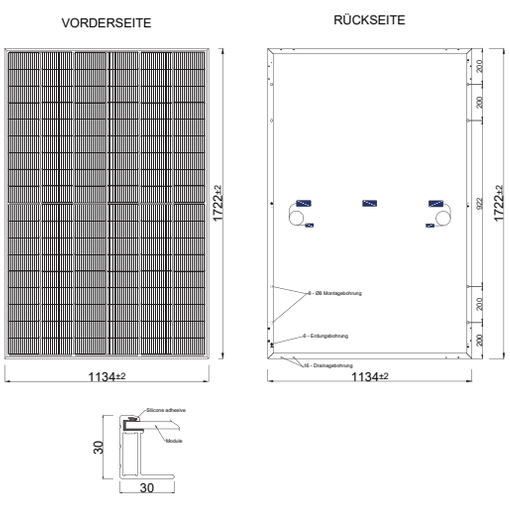
TEMPERATURE CHARACTERISTICS

Temp. Coeff. of (Isc)	0.040%/°C
Temp. Coeff. of (Voc)	-0.260%/°C
Temp. Coeff. of (Pmax)	-0.30%/°C

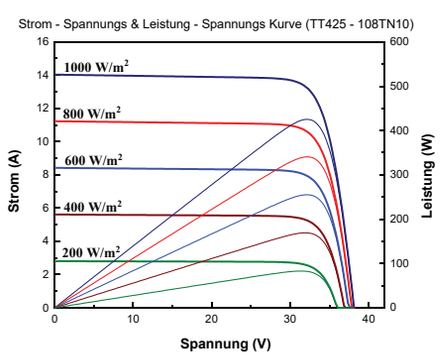
PACKING CONFIGURATION

Container	40' HC
Pieces per Pallet	35
Pieces per Container	910
Pallet Per Container	26

PHYSICAL CHARACTERISTICS



ELECTRICAL CHARACTERISTICS



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FLEXIBLE SOLAR PANELS

TOMMATECH GmbH

GERMAN-based company

◆ TT-FLEX-170 170Wp ◆ TT-FLEX-170-FB 170Wp ◆ TT-FLEX-110 110Wp ◆ TT-FLEX-110-FB 110Wp

TommaTech New Generation Flexible Panel, which has high light transmittance ETFE polymer, durable fiberglass and high efficiency IBC solar cell in its structure, is produced in international quality standards with 7-layer advanced lamination technology. The combination of ETFE and fiberglass sheet makes the panel much more durable. It flexes up to a maximum of 30 degrees and is lightweight, making it a perfect fit for any surface. Available in 110Wp and 170Wp power options, TommaTech Flexible Panel Series has the advantage of being used in many application areas such as boats, caravans, roofs and many similar applications. Available in white and black color options, the series has the option of production in different power and size options according to your needs.

★★ 2 ★★
– YEARS –
Product Warranty

Prism Surface
Maximum light absorption through prism surface

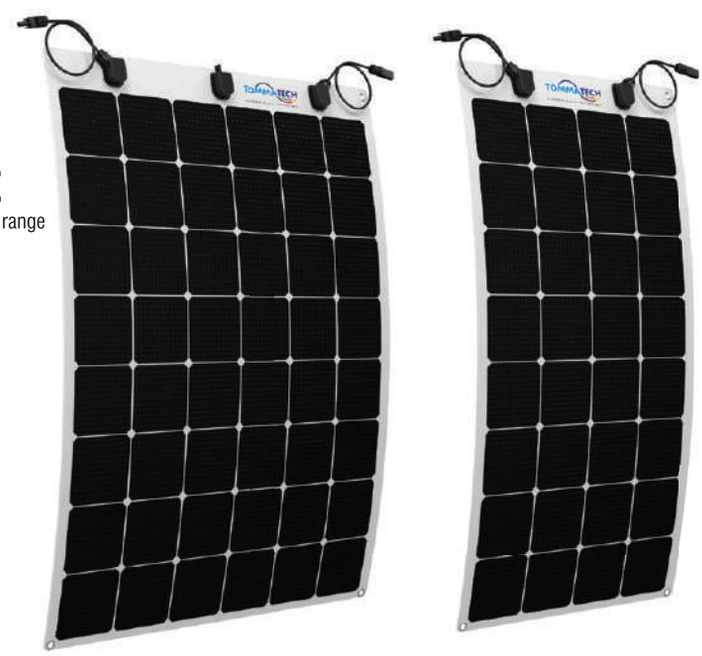
Excellent Light Transmit with ETFE
Higher light transmittance, corrosion resistance, operating temperature range

IBC Cell Technology
Flexible, durable and high efficient cell with back contact connection

Flexible Design
Flexibility up to 30 degrees max

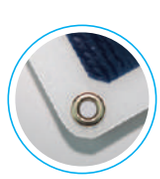
Ultra Lightweight
3mm thick ultrathin and durable design

IP68 Protection Class
Provides water resistance with IP68 Junction Box

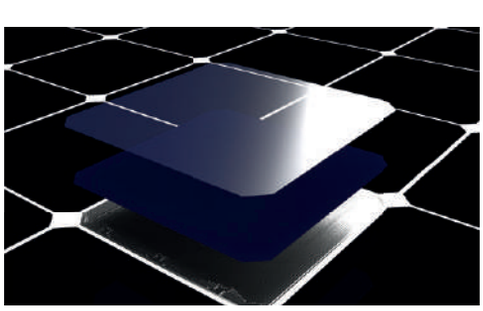


IP68 Junction Box

Prism Surface Design



Stainless Eyelet



IBC Solar cells, which are preferred in flexible panels, are a cell type built on a copper base. When bent or left in a humid environment, TommaTech Flexible Panels are more resistant to power losses due to breakage and corrosion than conventional solar panels. TommaTech Flexible Panels are one of the most important energy solutions for users with the Bypass diodes and efficient cell architecture in low radiation and shade conditions.

ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

ISO PV CYCLE CE SOMPO SİGORTA

TommaTech GmbH - Garching b. München / GERMANY

www.tommatech.de
mail@tommatech.de

FLEXIBLE SOLAR PANELS

TOMMATECH GmbH
GERMAN-based company

Model Type	TT-FLEX-110 110Wp	TT-FLEX-170 170Wp
Peak Power (P_{max})[Wp]	110	170
Module Efficiency (%)	17.5	18.5
Power Tolerance [W]	0~+5	
Maximum Power Voltage(V_{mp})[V]	18.84	29.10
Maximum Power Current (I_{mp})[A]	5.84	5.84
Open Circuit Voltage (V_{oc})[V]	22.80	34.60
Short Circuit Current (I_{sc})[A]	6.15	6.30
Temp. Coeff. of (P_{max})	-0.29%/°C	
Temp. Coeff. of (V_{oc})	-55.68mV/°C	-83.70mV/°C
Temp. Coeff. of (I_{sc})	2.9mA/°C	
Dimensions (mm)	1134x555x3	1134x811x3
Weight (kg)	2.3	3.2
Maximum System Voltage [VDC]	1500	
Maximum Series Fuse Rating [A]	15	
Protection Class	IP68	
Number of ByPass Diodes	2	3

TT-FLEX-110

TT-FLEX-170

TT-FLEX-110-FB

TT-FLEX-170-FB

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FOLDABLE SOLAR PANELS

TOMMATECH GmbH

GERMAN-based company

TT-FLEX-FBAG-110 110Wp

Easy to install, to carry and to use, the TommaTech foldable solar panel is a powerful companion ready to take you on your next adventure. Designed to withstand harsh operating conditions, the high-performance solar panel offers a practical and reliable solution for emergencies. TommaTech foldable solar panel, which has high light transmittance ETFE polymer, durable fiberglass sheet and high efficiency IBC solar cell in its structure, is produced in international quality standards with 7-layer high lamination technology. With TommaTech foldable solar panels, you can charge your phone or tablet directly with USB power output, while at the same time you can get up to 110W instant power output with solar connectors. It is also possible to increase capacity by connecting multiple products together. Models can be customized for your different needs.

