KIGHT

OFF GRID SOLUTIONS

KIGHT LTD.


KV2
KIGHT LTD.

KV2 Product Specifications

The KV2 has been designed as a standalone DC, off grid, LED Street Lighting Luminaire coupled with solar PV, wind turbine, solar charge controller and battery storage.

Solar PV cells - 2.6W / 125x125mm / Relative efficiency at low light 97.3% / Si Polycrystalline / 0.4% annual degradation

Solar Charge Controller - MPPT / 99% efficiency

Battery Storage - 192Ah of useable energy / 95% Round Trip Efficiency / li-ion / 1% annual degradation

Wind Turbine – KLE-300

Turbine	Rated Power [W]	Hub Height [m]	Peak Power Coefficient [C_p]	Valid Power Curve Air Density [kg/m^3]
KLE-300	300	5	0.34	1.23

Luminaire is the Vision ID 12v, 183 lumen per watt (Total Lumen 2200) .

Tables 1, 2 & 3 demonstrate KV2 operational effectiveness across three locations in the UK, Plymouth, Birmingham & Glasgow

Plymouth *Table 1 – Plymouth wind plus solar PV results*

Month	Generation PV (Wh)	Generation Wind (Wh)	Generation (Wh)	Available Energy	Demand	Gen < Demand	Days - Gen < Demand	Average SOC	Days - Storage < Demand
Jan	2,273.45	29,784.06	32,057.51	30,150.09	4,656.00	25,494.09	0	100%	0
Feb	2,545.34	21,162.38	23,707.72	22,297.11	3,936.00	18,361.11	0	100%	0
Mar	5,069.55	19,067.67	24,137.22	22,701.06	3,636.00	19,065.06	0	100%	0
Apr	6,961.82	11,367.03	18,328.85	17,238.28	2,724.00	14,514.28	0	100%	0
May	7,808.02	12,839.39	20,647.42	19,418.89	2,016.00	17,402.89	0	100%	0
Jun	7,816.29	9,065.72	16,882.01	15,877.53	1,440.00	14,437.53	0	100%	0
Jul	7,182.91	9,888.04	17,070.95	16,055.23	1,728.00	14,327.23	0	100%	0
Aug	6,161.02	10,520.22	16,681.24	15,688.70	2,520.00	13,168.70	0	100%	0
Sep	5,478.62	11,351.10	16,829.72	15,828.35	3,192.00	12,636.35	0	100%	0
Oct	3,677.12	17,553.22	21,230.33	19,967.13	4,056.00	15,911.13	0	100%	0
Nov	2,688.08	24,818.64	27,506.73	25,870.08	4,572.00	21,298.08	0	100%	0
Dec	1,960.76	29,235.46	31,196.22	29,340.05	4,836.00	24,504.05	0	100%	0
							0		0

Birmingham *Table 2 – Birmingham wind plus solar PV results*

Month	Generation PV (Wh)	Generation Wind (Wh)	Generation (Wh)	Available Energy	Demand	Gen < Demand	Days - Gen < Demand	Average SOC	Days - Storage < Demand
Jan	2,428.03	8,782.50	11,210.53	10,543.50	4,776.00	5,767.50	0	100%	0
Feb	2,356.23	6,381.06	8,737.29	8,217.42	3,924.00	4,293.42	1	100%	0
Mar	4,942.30	6,197.75	11,140.04	10,477.21	3,588.00	6,889.21	0	100%	0
Apr	6,719.45	3,571.99	10,291.45	9,679.10	2,688.00	6,991.10	0	100%	0
May	6,859.90	4,953.65	11,813.55	11,110.64	1,788.00	9,322.64	0	100%	0
Jun	7,441.19	2,728.51	10,169.69	9,564.59	1,080.00	8,484.59	0	100%	0
Jul	7,104.92	3,059.25	10,164.17	9,559.40	1,464.00	8,095.40	0	100%	0
Aug	5,666.89	3,291.50	8,958.39	8,425.37	2,364.00	6,061.37	0	100%	0
Sep	5,359.24	3,587.32	8,946.56	8,414.24	3,156.00	5,258.24	0	100%	0
Oct	3,450.03	4,686.06	8,136.09	7,652.00	4,080.00	3,572.00	1	100%	0
Nov	2,456.41	6,459.79	8,916.20	8,385.69	4,560.00	3,825.69	2	100%	0
Dec	2,124.73	7,496.56	9,621.28	9,048.82	4,836.00	4,212.82	1	100%	0
							5		0

Glasgow *Table 3 – Glasgow wind plus solar PV results*

Month	Generation PV (Wh)	Generation Wind (Wh)	Generation (Wh)	Available Energy	Demand	Gen < Demand	Days - Gen < Demand	Average SOC	Days - Storage < Demand
Jan	1,452.94	10,567.00	12,019.94	11,304.75	4,992.00	6,312.75	1	100%	0
Feb	2,539.24	6,158.02	8,697.26	8,179.78	3,936.00	4,243.78	2	99%	0
Mar	4,539.78	7,697.46	12,237.24	11,509.12	3,492.00	8,017.12	0	100%	0
Apr	6,596.58	4,733.00	11,329.58	10,655.47	2,448.00	8,207.47	0	100%	0
May	8,009.58	4,900.89	12,910.47	12,142.29	1,344.00	10,798.29	0	100%	0
Jun	7,461.22	2,270.82	9,732.05	9,152.99	720.00	8,432.99	0	100%	0
Jul	7,423.14	2,459.13	9,882.26	9,294.27	1,008.00	8,286.27	0	100%	0
Aug	6,246.58	3,278.56	9,525.14	8,958.39	2,064.00	6,894.39	0	100%	0
Sep	4,651.53	5,307.28	9,958.81	9,366.27	3,036.00	6,330.27	0	100%	0
Oct	3,085.65	5,739.68	8,825.33	8,300.22	4,020.00	4,280.22	2	99%	0
Nov	1,937.51	7,118.47	9,055.98	8,517.15	4,668.00	3,849.15	2	99%	0
Dec	1,226.39	8,259.48	9,485.87	8,921.46	5,100.00	3,821.46	2	98%	0
							9		0

Tables 1, 2 & 3 demonstrate that KV2 generates sufficient energy to be operational 365 days of the year, with only 9 days throughout the year where the battery is required to provide backup power.

For further enquiries please contact:

Dan Goodman
M: +44(0)7931 559 958
E: dan@kight-ogs.co.uk