Step 1: MPP configuration (DS page 12)
Step 2: System configuration (DS page 11)
Step 3: LDO outputs configuration (DS page 9)
Step 4: -
Step 5: Balun for dual-cells supercapacitor (DS page 10)
Step 6: Primary battery configuration (DS page 12)
Step 7: Connect the storage element
Step 8: Connect the primary battery
Step 9: Connect the loads
Step 10: Connect the source
Step 11: Status

For more information: support@e-peas.com
1. **MPPT configuration**

<table>
<thead>
<tr>
<th>SELMPP1-0</th>
<th>MPPT Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-0</td>
<td>50</td>
</tr>
<tr>
<td>0-1</td>
<td>65</td>
</tr>
<tr>
<td>1-0</td>
<td>80</td>
</tr>
<tr>
<td>1-1</td>
<td>ZMPP feature</td>
</tr>
</tbody>
</table>

   **Recommended value for our matching network**

2. **System configuration**

   - **(DS page 12)**
   - **MPPT configuration**

<table>
<thead>
<tr>
<th>CFG2-1-0</th>
<th>Storage element type</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-H-H</td>
<td>Li-ion battery</td>
</tr>
<tr>
<td>H-H-L</td>
<td>Solid state Battery</td>
</tr>
<tr>
<td>H-L-H</td>
<td>Li-ion / NiMH battery</td>
</tr>
<tr>
<td>H-L-L</td>
<td>Single cell supercapacitor</td>
</tr>
<tr>
<td>L-H-H</td>
<td>Dual cell supercapacitor</td>
</tr>
<tr>
<td>L-H-L</td>
<td>Dual cell supercapacitor</td>
</tr>
<tr>
<td>L-L-H</td>
<td>LifePo4</td>
</tr>
<tr>
<td>L-L-L</td>
<td>Custom mode</td>
</tr>
</tbody>
</table>

   **Please see DS page 11 « Custom mode » and use the R1 – R6 resistors**

   **For more information**: support@e-peas.com
3. LDO outputs configuration

Do not leave floating jumpers

<table>
<thead>
<tr>
<th>ENLV</th>
<th>ENHV</th>
<th>LVOU T</th>
<th>HVOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Enabled</td>
<td>Enabled</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>Enabled</td>
<td>Disabled</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>Disabled</td>
<td>Enabled</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>Disabled</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

4. ZMPPT configuration

⇒ Available but not used

For more information: support@e-peas.com
Evaluation Board: AEM30940 RF

5. Balun for dual-cells supercapacitor
   (DS page 10)

If dual-cell supercapacitor:
BAL connected to the node between the supercapacitors
BAL = ToCN

If not:
BAL = GND

6. Primary battery configuration
   (DS page 12)

Connect the jumpers « NoPRIM »
if no primary battery else

- $100 \, \text{k}\Omega \leq R_P = R_7 + R_8 \leq 500 \, \text{k}\Omega$
- $V_{PRIM\_MIN}$ = minimum voltage on PRIM
- $R_7 = \left( \frac{V_{PRIM\_MIN}}{4} \right) \ast R_P / 2.2 \, \text{V}$
- $R_8 = R_P - R_7$

For more information: support@e-peas.com

Do not leave floating jumpers
**For dual-cells supercapacitors, use the BAL connexion and connect the BAL jumper to “ToCN”; Else connect the BAL jumper to “GND”.

7. **Storage Element**

8. **Primary Battery**

9. **Circuit**

10. **Antenna**

For more information: support@e-peas.com

2AAEM30940C0211 = Dedicated frequency: 863 – 868 MHz
2AAEM30940C0310 = Dedicated frequency: 915 – 921 MHz
For dual-cells supercapacitors, use the BAL connexion and connect the BAL jumper to “ToCN”; Else connect the BAL jumper to “GND”.

For more information: support@e-peas.com
11. AEM Status

STATUS0 = Asserted when the LDOs can be enabled
STATUS1 = Asserted if the battery voltage falls under Vovdis
STATUS2 = Asserted when the AEM performs the MPP tracking

For more information: support@e-peas.com
RF energy harvesting: Losses

Emitted power (dBm) = [(P_{MIN} dBm * \eta_{ANTENNA}) + LOSSES] * \eta_{ANTENNA}

LOSSES in the air (dB):

FSPL = 20 \log_{10}(d) + 20 \log_{10}(f) + 20 \log_{10}\left(\frac{4\pi}{c}\right) - G_t - G_r

With

- d = the distance in meter
- f = the frequency in Hz
- G_t = the gain at the antenna emitter
- G_r = the gain at the antenna receiver
Visit us on

www.e-peas.com

Or contact us at

support@e-peas.com  sales@e-peas.com