2 YEARS Product Warranty

Prism Surface
Maximum light absorption through prism surface

Excellent Light Transmit with ETFE
Higher light transmittance, corrosion resistance, operating temperature range

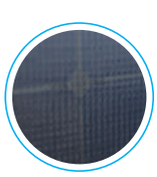
IBC Cell Technology
Flexible, durable and high efficient cell with back contact connection

Ultra Lightweight
Ultra thin and durable design

Easy to use
Easy to use, practical design

Increasable Capacity
Increasable power by connecting two or more products together

Solar Connector



Prism Surface

USB Fast Charging Output

The holders allows you to adjust the panel to the optimum angle for maximum performance.
You can make adjustments as the position of the sun changes.

ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

PV CYCLE

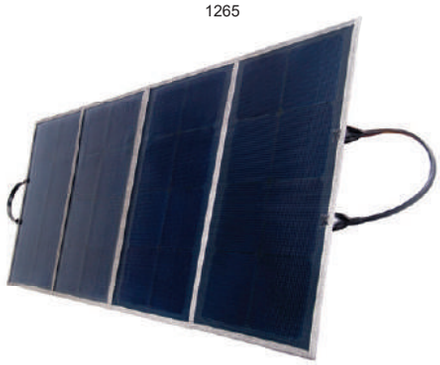
SOMPO SiGORTA

www.tommatech.de
mail@tommatech.de

FOLDABLE SOLAR PANELS

Model Type	TT-FLEX-FBAG-110 110Wp
Peak Power (P_{max})	110 Wp
Power Tolerance	0~+5W
Maximum Power Voltage (V_{mp})	18.84
Maximum Power Current (I_{mp})	5.84
Open Circuit Voltage (V_{oc})	22.80
Short Circuit Current (I_{sc})	6.15
Temp. Coeff. of P_{max}	-0.29%/°C
Temp. Coeff. of V_{oc}	-55.68mV/°C
Temp. Coeff. of I_{sc}	2.9mA/°C
Dimensions (Opened/Closed)(mm)	1265x550x6 / 550x315x24
Weight	4
Maximum System Voltage	1000V DC
Maximum Series Fuse Rating	15A
Protection Class	IP68
Junction Box Cable Length (mm)	600
Connector	MC4
USB Output	QC 3.0 Quick Charge 5V-9V-12V
Exterior of the Product	Fabric

Unit: mm



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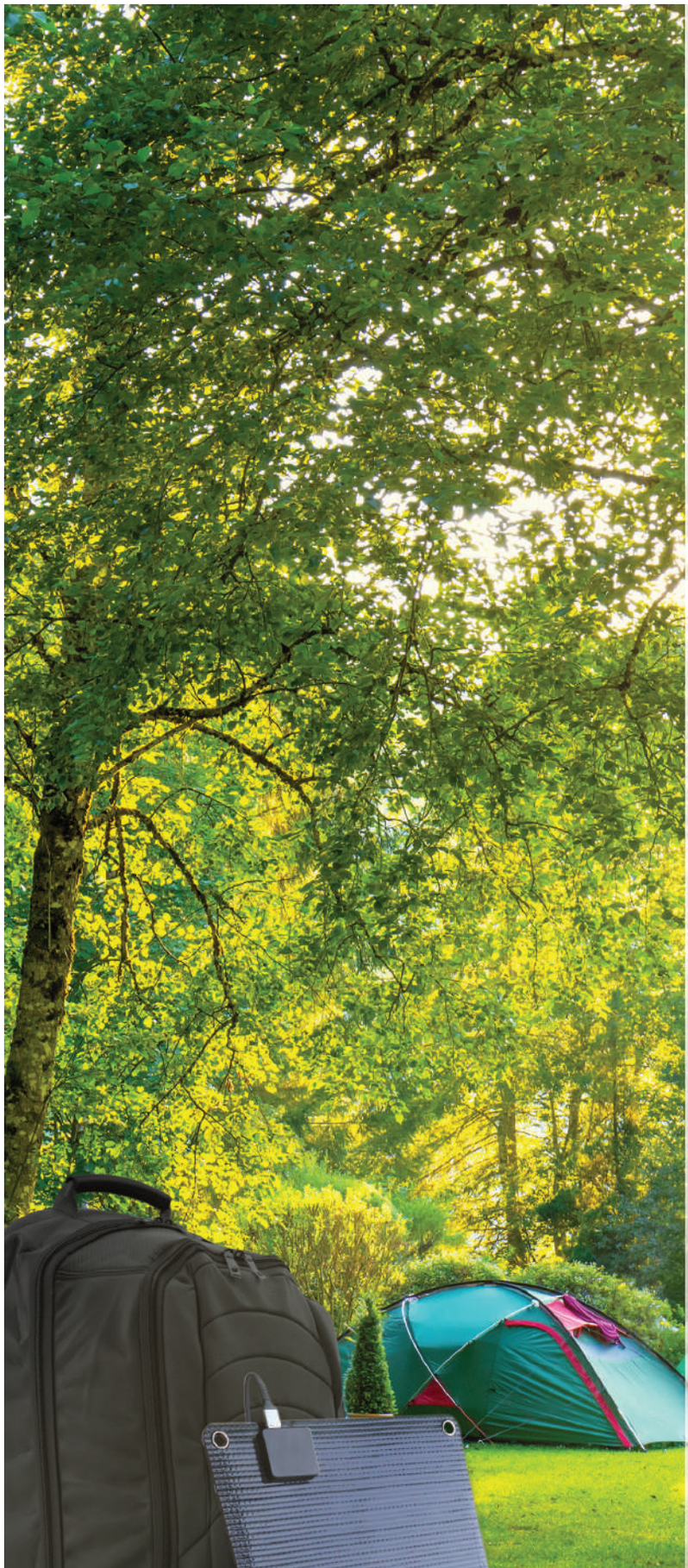


TOMMATECH
Easy Life

TOMMATECH
15 Wp MOBILE SOLAR CHARGING PANEL

2 YEARS Product Warranty

TommaTech Mobile Solar Charging panels provide power to portable chargers such as powerbanks, smart phones, tablets or other USB devices directly from the sun, offering a wide range of applications.

Prism Surface
Maximum light absorption through prism surface

Excellent Light Transmit with ETFE
Higher light transmittance, corrosion resistance, operating temperature range

IBC Cell Technology
Flexible, durable and high efficient cell with back contact connection

Ultra Lightweight
Can be carried wherever you go with its bag size and lightweight design

Fast Charging Technology
Fast charging up to 3 amps with QC 3.0 technology

Don't Bend The Panel
Bending the panel causes damage to the cells inside and energy loss

Charging Devices While Sunbathing

Charging Powerbanks While Walking

Charging On the Stroller

For USB Fan Charging

USB and Type-C ports

For Ipad Charging

MOBILE SOLAR CHARGING PANEL

TOMMATECH GmbH
GERMAN-based company

Model Type	TT-FSC-15
Peak Power (P_{max}) [Wp]	15
Maximum Power Voltage (V_{mp})[V]	9.31
Maximum Power Current (I_{mp})[A]	1.63
Open Circuit Voltage (V_{oc})[V]	10.81
Short Circuit Current (I_{sc})[A]	1.72
Temp. Coeff. of P_{max}	-0.29%/°C
Temp. Coeff. of V_{oc}	-26.1mV/°C
Temp. Coeff. of I_{sc}	2.90mA/°C
Dimensions [mm]	269x344x3
Weight [kg]	0.415
Output Ports	USB-A / TYPE-C
USB Output Voltage	5V/9V/12V
Maximum Charging Current [A]	3

PHYSICAL CHARACTERISTICS

Unit : mm

FRONT VIEW

SIDE VIEW

ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

* The specifications are obtained under the standard test conditions: 1000W/m² solar irradiance, 1.5 Air Mass and cell temperature of 25°C. Measurement uncertainty for all panels is 6%. The actual transactions will be subject to the contracts. These parameters are for reference only and it is not a part of the contracts. The technical specifications in this document may vary. For more information, refer to the "Installation Manual".
* TommaTech® GmbH reserves the right to change the specification of products without prior notice.

