

Input Summary

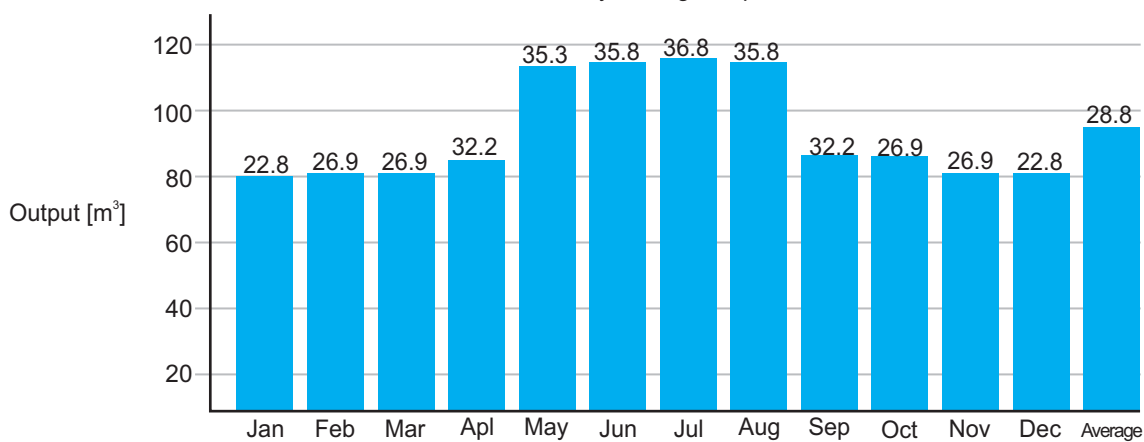
Monday, 25, April, 2021

Project Name: Robat Saliman
 Location: Afghanistan, Herat, Long: 34° Lat: 69°
 Designer: En. Hamid Alizay
 Avg. Hourly water: 10(m³/h)
 Avg. Daily water: 100(m³/d)
 Total Dynamic head: 100(m)
 Pipe Friction losses: 5 (%)

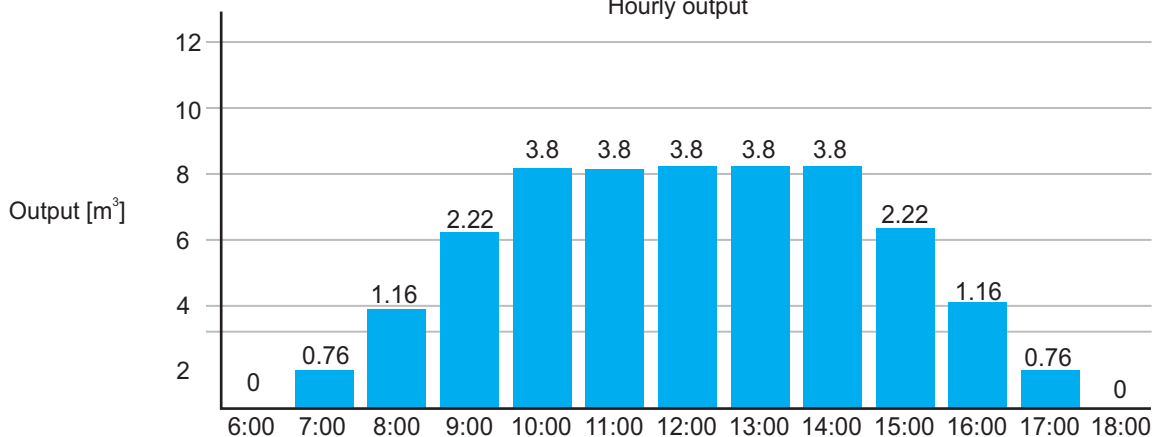
Main Products	Description	Unite	Quantity
Solar	TOMMATECH 270W poly crystalline 36V 8.5A	png	30
Pump	Pedrollo 10HP 7.5kw 380V	pc	1
Controller	Vacon Ip66 7.5kw 380V	pc	1
Structure	Maunal tracker	set	3
Motor Cable	3*4mm ²	m	100
Solar cable	2*6mm ²	m	100
Pipeline	polyeithline 2inch	m	100

