

Friday, September 25, 2020

UNHCR Sudan, Kosti Sub Office

AL REDIS 2 Solar Pump & PV Sizing

Solar pumping project

Note: Pump and Solar PV with complete accessories - including Inverter, level sensor, dry run switch and others.

Parameter

Location:	Sudan, Kosti (13° North; 32° East)	Water temperature:	25 °C	Altitude:	855 m
Required daily output:	250 m³; Sizing for July	Dirt loss:	5.0 %	Motor cable:	20 m
Pipe type (Discharge side):	steel, weldless, new comm. size galvanized: 0.160 mm	Pressure head:	19 m	Pipe length (Discharge side):	35 m
Pipe type (Suction side):	steel, weldless, new comm. size galvanized: 0.160 mm	Suction head:	3 m	Pipe length (Suction side):	5.0 m

Products

Quantity	Details
PSk2-9 CS-F42-20	1 pc. Surface pump system including controller with DataModule, motor and pump end
LC330-P72	17 pc. 5,610 Wp; 17 x 1 modules; 15 ° tilted
Motor cable	20 m 2.5 mm² 3-phase cable for power and 1-phase cable for ground
Pipeline (Discharge side)	35 m 100 mm (inner diameter) Pipeline
Pipeline (Suction side)	5.0 m 80 mm (inner diameter) Pipeline
Accessories	1 set Water Sensor, Float Switch, PV Disconnect 1000-40-5, PV Protect 1000-125, SmartPSuk2, SmartStart, Surge Protector2

SunSwitch setting in PumpScanner

min. 300 W/m²

Daily output in July

198 m³

Daily values

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Av.
Output [m³]	246	260	263	253	226	215	198	203	228	239	239	239	234
Energy [kWh]	30	32	32	32	29	28	26	26	29	30	29	29	29
Irradiation [kWh/m²]	6.3	6.7	7.0	6.9	6.1	5.9	5.4	5.5	6.0	6.3	6.3	6.1	6.2
Rainfall [mm]	0	0	0	0.033	0.27	0.97	2.9	4.0	1.5	0.27	0	0	0.83
Ambient temp. [°C]	26	28	31	32	29	28	27	27	28	30	30	27	29

Hourly values

	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Output [m³/h]	0	0	10	20	26	29	30	29	26	19	8.8	0	0
Energy [kWh]	0.15	0.92	1.7	2.4	3.0	3.3	3.3	3.2	2.9	2.4	1.6	0.89	0.15