TOMMATECH
Easy Life

TOMMATECH
25Wp FOLDABLE SOLAR CHARGING PANEL

2 YEARS Product Warranty

TommaTech Easy Life Series Foldable Solar Charging Panel provide power to portable chargers such as powerbanks, smart phones, tablets or other USB devices directly from the sun, offering a wide range of applications.

Prism Surface
Maximum light absorption through prism surface

Excellent Light Transmit with ETFE
Higher light transmittance, corrosion resistance, operating temperature range

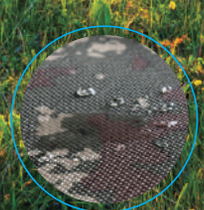
IBC Cell Technology
Flexible, durable and high efficient cell with back contact connection

Ultra Lightweight
Compact design with easy to carry size and weight

Fast Charging Technology
Fast charging up to 3 amps with QC 3.0 technology

Charging Multiple Devices

Zippered Pocket



IPX4 Protection

Hanger and carabiner

By connecting your phone's charging cable to the USB port on the pocket of the TommaTech Foldable Charging Panel, you can charge your phone easily and quickly from clean and renewable solar energy.

FOLDABLE SOLAR CHARGING PANEL

TOMMATECH GmbH
GERMAN-based company

Model Type	TT-FSC-25
Peak Power (P_{max}) [Wp]	25
Maximum Power Voltage (V_{mp})[V]	9.90
Maximum Power Current (I_{mp})[A]	2.55
Open Circuit Voltage (V_{oc})[V]	11.41
Short Circuit Current (I_{sc})[A]	2.70
Temp. Coeff. of P_{max}	-0.29%/°C
Temp. Coeff. of V_{oc}	-27.84mV/°C
Temp. Coeff. of I_{sc}	2.9mA/°C
Dimensions (Opened/Closed)[mm]	698x268x4 / 175x268x40
Weight [kg]	0.8
Output Ports	USB-A / TYPE-C
USB Output Voltage	QC 3.0 Quick Charge 5V-9V-12V
Maximum Charging Current [A]	3
Exterior of the Product	Fabric

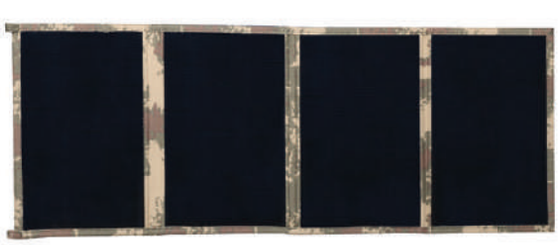
PHYSICAL CHARACTERISTICS

Unit: mm

FRONT VIEW

SIDE VIEW

OPEN VIEW



ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

SOMPO SiGORTA

* The specifications are obtained under the standard test conditions: 1000W/m² solar irradiance, 1.5 Air Mass and cell temperature of 25°C. Measurement uncertainty for all panels is 6%. The actual transactions will besubject to the contracts. These parameters are for reference only and it is not a part of the contracts. The technical specifications in this document may vary. For more information, refer to the "Installation Manual".
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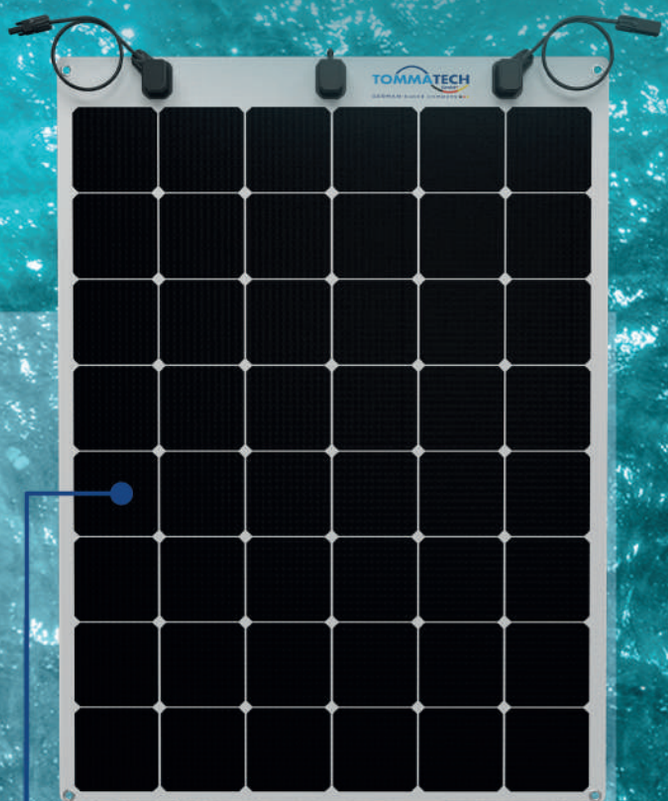
Explore the World With Solar Energy



TT-FLEX-110
Flexible Solar Panel

TT-FLEX-170
Flexible Solar Panel

TOMMATECH GmbH
GERMAN-based company

tommatech.de

INVERTERS

TommaTech
Uno Hybrid Inverter
3.0/3.7/4.6/5.0kW

TommaTech
M Plus Series Inverter
3.6-7.2-11kW

TommaTech
Plus Series Inverter
5.6kW

SOLAR CHARGE CONTROLLERS

TommaTech S Series
MPPT Charge Controller
3kW/60A

UNO HYBRID SINGLE PHASE INVERTER

TOMMATECH GmbH
GERMAN-based company

Single Phase Hybrid Inverter

Uno Hybrid
3.0/ 3.7/ 4.6/ 5.0

Simple. Reliable. Efficient.

- Wide Voltage Range
- High Efficiency
- Remote Monitoring
- IP65 Rated
- Hybrid Solution

3kW 3.7kW 4.6kW

Uno-Hybrid-3.0/ Uno-Hybrid-3.7/ Uno-Hybrid-4.6/ Uno-Hybrid-5.0

TommaTech®'s Uno-Hybrid single phase inverters with a maximum efficiency of 97.8%, advanced PV array power and maximum PV string voltage of 600V are compatible with the leading lithium-ion battery solutions available on the market today. It offers plug and play installation and optimizes self-consumption through export control and 6000W charge/discharge rate.

TommaTech GmbH - Garching b. München / GERMANY

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UNO HYBRID (SINGLE PHASE)