Accessories	Description	Unite	Quantity
Flaut switch	Mechanical sensor for reservoir	pc	11
controller box	controller Box	box	1
PV combiner	DC wires combiner box	box	3
fiting	Elbo, stard, etc	set	1
EMT	Emt pip for cabling	m	100
conduct pip	for cabling	m	100
sensor Cable	2*1.5	m	100
safety rope	for submersible	m	100
wire tie	for wiring	pkt	1

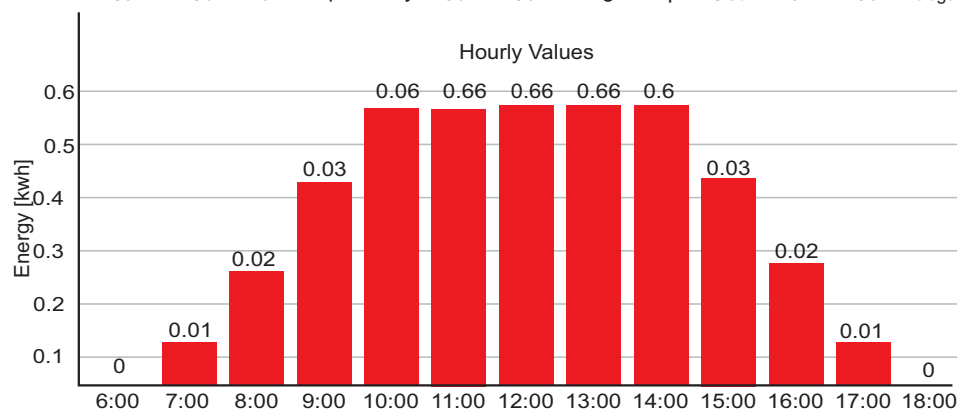
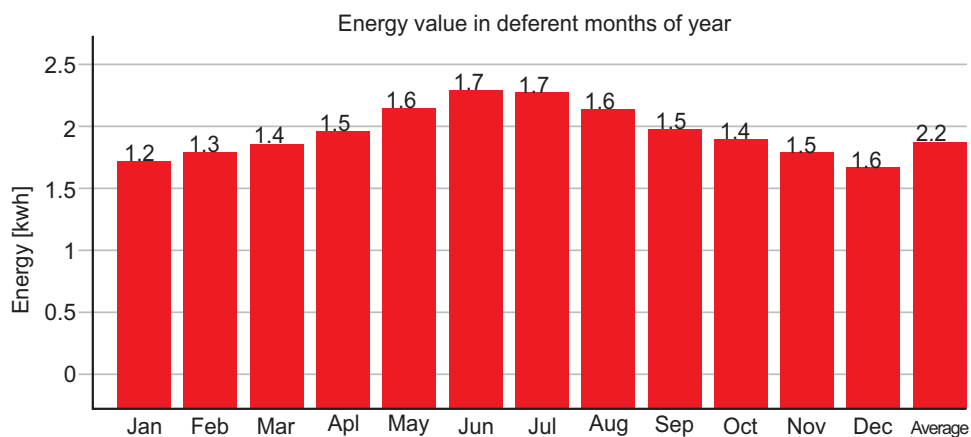
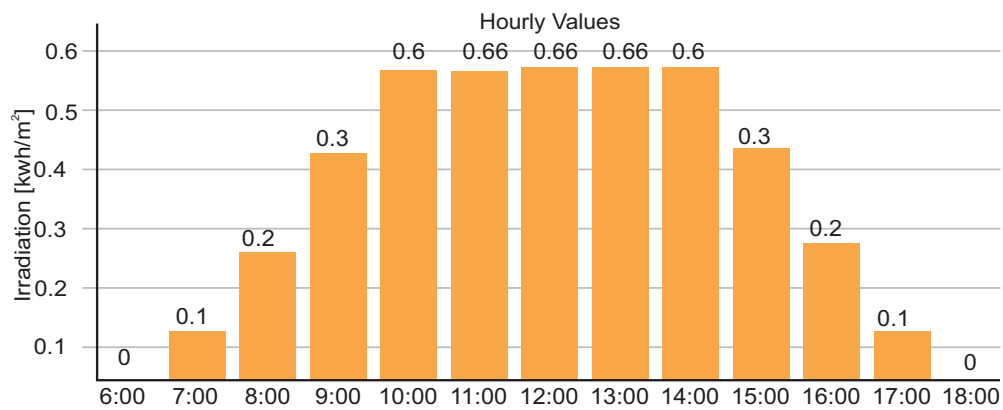
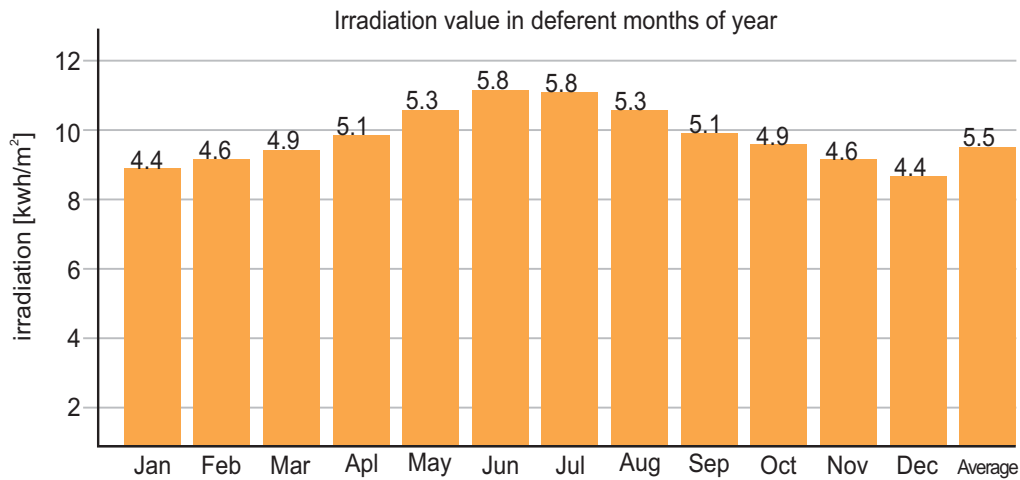
Daily Average output/month



