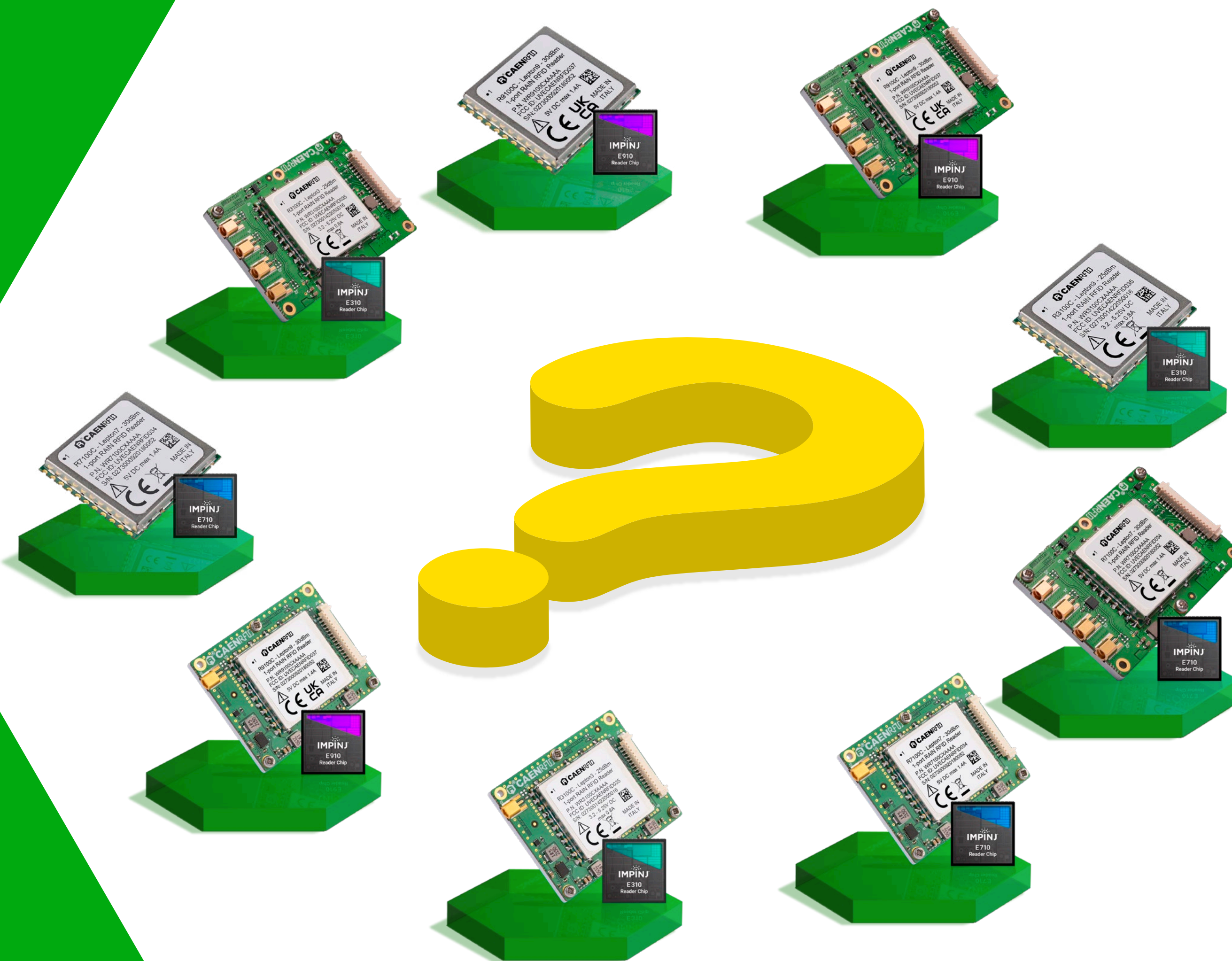
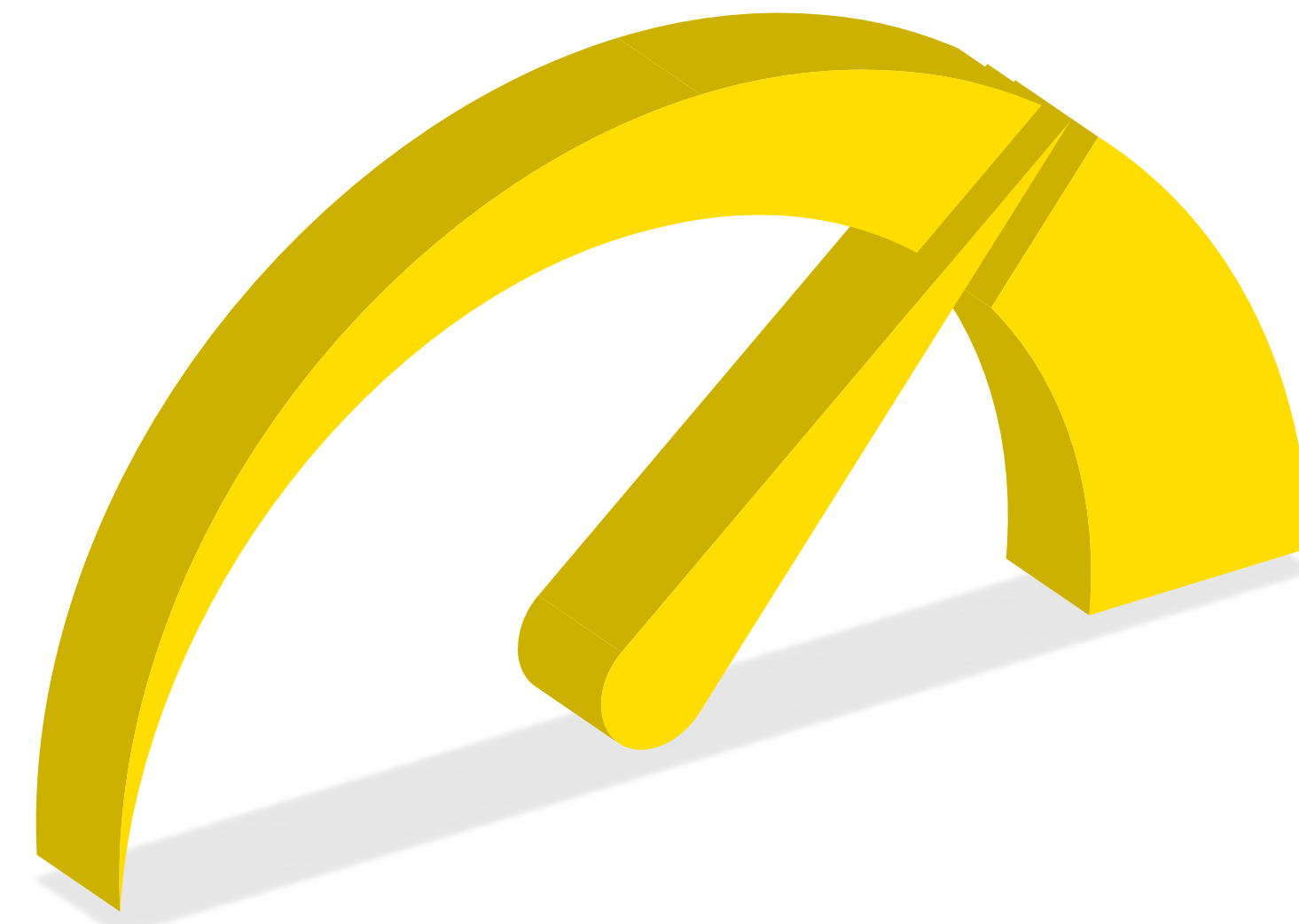