TOMMATECH GmbH
GERMAN-based company

CE

	Uno-Hy-3.0	Uno-Hy-3.7	Uno-Hy-4.6	Uno-Hy-5.0
DC INPUT				
Max. PV array power [Wp]	4500	5550	6900	7500
Max. DC voltage [V]	600			
Nominal DC operating voltage [V]	360			
Max. input current (input A/input B) [A]	12/12			
Max. short circuit current (input A/input B) [A]	14/14			
MPPT voltage range [V]	125-550			
Start operating voltage [V]	150			
No. of MPPTs	2			
Strings per MPPT	1/1			
AC INPUT				
Max. apparent AC power [VA]	3000	3680	4600	4999
Max. AC current [A]	14.4	16.0	21.0	21.7
Nominal grid voltage [V]	220/230/240(180-270)			
Nominal grid Frequency [Hz]	50/60			
AC OUTPUT				
Nominal AC power [VA]	3000	3680	4600	4999
Max. apparent AC power [VA]	3300	4048	5060	5500
Nominal grid voltage [V]	220/230/240(180-270)			
Nominal grid frequency [Hz]	50/60			
Nominal AC current [A]	13	16	20	21.7
Max. AC current [A]	14.3	17.6	21	23.9
Displacement power factor	0.8 Leading ~ 0.8 Lacking			
THDi, rated power [%]	<2			
DC OUTPUT (BATTERY)				
Battery voltage range [V]	85-400			
Recommended battery voltage [V]	300			
Max.continuous charge/discharge current [A]	20			
Communication interfaces	CAN/RS485			
Reverse connect protection	Yes			
EPS OUTPUT (WITH BATTERY)				
EPS Max. continuous apparent power [VA]	4000	4000	5000	5000
EPS rated voltage [V],Frequency [Hz]	230,50/60			
EPS Max.continuous current [A]	21.7	21.7	26.0	26.0
EPS peak apparent power [VA] Duration [s]	6000 10	6000 10	8000 10	8000 10
Changeover time [ms]	<500			
THDv, linear Load [%]	<2			
EFFICIENCY				
MPPT efficiency [%]	99.9			
Euro. efficiency [%]	97.0			
Max. efficiency [%]	97.8			
Battery charge/discharge efficiency [%]	98.5 (PV-BAT) 97.0 (BAT-AC)			
POWER CONSUMPTION				
Standby consumption [W]	<15 for hot standby , <3 for cold standby			
STANDARD				
Safety	IEC62109-1/-2			
EMC	EN61000-6-1/EN61000-6-2/EN61000-6-3			
ENVIRONMENT LIMIT				
Degree of protection(according to IEC60529)	IP65			
Operating temperature range [°C]	-20~+60 (derating at 45)			
Max. operation altitude [m]	<2000			
Humidity [%]	0~100 (condensing)			
Storage temperature [°C]	-20~+60			
Typical noise emission [dB]	40			
DIMENSION AND WEIGHT				
Dimensions (WxHxD) [mm]	476x464x180			
Weight [kg]	24			
Cooling concept	Natural			
Communication interfaces	Ethernet / Uno Smart Meter / DRM /USB / ISO Alarm / CT / Optional: Mobile Wi-Fi / Mobile LAN / Remote Wi-Fi			
LCD display	Backlight 20x4 Character			
Standard warranty [years]	5 (Extendable)			

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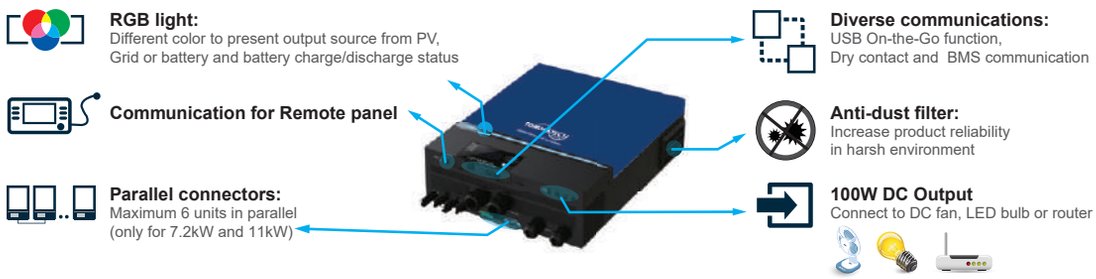
TOMMATECH M PLUS SERIES SMART INVERTERS

TOMMATECH GmbH
GERMAN-based company

- › Customizable status LED bar with RGB lights
- › Built-in wifi for mobile monitoring via WatchPower App
- › Supports USB On-the-Go function
- › Reserved communication port for BMS (RS485, CAN-BUS or RS232)
- › Replaceable fan design for effortless of maintenance
- › Battery independent design
- › Configurable AC/PV output usage timer and prioritization
- › Selectable high power charging current
- › Selectable input voltage range for home appliances and personal computers
- › Compatible to Utility Mains or generator input
- › Built-in anti-dust kit
- › Optional 100W DC Output
- › Parallel operation up to 6 units available for 7.2kVA and 11kVA

2 YEARS Product Warranty



MODEL	TT-MPLUS 3.6KW-24V	TT-MPLUS 7.2KW-48V	TT-MPLUS 11KW-48V
Rated Power [VA/W]	3600/3600	7200/7200	11000/11000
Parallel Capability	No	Yes, 6 Pieces	
INPUT			
Voltage [V AC]	230		
Selectable Voltage Range [V AC]	170-280 (For Personal Computers) 90-280 (For Home Appliances)		
Nominal Frequency [Hz]	50 /60 (Auto Sensing)		
INPUT DC			
Max input current per MPPT [A]	18	18	18
Max short circuit current per MPPT [A]	22	22	22
MPPT Range @ Operating Voltage [V DC]	120 ~ 450	90 ~ 450	
Number of MPPT	1	2	2
Strings per MPPT	1	1	1
AC OUTPUT			
AC Voltage [V AC]	230 ± 5%		
Surge Power [VA]	7500	15000	22000
Maximum Efficiency [%]	90-93		
Transfer Time [ms]	15 (For Personal Computers) 20 (For Home Appliances)		10 (For Personal Computers) 20 (For Home Appliances)
Waveform	Pure Sine Wave		
No Load Power Consumption [W]	< 45	< 70	
BATTERY			
Battery Voltage [V DC]	24	48	
Floating Charge Voltage [V DC]	27	54	
Overcharge Protection [V DC]	33	66	63
SOLAR & AC CHARGER			
Solar Charger Type	MPPT		
Max. PV Array Power [W]	4000	8000 (4000 x 2)	11000
MPPT Operating Voltage Range [V DC]	120 ~ 450	90 ~ 450	
Max. PV Array Open Circuit Voltage [V DC]	500		
Max. Solar Charge Current [A]	80		150
Max. AC Charge Current [A]	80		150
Max. Charge Current [A]	80		150
PHYSICAL FEATURES			
Dimension, D x W x H [mm]	147.4 x 432.5 x 553.6		
Net Weight [kg]	14.1	18.4	
Communication Interface	USB/RS232/RS485/Wi-Fi/Dry-Contact		
ENVIRONMENT			
Humidity [%]	5 ~ 95 RH (Non-Condensing)		
Operating Temperature [°C]	-10 ~ 50		
Storage Temperature [°C]	-15 ~ 60		
STANDARD			
Compliance Safety	CE		

* TommaTech GmbH reserves the right to change the specifications of the products without prior notice.

TOMMATECH PLUS SERIES HYBRID SMART INVERTER

TOMMATECH GmbH
GERMAN-based company

- › Pure sine wave output
- › Touchscreen buttons with 4.3" colored LCD
- › Self-consumption and Feed-in to the grid options
- › Programmable supply priority for PV, Battery or Grid
- › User-adjustable charging current and voltage
- › Programmable multiple operation modes
- › Built-in Wi-Fi for mobile monitoring
- › Reserved communication port for BMS
- › Parallel operation up to 9 units