Hourly output



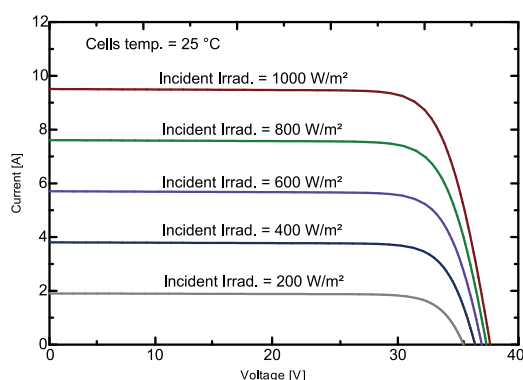
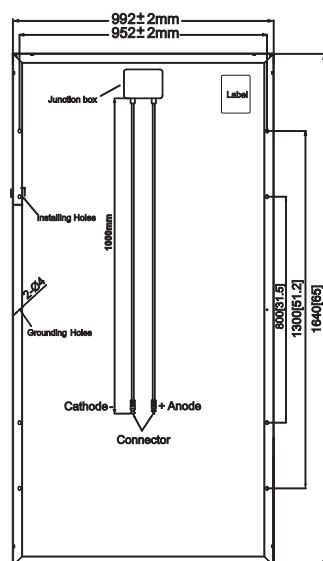
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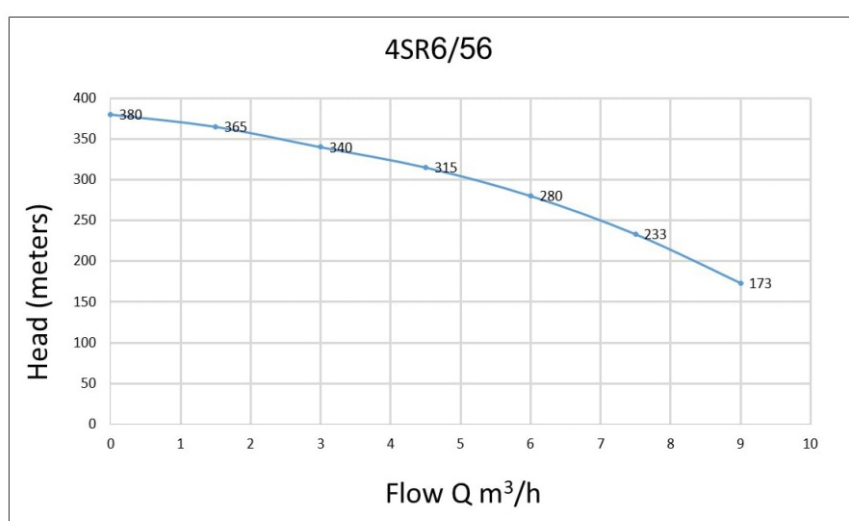
Solar specification:

