

2.4 Power-plant

Power-plant:

Manufacturer:	Alexander Schleicher GmbH & Co.	
Type:	EA910/1-35LK	
Maximum power, take-off:	35 kW (48 bhp)	
Maximum take-off speed:	3750 rpm	
Maximum power, continuous:	25 kW (34 bhp)	
Maximum continuous speed:	3000 rpm	
Maximum overspeed:	3750 rpm	
Maximum motor temperature:	110°C	230°F
Maximum power electronics temperature:	80°C	176°F
Maximum battery discharge temperature:	60°C	140°F
Minimum battery discharge temperature:	-20°C	-4°F
Maximum battery charge temperature:	40°C	104°F
Minimum battery charge temperature:	0°C	32°F
Range of the permissible cell voltages:	3 – 4,2 V	

CAUTION

In order to avoid critical system conditions, if certain thresholds are exceeded the system is shut off. Additional information about this can be found in chapter 4.5.1.

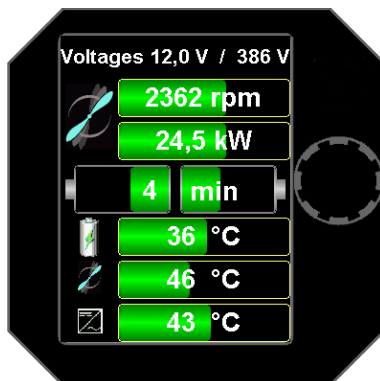
NOTE

The data shown above is referred to the mechanical shaft performance. Measured and indicated is the electrical performance taken from the battery which is higher due to electrical losses. At a maximum take-off power of 35 kW the instrument shows an indicated power of 38.9 kW. A continuous power of 25 kW output corresponds to an indicated electrical power of 27.7 kW.

2.5 Power-plant instrument markings

Fig. 2.5-1 shows the displays of the power-plant instrument while the engine is running. In addition to the system voltages, it indicates speed, electrical power output, battery state of charge i.e. remaining run time with the current power setting, as well as the temperatures of the high voltage batteries, the motor and the power electronics.

Fig. 2.5-1 Displays of the power-plant instrument while engine is running



With the exception of the voltages, the indicated values are shown against a display bar which shows the values relative to the respective thresholds as follows:

- green, when the values are in the normal range
- yellow, when the values are in the caution range
- red, when the values are at the limit or have been exceeded or fallen short

Display	green	yellow	red
Speed [rpm]	≤ 3000	3000 – 3750	> 3750
Power [kW]	≤ 27.7	27.7 – 38.9	> 38.9 *)
State of charge [%] or [min]	≥ 25 % ≥ 5 min	5 – 25 % 1 – 5 min	< 5 % < 1 min
Temperature high-voltage battery [°C]	≤ 55	55 - 60	> 60

WARNING

Flight with extended propeller in rain is not permitted, since the propeller and the electrical drive could be damaged. If rain is encountered unintentionally, retract the propeller.

CAUTION

If the power-plant main switch is off, the propeller is no longer braked by the electric motor and begins to windmill. In this situation it is also no longer possible to retract the propeller. Take note of the increased sink rate of approximately 2 m/s (400 ft/min) at 100 km/h (54 kts, 62 mph).

After turning the power-plant main switch back on, the propeller is braked, turned to a vertical position and can then be normally operated.

CAUTION

If the following thresholds are exceeded respectively undershot (caution or warning message) the maximum power output is strongly reduced to avoid critical system conditions; turn the power-plant off and retract:

<i>Battery temperature</i>	<i>60°C</i>
<i>Minimum (Single) Cell Voltage:</i>	<i>3 V; equals 0% / 0 min state of charge</i>

WARNING

If the following thresholds are exceeded respectively undershot the affected high-voltage battery is automatically shut off and only one battery is available for the powerplant system (reduced power!):

<i>Minimum (Single) Cell Voltage:</i>	<i>2.3 V</i>
<i>Maximum (Single) Cell Voltage:</i>	<i>4.23 V</i>

A detailed description of the power-plant instrument is given in section 7.12.

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Propeller:

Propeller manufacturer:	Alexander Schleicher GmbH & Co.
Propeller:	AS 2 F1-6 / L120 – 96 – N3