2 - YEARS - Product Warranty

MODEL	TT-PLUS 5.6kW-48V
Phase	1-Phase In / 1-Phase Out
Maximum PV Input Power [W]	6000
Rated Output Power [W]	5600
Maximum Charging Power [W]	6000
PV INPUT (DC)	
Nominal DC Voltage / Maximum DC Voltage [V]	360 / 450
Start-up Voltage / Initial Feed-In Voltage [V]	110/ 120
MPPT Voltage Range [V]	120 ~ 430
Number of MPP Trackers / Maximum Input Current [A]	1 / 27
GRID OUTPUT (AC)	
Nominal Output Voltage [V AC]	220/230/240
Output Voltage Range [V AC]	184 - 264.5 or 195.5 - 253 (Selectable)
Nominal Output Current [A]	24.3
Power Factor	>0.9
EFFICIENCY	
PV Conversion Efficiency (DC/AC)	%96
AC INPUT	
AC Start-up Voltage / Auto Restart Voltage [V AC]	120 - 140 / 180
Acceptable Input Voltage Range [V AC]	90 - 280 or 170 - 280
Nominal Frequency [Hz]	50 / 60 (Auto Sensing)
Maximum AC Input Current [A]	40
BATTERY MODE OUTPUT (AC)	
Nominal Output Voltage [V AC]	220 / 230 / 240
Output Waveform	Pure Sine Wave
Battery Conversion Efficiency (DC to AC)	%93
BATTERY & CHARGER	
Nominal DC Voltage [V]	48
Maximum Solar Charging Current [A]	120
Maximum AC Charging Current [A]	120
Maximum Charging Current [A]	120
PHYSICAL SPECIFICATIONS	
Dimension, (D x W x H) [mm]	140 x 295 x 468
Weight [kg]	12
INTERFACE	
Parallel Function	Yes, 9 Units
Communication Port	USB / RS232 / RS485 / Wi-Fi / Dry-Contact
ENVIRONMENT	
Humidity [%]	5 ~ 95 RH (No Condensing)
Operating Temperature [°C]	-10 ~ 50

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3kW MPPT SOLAR CHARGE CONTROLLER

TOMMATECH GmbH
GERMAN-based company

TommaTech's 3kW combined MPPT and DSP controller, will adjust solar electricity to charge batteries smoothly and according to their individual specifications. Compared to traditional solar charge controllers, it allows your solar panels to operate at their optimum power output voltage, providing higher efficiency up to 98% with lower power loss.

2 YEARS Product Warranty

In combination with an inverter, solar panels, as well as external battery packs, TommaTech's 3kW MPPT-SCC can become the center of a standalone solar solution to generate green power for your home appliances.

Product Features

› Intelligent Maximum Power Point Tracking technology
› Built-in DSP controller with high performance
› Automatic battery voltage detection (Only for 600W and 3kW)
› Battery temperature sensor (BTS) automatically provides temperature compensation (Only for 3kW)
› Three-stage charging optimizes battery performance
› Automatic load-detection
› Multifunctional LCD displays detailed information
› Reverse polarity protection for solar panel and battery
› Overcharge and overload protection
› Suitable for different battery types

MODEL	SCC-MPPT 3kW
INPUT	
MPPT Operating Voltage [V]	60 ~ 115
Maximum PV Array Open Circuit Voltage [V]	145
Maximum PV Array Power [W]	800 I 1600 I 3200
Maximum Current [A]	50
OUTPUT	
Nominal Battery Voltage [V]	12 I 24 I 48
Connected Battery Type	Sealed Lead Acid, AGM or Gel
Maximum Charging Current [A]	60
Maximum Efficiency [%]	98
Charging Method	Three Stages: Bulk, Absorption, and Floating
PROTECTION	
Overload Protection	> %110 : Audible Alarm
Overcharge Protection	Yes
Polarity Reversal Protection	Yes
INDICATORS	
LCD Panel	LCD Panel Indicating Solar Power, Load Level, Battery Voltage / Capacity, Charging Current and Fault Conditions
LED Display	Three Indicators For Solar, Charging and Load Status
PHYSICAL FEATURES	
Dimensions [DxWxH] [mm]	315 x 165 x 128
Net Weight [kg]	4.5
IP Protection	IP31
ENVIRONMENT	
Humidity [%]	5 ~ 95 RH (Non-Condensing)
Operating Temperature [°C]	0 ~ 55
Storage Temperature [°C]	-15 ~ 60
Maximum Working Altitude [m]	0 ~ 3000

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LITHIUM BATTERIES

TommaTech Modular
Lithium Battery
48V-100Ah

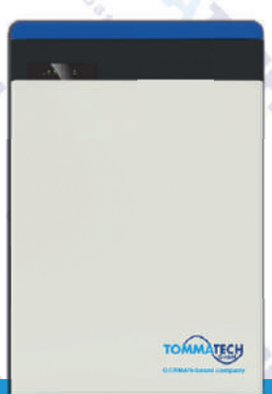
TommaTech Rack
Lithium Battery
48V-100Ah

TommaTech Modular
Lithium Battery
12V-100Ah

TommaTech
Hightech Power & BMS
3.0kWh

TommaTech
Hightech Power
3.0kWh

TommaTech ECO
Lithium Battery
2.4kWh/4.8kWh



TommaTech
General Pack
5.8kWh

TommaTech
Booster Pack
5.8kWh

TommaTech Modular
Lithium Battery
2.4kWh/4.8kWh

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MODULAR SERIES LFP LITHIUM BATTERY

TOMMATECH GmbH
GERMAN-based company

- **TT-MDL-48V-100Ah**
- **TT-MDL-12V-100Ah**
- **TT-MDL-24V-200Ah**

5 -YEARS- Product Warranty

TommaTech Modular Series Lithium Battery solutions based on reliable Lithium Iron Phosphate cells are available in 12.8V, 25.6V and 51.2V options. TommaTech lithium batteries with deep-cycle discharge rates provide great performance in long-term energy storage solutions. TommaTech Modular Series Lithium Battery solutions, which can be utilized in a broad scope of projects such as residential energy solutions, marine/caravan installations, power stations and independent energy storage solutions, are offered to users with many unique features.

High Performance
Great performance based on the latest generation of $LiFePO_4$ technology

Expandable Capacity
Parallel Connection up to 16 Batteries

Smart Management System
The advanced built-in BMS technology ensures a safe operation

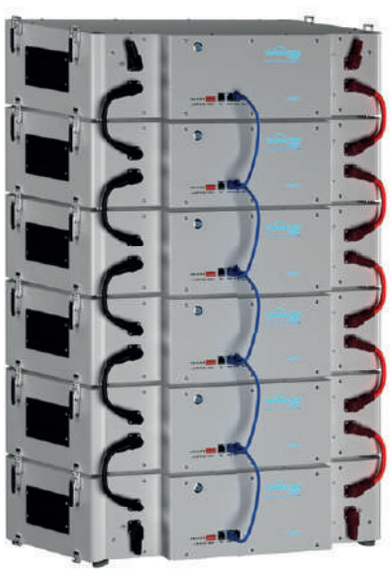
Temperature Resistant
Temperature sensor and heat resistant casing

Long Lifespan
Long lifespan up to 5000 cycles

IP65 Protection Class
IP65 compatible metal cabinet and connector components

Durable Metal Case
Aesthetic, compact and durable metal cabinet design

TommaTech Modular Series Lithium Batteries, which are made out of heat-resistant LFP cylindrical battery cells in a fireproof battery case, are equipped with temperature sensors for additional safety. Furthermore, the batteries, which were manufactured following our specially developed quality and security concept, are designed to feature a BMS (Battery Management System) with balancing function, pure copper conductors and reliably performing LFP battery cells.