Brand:	TOMMATECH
Model:	TT270-60P
Rated Maximum power (Pmax):	270Wp
Voltage at Maximum power(Vmp):	31.3V
Current at Maximum power(Imp):	8.79A
Open Circuit Voltage(VOC):	38.4V
Short Circuit Current (Isc):	9.31A
Mazimum System Voltage :	1000V
Size (mm):	1648*995*35mm
Weight:	18kg



Submersible pump specification:

Brand:	Pedrollo
Model:	4SR10/20
Power:	4kw
Hors power:	5.5HP
Current:	8.8A
Voltage:	380V
outlet:	2inch
Diameter:	4inch
Weight:	26kg
Made in:	Italy



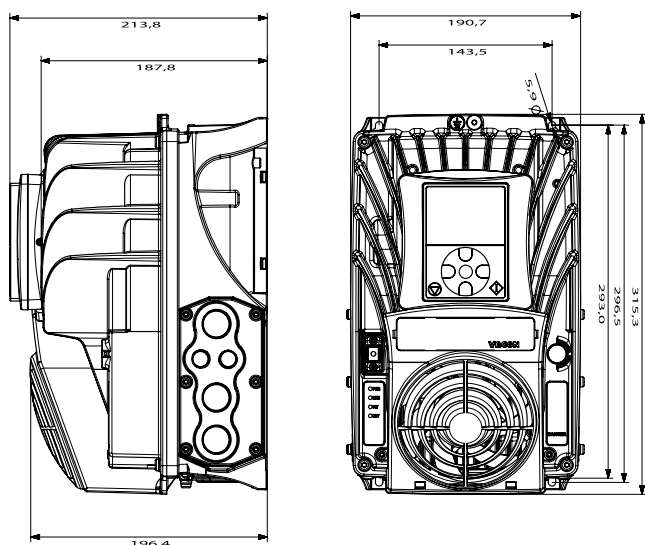
Dimensions and weight

MODEL	PORT	DIMENSIONS mm				kg
		Ø	h1	h2	h	
Three-phase	DN					3~
4SR10/20 - PD	2"	98	1256	587	1843	33.4

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Controller specification:

Brand: Vacon
Model: 100x
Power: 4kw
Hors power: 5.5HP
Current: 8.8A
Voltage: 380V
Weight: 26kg
Made in: Italy



VACON® 100 X drive dimensions, MM4.

Enclosure size	Dimensions W x H x D	
	[mm]	[in]
MM4	190.7 x 315.3 x 196.4	7.51 x 12.41 x 7.73
MM4 +HMGR	190.7 x 315.3 x 213.8	7.51 x 12.41 x 8.42

Strucuter specification:

