



Codes

E21080-T160DDU

Fegen Solar Modules SM series are All-in-One, Plug & Play, Outdoor, Scalable enclosures that incorporate all solar thermal and solar electric distribution gear for buildings in one device.

- No need of a conventional indoor boiler room
- No on-site labor cost
- Immediate start-up
- No responsibility conflicts
- Easy control and maintenance
- Scalable for infinite combinations

- **Tight double door dimensions**
- **160 gallons water storage**
- **Integrated heating element**
- **Simple twin DC pump design**
- **Solar back up system for redundancy**
- **Defrost system for reliability**
- **Solar pool gear option (P extension coded)**
- **Cost efficient mounted outdoors 1ph 8kWdC twin inverters**

CABIN GENERAL CHARACTERISTICS

		Thermal Part
Type		RITTAL TS 8
External dimensions W x H x D (front view)		1200 x 2000 x 800 mm / 47,24 x 78,74 x 31,50 inch
Mounting plate		Width: 1099 mm, Height: 1896 mm
Weight/pack		203 kg
Material		Sheet steel
Cold / Hot Supply - Brass		1 ¼ inch
Color		RAL 7035
Protection category IP to IEC 60 529		IP 55
Doors		2
Light		Auto door power On/Off - 600 lumens
Scalability		Unlimited
Protection		Over-temperature, Anti-freeze control
Approvals	Bureau Veritas, CSA, TÜV, DNV-GL, Lloyds Register of Shipping, Russian Maritime Register of Shipping, UL + C-UL	
Certificates		EAC,IK-Code, Protection category
Declarations		Declaration of conformity, Manufacturer's declaration
Certification		SRCC, Solar Keymark, CE

CABIN LIGHTING SYSTEM-TECHNICAL SPECIFICATIONS

		General Data
Type		RITTAL LED system light
Material		Light body: Extruded aluminium Light cover: Polycarbonate (halogen-free) Light ends: PC-ABS (halogen-free)
Color		Enclosure: RAL 7016
Protection category IP to IEC 60 529		IP 20
Dimensions		Width: 337 mm, Height: 55 mm, Depth: 23 mm
Rated operating voltage		100 V - 240 V, 1~ , 50 Hz/60 Hz
Operating temperature		Operation (environment): -20°C...+55°C
Power consumption		7 W
Luminous flux		600 lm
Light colour		4000 K (neutral white)
Protection category		II (all-insulated)
Weight/pack		0.35 kg
Approvals		CCC, ENEC
Certificates		EAC

SOLAR TANK CHARACTERISTICS	T40	T50	T60
General Data			
Type		Sammler SV	
Solar tank capacity	160 lt / 40 gal	200 lt / 50 gal	300 lt / 80 gal
External dimensions W x H	580 x 1058 mm 22,83 x 41,6 inch	580 x 1292 mm 22,83 x 50,9 inch	580 x 1735 mm 22,83 x 68,3 inch
Weight	67 kg / 235 lb	82 kg / 235 lb	107 kg / 235 lb
Number of boilers		2	
Max pressure primary circuit		3 bar	
Max pressure secondary circuit		3 bar	
Electric Resistance	1.50 – 4.00 KW (UL Ready) - not included		
Anti-corrosion protection	2 x magnesium anodes		
Certification	SRCC, Solar Keymark, CE		
DC CIRCULATION PUMP			
General Data			
Type	DC Solar Pump		
Power	10W (6-24 Vdc)		
Max Capacities	22 Lpm / 6 Gpm		
Max heads	3,2 m / 10,5 ft		
Suitable fluids	Water / Glycol		
Maximum working temperature	110 °C / 230 °F		
Max. working pressure	10 bar		
Number of DC Pumps	2		
Protection	Over-temperature, overload, Over voltage, dry running protection		
Temperature Sensors			
Platinum RTD type	1,000 ohm		
Collector sensor working range	-58 - 355 °F (-50 - 180 °C)		
Tank sensor working range	15 - 175 °F (-10 - 80 °C)		
Length of collector black cable	60 in (1.5 m)		
Length of tank sensor gray cable	95 in (2.5 m)		
Glycol (recommended type)			
Type	DOWFROST HD		
Recommended temperature range	-46°C...163°C		
Freezing Point	-33.5 °C		
Boiling Point @ 1 bar	105.6 °C		
Freeze protection temperature	-51 °C		
Burst protection temperature	-73 °C		
Weight % Propylene Glycol	94		
Weight % performance additives	6		
Specific gravity (15 °C)	1.053 - 1.062		
pH of Solution	9.5 - 10.5		
Reserve alkalinity	15.0 ml		

TECHNICAL DATA AND TYPES

Fimer type code

UNO-DM-6.0-TL-PLUS-US-Q

General specifications

Rated grid AC voltage (V_{acr})	208 V	240 V
Nameplate Apparent Power (S_{max})	6650 VA	6650 VA
Nameplate Output Active Power (P_{max} @ $\cos\phi=1$)	6000 W	6000 W
P_{RATED} : Output Active Power @ V_{ACr} and $\cos\phi=\pm 0,9$	6000 W	6000 W

Input side (DC)

Number of independent MPPT channels	2	2
Maximum usable power for each channel	4000 W	4000 W
Absolute maximum voltage (V_{max})	600 V	600 V
Start-up voltage (V_{start})	200 V (Adj. 120-350 V)	200 V (Adj. 120-350 V)
Full power MPPT voltage range with parallel MPPT configuration at P_{acr}	200-480 V	200-480 V
Operating MPPT voltage range	$0.7*V_{start} - 580 V (\geq 90)$	$0.7*V_{start} - 580 V (\geq 90)$
Maximum usable current per channel	20 (CH1) - 11.5 (CH2)	20 (CH1) - 11.5 (CH2)
Maximum current (I_{dmax})	31,5 A	
Maximum short circuit current per channel	24 A	24 A