TommaTech Modular Series LFP Lithium Batteries with advanced built-in BMS allow up to 16 units connected in parallel with no performance loss. This results in energy storage capacities of up to 80kWh in a single battery-bank

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MODULAR SERIES LFP LITHIUM BATTERY

TOMMATECH GmbH
GERMAN-based company

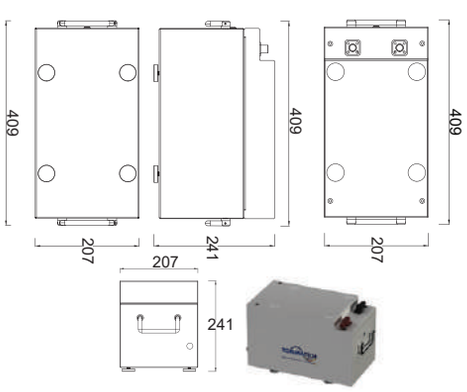
TECHNICIAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS	TT-MDL-12V-100Ah	TT-MDL-24V-200Ah	TT-MDL-48V-100Ah
Nominal Voltage [V]	12.8	25.6	51.2
Nominal Capacity [Ah]	100	200	100
Nominal Energy [Wh]	1280	5120	5120
Recommended Charging Current [A]	30	30	30
Maximum Charging Current [A]	50	50	50
Recommended Charging Voltage [V]	14.2	28.4	56.8
Maximum Charging Voltage [V]	14.6	29.2	58.4
Recommended Discharge Current [A]	50	50	50
Maximum Discharge Current [A]	100	100	100
Discharge Cut-off Voltage [V]	11.1±0.2	22.4±0.2	44.8±0.2
CYCLE SPECIFICATIONS (at 25°C)			
100% D.O.D	2000 Cyles		
50% D.O.D	3400 Cyles		
30% D.O.D	4800 Cyles		
SAFETY AND STANDARDS			
Overcharge Protection	Yes		
Overdischarge Protection	Yes		
Overcurrent Protection	Yes		
Short Circuit Protection	Yes		
Overtemperature Protection	Yes		
Temperature Sensor	Yes		
Adjustable Charge / Discharge Current	Yes		
Grounding	Yes		
Cell Type	LFP 32700 Cylindrical		
Safety Standards	IEC 61960 / 62133-2		
ENVIRONMENTAL CONDITIONS			
Charging Temperature [°C]	0 ~ +60		
Discharge Temperature [°C]	-20 ~ +60		
Storage Temperature [°C]	0 ~ +35		
Humidity (Non-Condensing) [%]	Max. 95%		
Protection Class	IP65		
Design Life [Year]	>10		
Warranty [Year]	5		
ADDITIONAL INFORMATION			
Dimensions (WxDxH) [mm]	208x410x242	679x431x189	679x431x189
Weight [kg]	15.5±0.5	55.5±0.5	55.5±0.5
Battery Connector	IP67 Protected Positive (+) and Negative (-) Pole Connector		
Serial Connection	No		
Parallel Connection	Yes (Max. 16 pcs)		
Communication	CAN / RS485		
Casing Material	Metal		

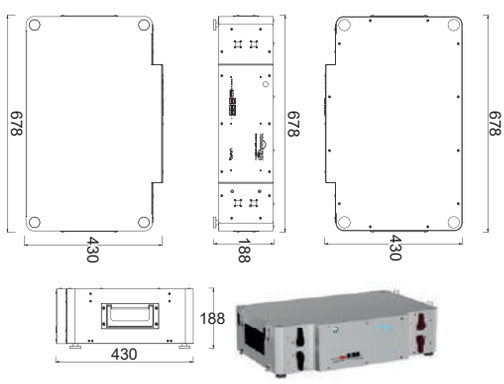
PHYSICAL CHARACTERISTICS

12.8V-100Ah

Unit: mm



25.6V-200Ah & 51.2V-100Ah



* TommaTech GmbH reserves the right to change the specification of product without prior notice.

* The charge, discharge, capacity, and cycle values stated above are valid at 25 °C and non-condensing environment.

RACK SERIES LFP LITHIUM BATTERY

TOMMATECH GmbH
GERMAN-based company

TT-RCK-48V-100Ah

5 -YEARS- Product Warranty

TommaTech Rack Series Lithium Battery solutions based on reliable Lithium Iron Phosphate cells with 51.2V are designed for modular battery-racks. TommaTech Rack Series Lithium Batteries with deep-cycle discharge rates provide great performance in long-term energy storage solutions. TommaTech Rack Series Lithium Battery solutions, which can be utilized in a broad scope of projects such as residential energy solutions, independent energy storage solutions, UPS systems or power stations are offered to users with many unique features.

High Performance
Great performance based on the latest generation of $LiFePO_4$ technology

Expandable Capacity
Parallel Connection up to 16 Batteries

Smart Management System
The advanced built-in BMS technology ensures a safe operation

Temperature Resistant
Temperature sensor and heat resistant casing

Long Lifespan
Long lifespan up to 5000 cycles

IP65 Protection Class
IP65 compatible metal cabinet and connector components

Durable Metal Case
Aesthetic, compact and durable metal cabinet design

TommaTech Rack Series Lithium Batteries, which are made out of heat-resistant LFP cylindrical battery cells in a fireproof battery case, are equipped with temperature sensors for additional safety. Furthermore, the batteries, which were manufactured following our specially developed quality and security concept, are designed to feature a BMS (Battery Management System) with balancing function, pure copper conductors and reliably performing LFP battery cells.

TommaTech Rack-Series LFP Lithium Batteries with advanced built-in BMS allow up to 16 units connected in parallel with no performance loss. This results in energy storage capacities of up to 80kWh in a single and functional system which is designed for standardized battery racks.

RACK SERIES LFP LITHIUM BATTERY

TOMMATECH GmbH
GERMAN-based company

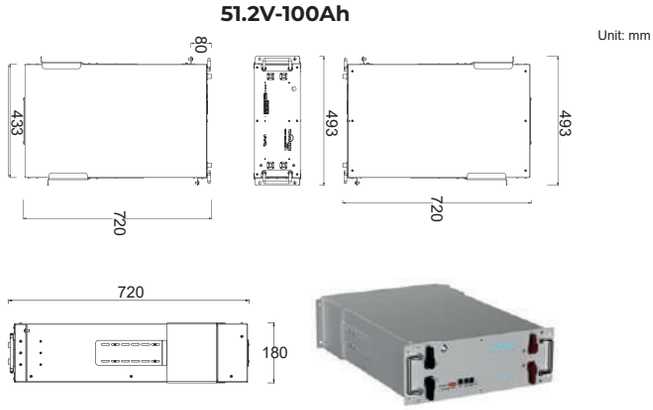
TECHNICIAL SPECIFICATIONS

	TT-RCK-48V-100Ah
ELECTRICAL SPECIFICATIONS	
Nominal Voltage [V]	51.2
Nominal Capacity [Ah]	100
Nominal Energy [Wh]	5120
Recommended Charging Current [A]	30
Maximum Charging Current [A]	50
Recommended Charging Voltage [V]	56.8
Maximum Charging Voltage [V]	58.4
Recommended Discharge Current [A]	50
Maximum Discharge Current [A]	100
Discharge Cut-off Voltage [V]	44.8±0.2
CYCLE SPECIFICATIONS (at 25°C)	
100% D.O.D	2000 Cyles
50% D.O.D	3400 Cyles
30% D.O.D	4800 Cyles
SAFETY AND STANDARDS	
Overcharge Protection	Yes
Overdischarge Protection	Yes
Overcurrent Protection	Yes
Short Circuit Protection	Yes
Overtemperature Protection	Yes
Temperature Sensor	Yes
Adjustable Charge / Discharge Current	Yes
Grounding	Yes
Cell Type	LFP 32700 Cylindrical
Safety Standards	IEC 61960 / 62133-2
ENVIRONMENTAL CONDITIONS	
Charging Temperature [°C]	0 ~ +60
Discharge Temperature [°C]	-20 ~ +60
Storage Temperature [°C]	0 ~ +35
Humidity (Non-Condensing) [%]	Max. 95%
Protection Class	IP65
Design Life [Year]	>10
Warranty [Year]	5
ADDITIONAL INFORMATION	
Dimensions (WxDxH) [mm]	494x721x180
Weight [kg]	55.5±0.5
Battery Connector	IP67 Protected Positive (+) and Negative (-) Pole Connector
Serial Connection	No
Parallel Connection	Yes (Max. 16 pcs)
Communication	CAN / RS485
Casing Material	Metal

PHYSICAL CHARACTERISTICS

51.2V-100Ah

Unit: mm



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* The charge, discharge, capacity and cycle values stated above are valid at 25 °C and non-condensing environment.

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3.0kWh $LiFePO_4$ LITHIUM BATTERY

TOMMATECH GmbH
GERMAN-based company

Hightech Power

3.0kWh $LiFePO_4$ Lithium Battery
3.0/ 6.0/ 9.0/ 12.0

Simple. Reliable. Efficient.