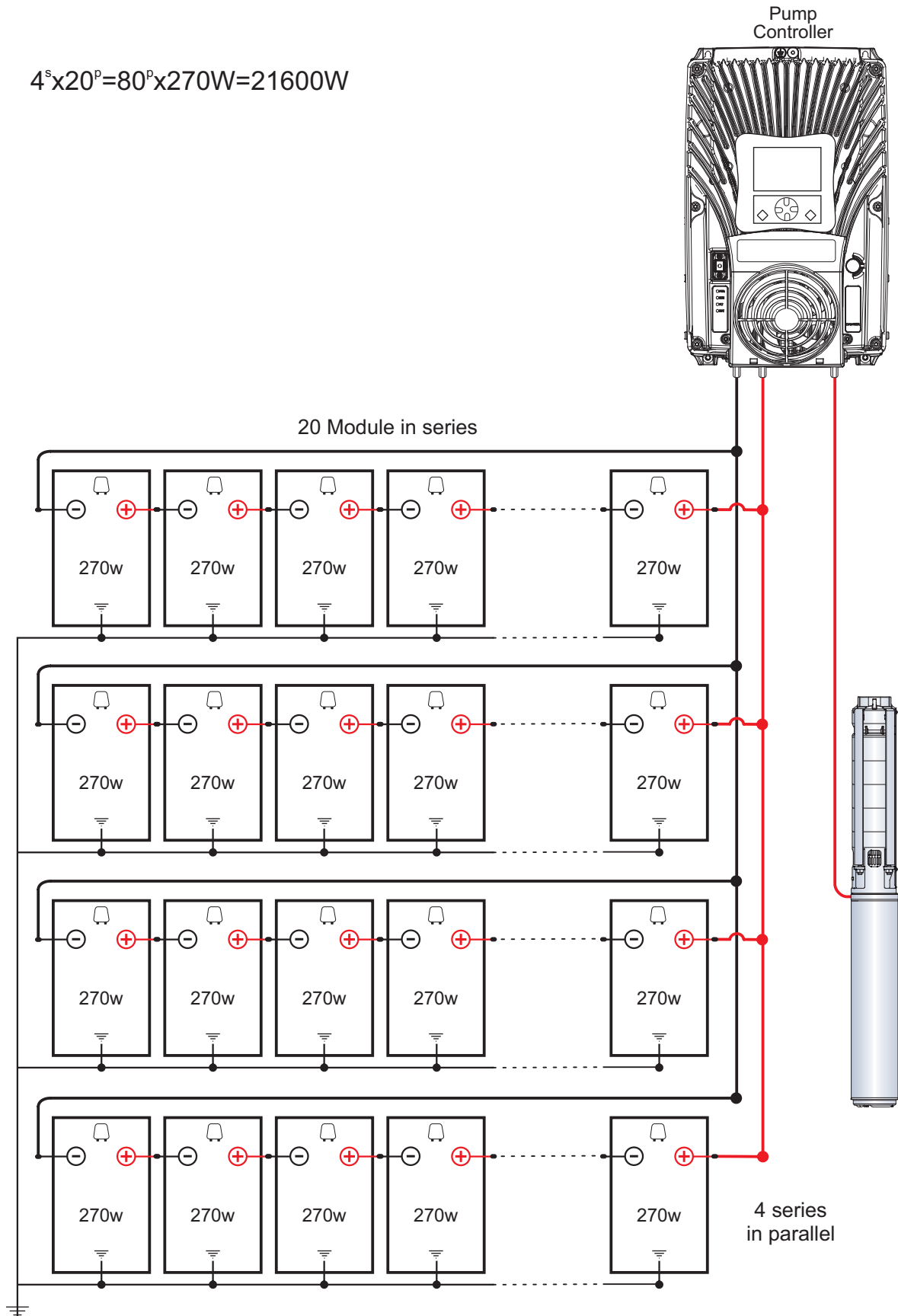
Brand: No
Model: Manual tracker
Capacity: 4/6/8/10/12 panels