Output side

Grid connection type	1 Φ /2W	Split- Φ /3W
Adjustable voltage range ($V_{min} - V_{max}$)	183-228 V	211-264 V
Grid frequency	60 Hz	60 Hz
Adjustable grid frequency range	50-64 Hz	50-64 Hz
Maximum current ($I_{ac,max}$)	30 A	30 A
Power factor	>0.995, adj. +/-0.8	>0.995, adj. +/-0.8
Total harmonic distortion at rated power	<2%	<2%
Contributory fault current	40 Arms; 100 ms	40 Arms; 100 ms
Grid wiring termination type	Terminal block, pressure damp, AWG20-6	

Input protections

Reverse polarity protection	Yes, from limited current source
Over-voltage protection type	Varistor
PV array ground fault detection	Pre start-up RISO and dynamic GFDI

Output protections

Anti-islanding protection	Meets UL1741 / IEEE1547 requirements
Over-voltage protection type	Varistor, 2 (L1 - L2 / L1 - G)
Maximum AC OCPD rating	40 A

Efficiency

Maximum efficiency	97.4%	97.4%
CEC efficiency	96.5%	97%

Operating performance

Stand-by consumption	<8 W _{RMS}
Nighttime consumption	<0.6 W _{RMS}

Auxiliary Output

Isolated Auxiliary Power Supply ¹⁾	24 V, 0.4 A max
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TECHNICAL DATA AND TYPES

Fimer Type code

UNO-DM-6.0-TL-PLUS-US-Q

Embedded communication

Embedded communication interface	Wireless ²⁾
Embedded communication protocol	ModBus TCP (SunSpec)
Commissioning tool	Web User Interface
Monitoring	Aurora Vision cloud (Plant Portfolio Manager, Plant Viewer, Energy Viewer)

Optional board UNO-DM-COM kit

Optional communication interface	RS485 (use with meter for dynamic feed-in control), Alarm/Load manager relay, Remote ON/OFF
Optional communication protocol	ModBus RTU (SunSpec), Aurora Protocol

Optional board UNO-DM-PLUS Ethernet COM kit

Optional communication interface	Ethernet, RS485 (use with meter for dynamic feed-in control), Alarm/Load manager relay, Remote ON/OFF
Optional communication protocol	ModBus TCP (SunSpec), ModBus RTU (SunSpec), Aurora Protocol

Environmental

Ambient air operating temperature range	-25...+60°C / -13...140°F (derating above 45°C/113°F)
Relative humidity	5-100% RH condensing
Maximum operating altitude without derating	6560ft (2000m)

Mechanical specifications

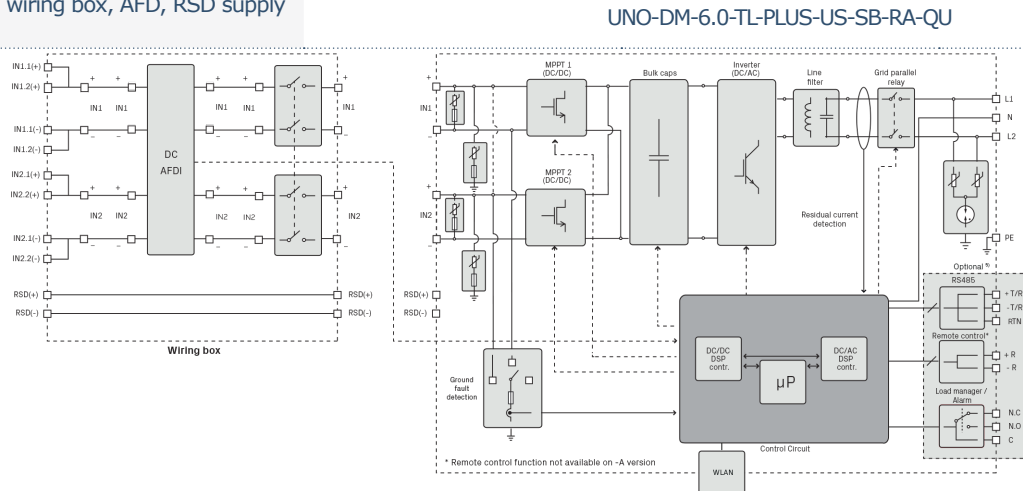
Enclosure rating	Type 4X
Cooling	Natural convection
Dimension (H x W x D)	28.7 x 21.7 x 8.7 in (729 x 553 x 222 mm) ³⁾
Weight	47.4 lb (21.5 kg) ³⁾
Mounting system	Wall bracket
Conduit connections	Bottom: Markings for (2) Concentric KOs 1", 3/4" and (2) KOs 1/2" Sides: Markings for Concentric KOs 1", 3/4" ³⁾
DC switch rating	32A - 600 V

Safety

Isolation level	Transformerless (floating array)
Safety and EMC standard	UL1741, IEEE1547.1, CSA-C22.2 N. 107.1-01, UL1998, UL 1699B-2018, FCC Part 15 Class B
Grid standard	UL 1741 SA, IEEE 1547, Rule 21, Rule 14 (HI)
Safety approval	CTUVUS

Available models

Model with DC switch, wiring box, AFD, RSD supply output



UNO-DM-6.0-TL-PLUS-US-Q string inverter block diagram

Models using other branded solar thermal or solar electric gear upon demand.