- 6000W Charger/Discharger Rate
- High Efficiency
- Remote Monitoring
- IP65 Rated
- $LiFePO_4$ Technology

$LiFePO_4$ Lithium Battery 3.0/$LiFePO_4$ Lithium Battery 6.0/ $LiFePO_4$ Lithium Battery 9.0/$LiFePO_4$ Lithium Battery 12.0

Maximize your solar benefits with our durable and scalable battery solutions. The safest $LiFePO_4$ technology ensures long term and high-performing operation with more than 6000 life cycles at 90% DoD with marginal self-consumption. Up to 4 of our TT-3.0kWh batteries can be equipped effortlessly with a BMS for maximal customization.

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3.0kWh LiFePO$_4$ LITHIUM BATTERY

TOMMATECH GmbH
GERMAN-based company

MODEL	3.0 kWh	6.0 kWh	9.0 kWh	12.0 kWh
Uno-Hybrid-K **3.0T / 3.7T / 5.0T / 6.0T / 7.5T**	Storage Manager + TT 3.0 kWh	Storage Manager + 2 x TT 3.0 kWh	Storage Manager + 3 x TT 3.0 kWh	Not Suitable
Trio-Hybrid-K **5.0T / 6.0T / 8.0T / 10.0T / 12.0T / 15.0T**	Not Suitable	Storage Manager + 2 x TT 3.0 kWh	Storage Manager + 3 x TT 3.0 kWh	Storage Manager + 4 x TT 3.0 kWh
Battery	30Ah Lithium(LFP)	30Ah Lithium(LFP)	30Ah Lithium(LFP)	30Ah Lithium(LFP)
Nominal Voltage [V]	102.4	204.8	307.2	409.6
Operating Voltage Range [V]	90-116	180-232	270-348	360-464
Battery Module	Modulex1	Modulex2	Modulex3	Modulex4
Rated Capacity [Ah]	30			
Total Energy [kWh]	3.1	6.1	9.2	12.3
Usable Energy [kWh]	2.8	5.5	8.3	11.0
Faradic Charge Efficiency	99%			
Battery Roundtrip Efficiency [%]	95%			
Standard Power [kW]	2.55	5.1	7.65	10.2
Recommend Charge / Discharge Current [A]	25			
Max Charge / Discharge Current [A]	30			
Cycle Life [90% DOD]	6000 Cycles			
Warranty	10 Years			
Available Charge / Discharge Temperature [ºC]	-30°C ~ 55°C			
Storage Temperature [ºC]	0°C ~ 40°C (1 Year) -20°C ~ 50°C (3 Months)			
Humidity [%]	0 ~ 100%			
Altitude [m]	Below 3000m			
Protection	IP65			
System to Inverter	RS485/CAN2.0			
Battery to Battery / BMS	CAN2.0			
Master Control LED Indicator Working	1 LED			
Master Control Capacity Indicator	4LED (25%, 50%, 75%, 100%)			
Battery Module LED	1 LED	2 LED	3 LED	4 LED
Switch On / Off	Button x 1 + Breaker x 1			
Safety Certificate	CE, TUV (IEC62619), MSDS			
UN Number	UN3840			
Hazardous Materials Classifcation	Class 9			
Transport Testing Requirement	UN38.3			
Physical Characteristics				
Dimensions (WxLxH) [mm]	Storage Manager: 482x174x148 TT 3.0 kWh: 482x472x148	Storage Manager: 482x174x148 +2 x TT 3.0 kWh: 482x472x148	Storage Manager: 482x174x148 +3 x TT 3.0 kWh: 482x472x148	Storage Manager: 482x174x148 +4 x TT 3.0 kWh: 482x472x148
Weight [kg]	Storage Manager: 7.5kg + TT 3.0 kWh: 33kg	Storage Manager: 7.5kg +2 x (TT 3.0 kWh: 33kg) = 66kg	Storage Manager: 7.5kg +3 x (TT 3.0 kWh: 33kg) = 99kg	Storage Manager: 7.5kg +4 x (TT 3.0 kWh: 33kg) = 132kg

*The data and technical specifications specified in this document are for preliminary information and may vary depending on the usage method of the products, system design and ambient conditions.

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5.8kWh $LiFePO_4$ LITHIUM BATTERY

TOMMATECH GmbH
GERMAN-based company

Hightech Power

5.8 kWh $LiFePO_4$ Lithium Battery

5.8/ 11.5/ 17.3/ 23.0

Simple. Reliable. Efficient

- 6000W Charger/Discharger Rate
- High Efficiency
- Remote Monitoring
- IP65 Rated
- LiFePO4 Technology

$LiFePO_4$ Lithium Battery 5.8/$LiFePO_4$ Lithium Battery 11.5/ $LiFePO_4$ Lithium Battery 17.3/$LiFePO_4$ Lithium Battery 23.0

Maximize your solar benefits with our durable and scalable battery solutions. The safest $LiFePO_4$ technology ensures long term and high-performing operation with more than 6000 life cycles at 90% DoD with marginal self-consumption. Our GeneralPacks with inbuilt BMS can effortlessly be upgraded with up to 3 BoosterPacks to increase backup times and savings.

TommaTech GmbH - Garching b. München / GERMANY

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5.8kWh $LiFePO_4$ LITHIUM BATTERY

TOMMATECH GmbH
GERMAN-based company

CE

MODEL	5.8 kWh	11.5 kWh	17.3 kWh	23.0 kWh
Uno-Hybrid **3.0T / 3.7T / 4.6T / 5.0T**	General Pack	General Pack + Booster Pack	General Pack + 2 x Booster Pack	Not Suitable
Trio-Hybrid **5.0T / 6.0T / 8.0T / 10.0T**	Not Suitable	General Pack + Booster Pack	General Pack + 2 x Booster Pack	General Pack + 3 x Booster Pack
Nominal Voltage [V]	115.2	230.4	345.6	460.8
Operating Voltage [V]	100-131	200-262	300-393	400-524
Battery Type	Li-Ion (LFP)	Li-Ion (LFP)	Li-Ion (LFP)	Li-Ion (LFP)
Total Capacity [kWh]	5.8	11.5	17.3	23.0
Usable Capacity [kWh]	5.2	10.4	15.6	20.7
Faradic Charge Efficiency [%]	99	99	99	99
Battery Roundtrip Efficiency [%]	95	95	95	95
Standard Power [kW]	2.9	5.8	8.7	11.6
Max. Power [kW]	3.5	7	10.5	14
Recommended Charge / Discharge Current [A]	25	25	25	25
Max. Charge / Discharge Current [A]	35	35	35	35
Short Circuit Current [A]	1440	1440	1440	1440
Cycle Life	>6000 Cycles	>6000 Cycles	>6000 Cycles	>6000 Cycles
Warranty [Year]	10	10	10	10
Available Operating Temperature Range [°C]	0 ~ 55			
Full-Load Operating Temperature Range [°C]	5 ~ 48			
Humidity [%]	4 ~ 100 (Condensing)			
Max. Operation Altitude [m]	2000			
Protection	IP65			
System to Inverter	CAN2.0			
Battery to Battery/BMS	RS485			
Data Collect on Port /FW UPDATE	CAN2.0			
Master Control Working Mode Indicator	1 LED			
Master Control Capacity Indicator	4LED (25%, 50%, 75%, 100%)			
Battery Module LED	2 LED			
Reset	Button			
Physical Characteristics				
Dimensions (WxLxH) [mm]	474x193x708	(474x193x708)+(474x193x647)	(474x193x708)+2x(474x193x647)	(474x193x708)+3x(474x193x647)
Weight [kg]	72.2	72.2 + 68.5	72.2 + 2x68.5	72.2 + 3x68.5

*The data and technical specifications specified in this document are for preliminary information and may vary depending on the usage method of the products, system design and ambient conditions.