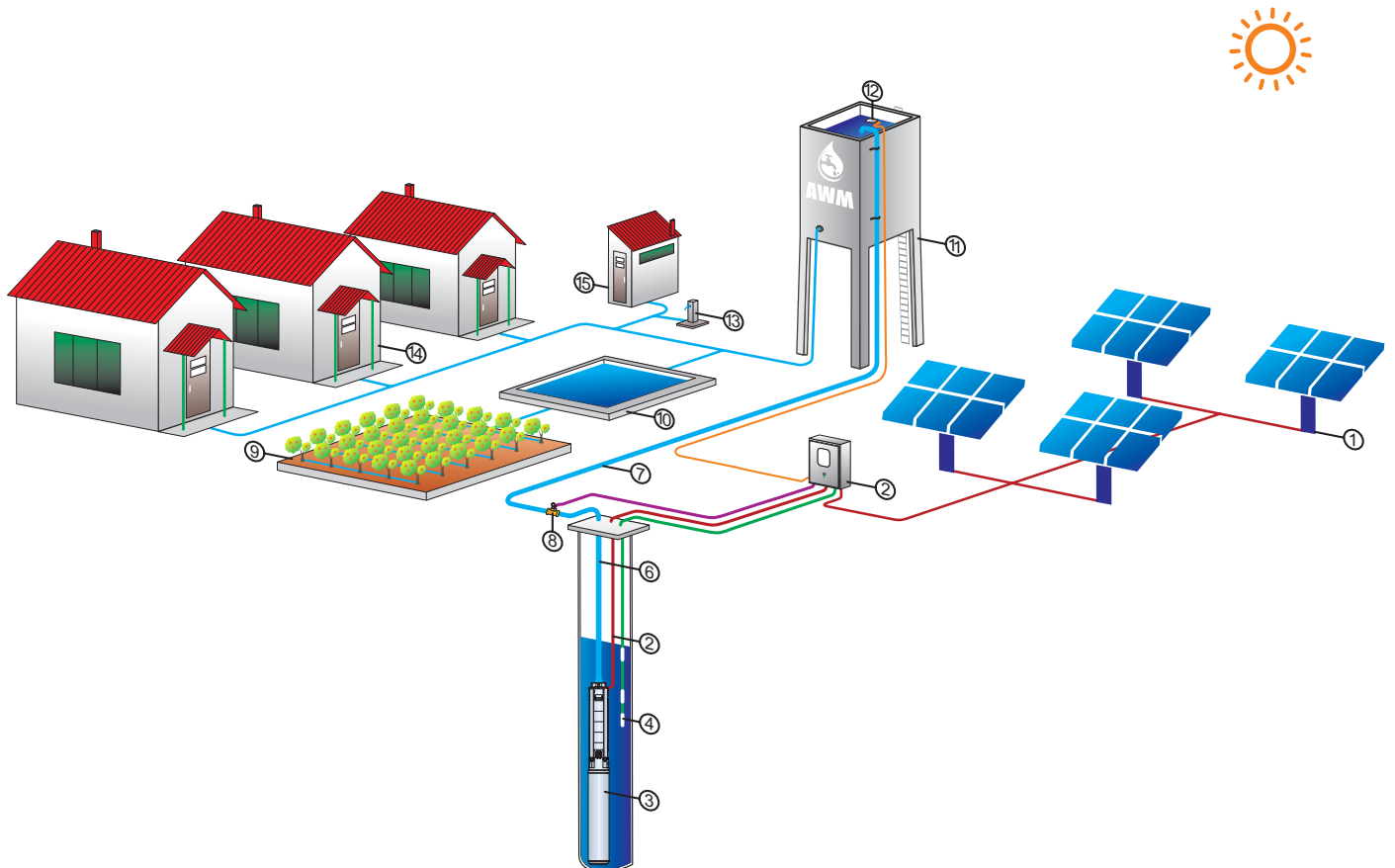
Note: Image may be deferent with actual product as this is a graphic design.

