Inductive power supply
Assembling instructions for TEL1-PCM-HS-BATT
Inductive power supply set
Picture shows standard Inductive Power Supply for diameter up to 300mm

Power supply for power head
25 and 50mm mounting tape to fix coil on shaft
Ferrite tape 30mmx3m
CU wire 0.5mm

DC Power cable
IND-PWR AC/DC module
Input: AC from coil
Output 6.5VDC 100mA
Power Head with cable

Mounted on shaft
Installation of coil for inductive powering on shaft

Attach for electromagnetic insulation “Ferrite Tape”
- 2 x layers Ferrite-Tape around the shaft
- Fixed with 2 layers mounting tape

Wind the 0.5 mm enameled copper wire around the shaft:
- 4-25 windings for 500-20mm diameter

Other diameter on request!

Note: “The inductive load of the IND-PWR AC/DC module and the capacitor in the Power Head must be in resonance to get the optimal transmission. The inductive load of the shaft depends of diameters, material and number of windings. ”

To find the optimal transmission try one winding more or less. The LED on the Inductive Power module will help to find the best configuration. The distance between powerhead and the coil is 3-10mm.

Control the output voltage and move the powerhead in the max distance to the coil.
The minimum Output voltage must be 6.5 V!

Fix all with 2-3 layers around the coil with mounting tape.
Optimum windings for steel shafts

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>Windings</th>
<th>Fine adjustment capacitor parallel to coil</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>4-5</td>
<td>100-200nF (Type MKT or MKS 250V)</td>
</tr>
<tr>
<td>490</td>
<td>4-5</td>
<td>100-200nF (Type MKT or MKS 250V)</td>
</tr>
<tr>
<td>290</td>
<td>5</td>
<td>100-200nF (Type MKT or MKS 250V)</td>
</tr>
<tr>
<td>190</td>
<td>7</td>
<td>---</td>
</tr>
<tr>
<td>150</td>
<td>9</td>
<td>---</td>
</tr>
<tr>
<td>120</td>
<td>10</td>
<td>---</td>
</tr>
<tr>
<td>80</td>
<td>12</td>
<td>---</td>
</tr>
<tr>
<td>45</td>
<td>16</td>
<td>---</td>
</tr>
<tr>
<td>20</td>
<td>25</td>
<td>---</td>
</tr>
</tbody>
</table>

We recommend a capacitor decade e.g.

100pF .... 11,111 µF

Magnetic field

Caution: No kind of metal objects close to this area!
The pins “AC IN” are the AC power input from the coil. On the pins “+6.5” and “GND” you get a stabilized output voltage of 6.5V DC. The control LED will lights up, as soon as the power head is switched on and at the right position - close enough to the coil on the shaft. The max. load current on the DC output is 100mA. The AC/DC converter will use instead battery pack!

Never use any battery together with the IndPwr!

### Installation of the power head for inductive powering

<table>
<thead>
<tr>
<th>Power head</th>
<th>Power supply for power head</th>
</tr>
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Connect the power head on the "AC Out" socket of the power box and then the DC power cable on the "DC In 10-30V" socket. The two banana plugs have to be connected to a DC power source with red on +10-30V DC and black on 0V.

![DC Power Cable](image)

<table>
<thead>
<tr>
<th>DC POWER CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ~ 4</td>
</tr>
<tr>
<td>2 5 6</td>
</tr>
<tr>
<td>RED BLACK</td>
</tr>
</tbody>
</table>

You should mount the power head at a fixed location that it’s as free as possible from vibration influences.

The center of the coil should be in the same horizontal position as the center of the power head. The distance is optimal in the range between 3 and 10mm. (depends of shaft and current consumption)

If the red LED of the AC/DC converter lights up, the position of the power head is OK.
Fixing of IND-PWR AC/DC module and TEL1-PCM-HS-BATT

Fix all modules with at least 10 layers of the special mounting tape around the shaft. According to the shafts RPM and diameter it’s particularly paid attention to safe mounting of the components. Add. use hose clamps for final fixing!!

The manufacturer doesn’t accept liability for damages, which results from not sufficiently attachment of the individual components. The provided cable harness and the tape are only for test purposes, in order to test the electrical function of the units in the idle state of the shaft.

During the rotation test appropriate safety tools are to be attached. The entire installation may be used only by authorized persons. By using tape for the attachment, it has to be used in the direction of rotation of the shaft and the end has to be secured against removing. Only non-elastic tapes with high tensile strength have to be used for pre-fixing. Add. use hose clamps for final fixing!! The individual components are to be distributed in such a way on the shaft that imbalances will avoid.

Connection IND-PWR AC/DC module and TEL1-PCM-HS-BATT

To avoid transmitting error, the mounting distance between Inductive Power Head and Inductive Pickup Head must be at least 100mm.
Following must be considered at the mounting of the inductive power head

- Shaft with Cu wire Coil
- Magnetic field
- Example of mounting plate

Don’t use for mounting any kind metal in this area (25-30mm)! Otherwise flow magnetic energy in the metal also and degrease the distance between power head and coil (on shaft)!

Wrong!!! Mounting plate cover the active area of inductive head
Dimensions Powerhead

- **Height**: 33mm
- **Drill size**: d= 4.3mm
- **Cable length**: 5m
- **Optional** cable length: 10...20m
Attention

- Use only shielded sensor cable
- When used on rotating shafts, all connections must be soldered.
- Mounting of the modules on a shaft must be first fixed with mounting tape (only for prefixing) and then with a hose clamps!!

Safety Notes for Inductive Powering

- The device should only be applied by instructed personnel.
- The power head emits strong magnetic radiation at 60 kHz to a distance of 20 cm. Therefore persons with cardiac pacemakers should not work with this device!
- Magnetic data storage media should be kept in a distance of at least 3m from the power head to avoid data loss. The same is valid for electromagnetic sensitive parts, devices and systems.
- Do not place the power head in the switched-on state on metallic objects, because this results in eddy currents, which could overload the device and strongly heat up small objects. In addition, the probe could be destroyed!
- No metallic objects, other than the disc-type coil, should be located in the air gap of the power head. The same applies to metallic parts within a radius of up to 15–20 mm in all directions.
- Do not use damaged or faulty cables!
- Never touch in the area between shaft and inductive head, the rotating shaft itself or rotor electronic contacts during operation!
- This is a “Class A” system suitable for operation in a laboratory or industrial environment. The system can cause electromagnetic interference when used in residential areas or environments. In this case the operator is responsible for establishing protective procedures.