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ECO SERIES LFP LITHIUM BATTERY

ECO SERIES
LiFePO4 Lithium Battery
Powered by TOMMATECH

- ECO-LFP-24V-100Ah
- ECO-LFP-12V-100Ah
- ECO-LFP-12V-200Ah
- ECO-LFP-12V-60Ah

5 YEARS PRODUCT WARRANTY

Designed with the unique combination of Lithium Iron Phosphate batteries and an advanced Battery Management System (BMS), ECO Series LFP Lithium batteries are available in 12.8V and 25.6V options and different capacities.

High Performance
Great performance based on the latest generation of $LiFePO_4$ technology

Active Smart Management System
Effective usage as well as with actively balancing BMS technology

Long Lifespan
Long lifespan up to 5000 cycles

Durable Metal Case
Aesthetic, compact and durable metal cabinet design

Universal Approach
Product options for different applications

Temperature Resistant
Temperature sensor and heat resistant casing

IP65 Protection Class
IP65 compatible metal cabinet and connector components

12V/60Ah

12V/100Ah

12V/200Ah & 24V/100Ah

ECO Series $LiFePO_4$ Lithium Batteries with impressive deep discharge values operate at high capacities throughout their lifetime with excellent cycle performance, thus maximising system efficiency. ECO Series LFP Lithium Batteries, which have a durable and IP65 metal case design, are an ecological energy storage solution that provides functionality and flexibility thanks to its high current carrying capacity connection terminals.

ECO SERIES LFP LITHIUM BATTERY

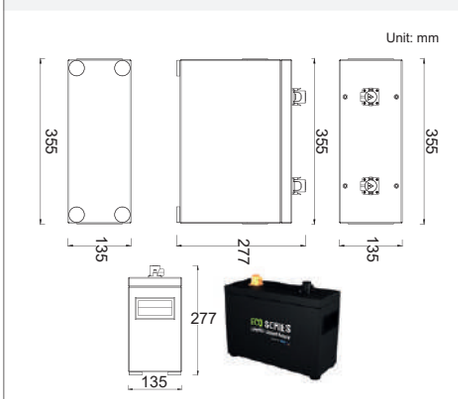
ECO SERIES
LiFePO4 Lithium Battery
Powered by TOMMATECH

TECHNICIAL SPECIFICATIONS

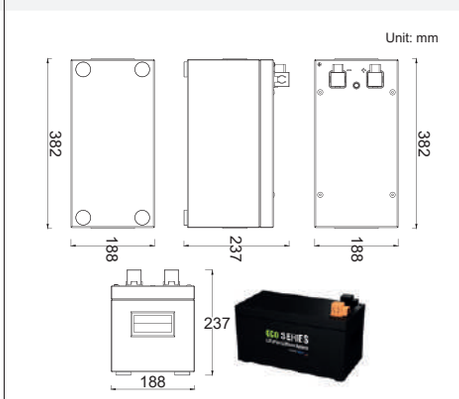
ELECTRICAL SPECIFICATIONS	ECO-LFP-12V-60Ah	ECO-LFP-12V-100Ah	ECO-LFP-12V-200Ah	ECO-LFP-24V-100Ah
Nominal Voltage [V]	12.8	12.8	12.8	25.6
Nominal Capacity [Ah]	60	100	200	100
Nominal Energy [Wh]	768	1280	2560	2560
Recommended Charging Current [A]	20	30	30	30
Maximum Charging Current [A]	30	50	50	50
Recommended Charging Voltage [V]	14.2	14.2	14.2	28.4
Maximum Charging Voltage [V]	14.6	14.6	14.6	29.2
Recommended Discharge Current [A]	30	50	50	50
Maximum Discharge Current [A]	60	100	100	100
Discharge Cut-off Voltage [V]	11.1±0.2	11.1±0.2	11.1±0.2	22.4±0.2
CYCLE SPECIFICATIONS (at 25°C)				
100% D.O.D	2000 Cyles			
50% D.O.D	3400 Cyles			
30% D.O.D	4800 Cyles			
SAFETY AND STANDARDS				
Overcharge Protection	Yes			
Overdischarge Protection	Yes			
Overcurrent Protection	Yes			
Short Circuit Protection	Yes			
Overtemperature Protection	Yes			
Temperature Sensor	Yes			
Adjustable Charge/Discharge Current	Yes			
Cell Type	LFP 32700 Cylindrical			
Safety Standards	IEC 61960 / 62133-2			
ENVIRONMENTAL CONDITIONS				
Charging Temperature [°C]	0 ~ +60			
Discharge Temperature [°C]	-20 ~ +60			
Storage Temperature [°C]	0 ~ +35			
Humidity (Non-Condensing) [%]	Max. 95%			
Protection Class	IP65			
Design Life [Year]	>10			
Warranty [Year]	5			
ADDITIONAL INFORMATION				
Dimensions (WxDxH) [mm]	135x355x277	188x237x382	340x382x239	340x382x239
Weight [kg]	11	16	29	29
Battery Connector	M8 Connection Terminal			
Serial Connection	No			
Parallel Connection	No			
Casing Material	Metal			

PHYSICAL CHARACTERISTICS

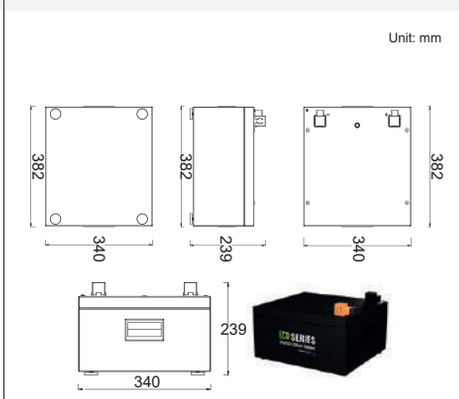
12.8V-60Ah



12.8V-100Ah



12.8V-200Ah / 25.6V-100Ah



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* ECO Series LFP lithium batteries are suitable for sole use and cannot be connected in series or parallel.

TommaTech LiFePO$_4$ Modular Lithium Battery

- The modular lithium battery is equipped with intelligent BMS for each battery pack to manage modules effectively
- Compared with the traditional module, TommaTech Lithium Battery exceeds the capacity storage and greatly enhances the cycle life
- Safe lithium iron phosphate battery cell
- Compact size ultralight module
- Each module is equipped with an independent BMS system
- Practical pull ear design improves operation convenience
- Compact design for using in both Hybrid and Off-Grid solar power systems
- The modular battery is widely used in energy storage and electrical products. Household energy storage systems, centralized power station energy storage system

MODEL	TT-MDL-48V-50Ah	TT-MDL-48V-100Ah
Battery Technology	LiFePO$_4$	
Nominal Battery Energy [kWh]	2.4	4.8
Nominal Capacity [Ah]	50	100
Nominal Voltage [V]	48	
Charging Cut-Off Voltage [V]	54	
Discharging End-Off Voltage [V]	42	
Recommend C Rate [C]	0.5	
Recommended Charge/Discharge Current [A]	25	50
Max.Power Charge/Discharge Current [A]	50	75
Peak Power Charge/Discharge Current [A]	100 (15s)	
Net Weight [kg]	22	45
Dimension [WxDxH] [mm]	480x405x90	504x597x155
Charging Temp. Range [°C]	0 ~ 50	
Discharging Temp. Range [°C]	-20 ~ 50	
Communication	CAN / RS485 / RS232	
Certification & Safety Standard	TUV / CE / EN62619 / IEC62040 / UN38.3 / CEC Accredited / LIL 1973 / C E 1-021	
Warranty	10 Years	5 Years
Compatible Inverters	TommaTech / Goodwe / Victron / Imeon / Solis / Luxpower / Growatt / GMDE Solar / Voltronic / Deye	
OTA Function-Remote Upgrade	Yes	
Life Span	6000 Cycles	3500 Cycles
Protection Level	IP20	

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