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Wiring Diagram

$$4^S \times 20^P = 80^P \times 270W = 21600W$$



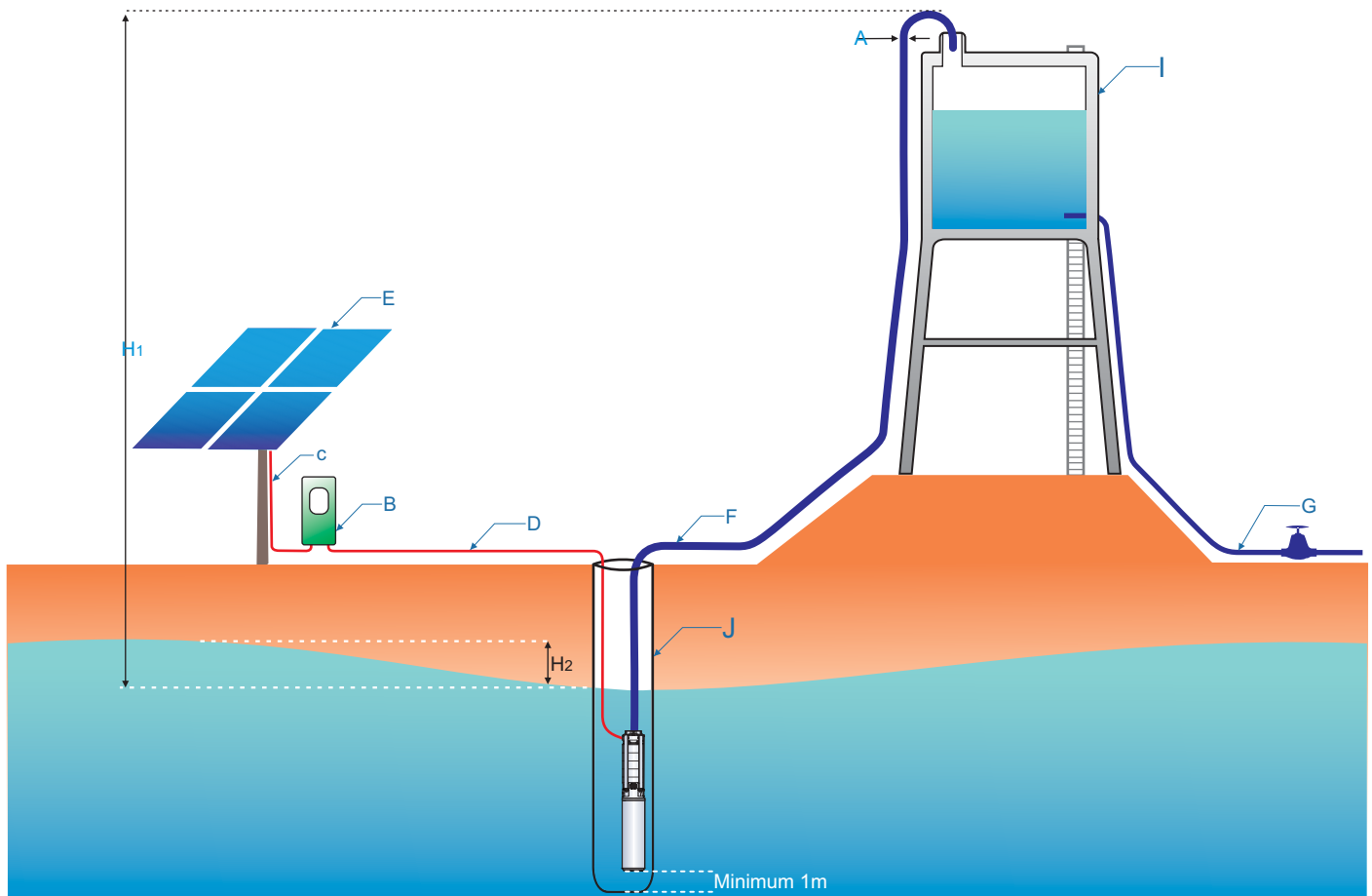
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System General layout



- 1- Solar panels
- 2- Pump controller
- 3- Submersible
- 4- well probe sensors
- 5- Pump electrical cable
- 6- Non return valve
- 7- Pressure Gauge
- 8- Water meter

- 9- Garden
- 10- Swimming pool
- 11- Water reservoir
- 12- Float switch
- 13- Float switch Ele. cable
- 14- Residential Houses
- 15- Toilet

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Sizing layout



A (pipe diameter) pipeline inner diameter.

B (controller) solar pump controller to drive the pump.

C (cable) the electrical cable between solar and controller.

D (cable) the electrical cable between controller and pump.

E (solar) solar panels stand.

F (pipeline) pipeline from the pump outlet to the reservoir.

G (pipeline) water tank outlet.

H₁ (static head) virtual height from the lowest level to the highest point of delivery.

H₂ (draw down) the dynamic water level of the well depending on the pump operation.