

The diagram illustrates the electrical architecture of the K18-002 power system. At the top, a row of photovoltaic panels (K18-(SP-002)-PV-0001) is connected to a photovoltaic array junction box (provided by the solar vendor). The output from the junction box passes through a 30A enclosed circuit breaker (K18-(SP-002)-DSW(D)-0001, provided by the solar vendor) and then through another 30A enclosed circuit breaker (K18-(SP-002)-DSW(D)-0002, provided by the solar vendor). The line then splits: one path goes to a solar charger controller (K18-(SP-002)-BC-0001, 24VDC, 30AMP, provided by the solar vendor), which is also connected to a temperature sensor and a breaker open sensor. The other path goes to a stationary battery (K18-(SP-002)-SB-0001, NEMA 4 enclosure, 19 cells Ni-Cd batteries, 325 Ah (1 sets), @ C5, 120 hours back up, provided by the solar vendor). The battery is connected to the solar charger controller. A list of LCD display alarms is provided on the right, including array current/voltage, load current/power demand, battery bank voltage/status, and charging status.

**K18-(SP-002)-PV-0001**  
PHOTOVOLTAIC (SOLAR) PANELS (SEE NOTE 11)

1 2

PROVIDED BY SOLAR VENDOR

PHOTOVOLTAIC ARRAY JUNCTION BOX (SEE NOTE-11)

PROVIDED BY SOLAR VENDOR

2P 30A K18-(SP-002)-DSW(D)-0001 ENCLOSED CIRCUIT BREAKER IN NEMA-4X ENCLOSURE (SEE NOTE-13)

PROVIDED BY SOLAR VENDOR

(SEE NOTE-2 & 3)

K18-(SP-002)-SB-0001 STATIONARY BATTERY NEMA 4 ENCLOSURE 19 CELLS NI-Cd BATTERIES 325 Ah (1 SETS) @ C5, 120 HOURS BACK UP (SEE NOTE-12)

30A 2P K18-(SP-002)-DSW(D)-0002 ENCLOSED CIRCUIT BREAKER IN NEMA-4X ENCLOSURE (SEE NOTE 13)

PROVIDED BY SOLAR VENDOR

30AMP K18-(SP-002)-BC-0001 SOLAR CHARGER CONTROLLER NEMA-4X ENCLOSURE (24VDC) (SEE NOTE 13)

BREAKER OPEN TEMP. SENSOR

PROVIDED BY SOLAR VENDOR

ETHERNET CABLE (BY I&C)

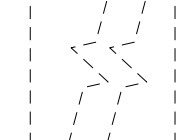
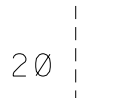





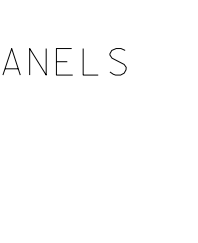
**LCD DISPLAY (ALARMS)**

- ARRAY CURRENT (FOR EACH SUBSYSTEM)
- ARRAY VOLTAGE (FOR EACH SUBSYSTEM)
- LOAD CURRENT
- LOAD POWER DEMAND
- BATTERY BANK-A VOLTAGE
- BATTERY BANK-B VOLTAGE
- BATTERY BANK-A VOLTAGE LOW ALARM
- BATTERY BANK-B VOLTAGE LOW ALARM
- BATTERY STATUS OF CHARGE
- BATTERY-A DISCONNECTED
- BATTERY-B DISCONNECTED
- CHARGER FAULT & COMMON ALARM
- BATTERY CHARGE CURRENT
- CHARGING CURRENT
- LOW BATTERY STATE OF CHARGE
- LOAD DISCONNECTED STATUS
- CHARGING CONTROLLER ENERGY INPUT
- CHARGING CONTROLLER ENERGY OUTPUT
- CHARGING STATUS
- CHARGING SET POINT
- PILOT CELL TEMPERATURE
- LOAD SHEDDING INFORMATION
- LOAD DISCONNECTED
- BATTERY MCCB OPEN
- BATTERY DISCHARGE CURRENT



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- STATUS ALARM SIGNALS TO RTU
- STATUS AND ALARM SIGNALS TO RTU (HARDWIRED)
- CHARGER FAULT AND COMMON ALARM
  - BATTERY BANK A/B VOLTAGE LOW ALARM FROM CONTROLLER A/B
  - LOAD DISCONNECTED
  - BATTERY MCCB OPEN
  - LOW BATTERY STATE OF CHARGE

- ## LEGEND

	<p>PHOTOVOLTAIC (SOLAR) PANELS</p>
	<p>PHOTOVOLTAIC ARRAY JUNCTION BOX NEMA-4</p>
	<p>DOUBLE POLE CIRCUIT BREAKER</p>
	<p>BATTERY CELL</p>
	<p>EARTH</p>
	<p>REMOTE TERMINAL UNIT</p>
<p>RTU AF AT</p>	<p>AMPERE FRAME AMPERE TRIP</p>
	<p>POWER CABLE TAG NUMBER</p>
	<p>SEQUENCE NUMBER CABLE MARKING PLANT NUMBER</p>

REVISION VALIDATION					
THIS REVISION NO. _____		IS COVERED, FOR ALL APPROVAL AND CERTIFICATION REQUIREMENTS, PER SAEP-334, UNDER DRAWING COMPLETION CERTIFICATE NO. _____			
DESIGN CERTIFICATION		REVIEW FOR KEY DRAWINGS		OTHER	
ENGG./DATE	DESIGN AGENCY	BY/DATE	ISSUED	ISSUED (REMARK)	BY/DATE
FAA 10/19/25	1,6X	CONST. AGENCY/DATE	KH 10/19/25	ABB 10/19/25	
REV./NO.	DATE	REVISION DESCRIPTION			
B	10/19/25	ISSUED FOR 90% DETAILED DESIGN			

SAUDI ARABIAN OIL COMPANY				
ELECTRICAL ONE LINE DIAGRAM				DRAWING TYPE EIL
MLIV STATION @ KM.19.400				
EAST/WEST PIPELINE #2				
SAUDI ARABIA				
PLANT NO.	INDEX	DRAWING NUMBER	SHT. NO.	REV. NO.
K18	P	VA-077546	001	B