

October 2020

①

31

Saturday

Gry water

wk 44 • day 305

OCT							2020	
M	T	W	T	F	S	S		
			1	2	3	4		
5	6	7	8	9	10	11		
12	13	14	15	16	17	18		
19	20	21	22	23	24	25		
26	27	28	29	30	31			

DC Bubbles - 120 W

9 Total load in wh = $120 \times 5 = 600 \text{ W}$

10 i) Panel selection / wattage

11 * Max. daily load: (Ah)

12 = (Total load in wh)

(load efficiency x System Voltage)

13

14 = $\frac{600}{(0.8 \times 12)} = \frac{600}{9.6} = 62.5 \text{ Ah}$

15 * Total current required = (Max. daily load)

(eq. sunshine x charging effin^y x dust factor)

17 = $\frac{62.5}{(5 \times 0.9 \times 0.95)} = \frac{62.5}{4.275}$

18 = 14.61 Amps.

1 Sunday

Notes

DEC							2020						
M	T	W	T	F	S	S	M	T	W	T	F	S	S
	1	2	3	4	5	6							
7	8	9	10	11	12	13							
14	15	16	17	18	19	20							
21	22	23	24	25	26	27							
28	29	30	31										

(2)

November 2020

Monday

2

day 307 • wk 45

Total panel wattage =

$$= (\text{Total current reqd} \times \text{System voltage}) \times \left(\frac{\text{Real panel voltage}}{\text{DIP panel voltage}} \right)$$

$$= 14.61 \times 12 \times \left(\frac{18}{12} \right)$$

$$= 262.98 \text{ W}$$

* series modules :- $(12/12) = 1$

* Parallel modules :- $\frac{\text{Panel Wattage required}}{(\text{Series modules} \times \text{Panel Wattage})}$

$$= \frac{262.98}{1 \times 150}$$

$$= 1.753$$

$$\approx 2$$

$$\underline{\underline{2}}$$

* Charge controller :-

max of current rating of PV array and max load current

= 20 Amp more than 14 Amp.

12V, 20 Amp CR

To respond is positive, to react is negative

• Battery capacity

$$\begin{aligned} \text{Battery capacity required} &= \frac{(\text{Days of Autonomy} \times \text{maximum dialy load})}{(\text{D.O.D.} \times \text{discharging efficiency})} \\ &= \frac{(3 \times 82.5)}{0.8 \times 0.85} \\ &= 275 \text{ Ah} \end{aligned}$$

$$\begin{aligned} \text{Series Batteries} &= \frac{\text{System Voltage}}{\text{1P Battery Voltage}} \\ &= \frac{12}{12} = 1 \end{aligned}$$

$$\begin{aligned} \text{Parallel Batteries} &= \frac{\text{Battery Capacity}}{\text{Solar Battery Ah}} \\ &= \frac{275}{150} = 1.83 \\ &\approx \underline{\underline{2}} \end{aligned}$$

∴ 2 Batteries in 11el string.