Module Selection Guide



Performance choice

Choosing between the **Lepton³**, **Lepton⁷** or **Lepton⁹**, in any of the variants, is a decision based only on the performance needs in terms of output power, speed and sensitivity that have impact on the reading distance, the ability to read tags in complex environment and the reading speed.



Lepton³
25dBm Output Power
-72dBm Sensitivity



Lepton⁷
30dBm Output Power
-85dBm Sensitivity



Lepton⁹
30dBm Output Power
-90dBm Sensitivity

Lepton³ series

Lepton³ is the lowest performance module with a maximum output power of **25dBm** and a sensitivity of **-72dBm**. It is still a good performing reader, but it is not indicated for long range readings like it is typically needed on fixed readers. Lepton³ is best suited for **desktop/countertop** readers like in **POS applications**, for **short range mobile** and **wearable** readers, for **printers** and any other proximity reading applications.



Lepton³



Lepton³x1

Lepton³x4

Lepton⁷ series

Lepton⁷ is a high-performance module with a maximum output power of **30dBm** and a sensitivity of **-85dBm** and it is well suited for long range applications. Lepton⁷ is the best choice for **high-performance mobile readers** like sleds or integrated terminals for warehousing applications but it's also a good choice for **fixed readers** (especially the 4-port variant) and **long-range integrated readers** (e.g. readers for vehicle access control).



Lepton⁷



Lepton⁷x1



Lepton⁷x4

Lepton⁹ series

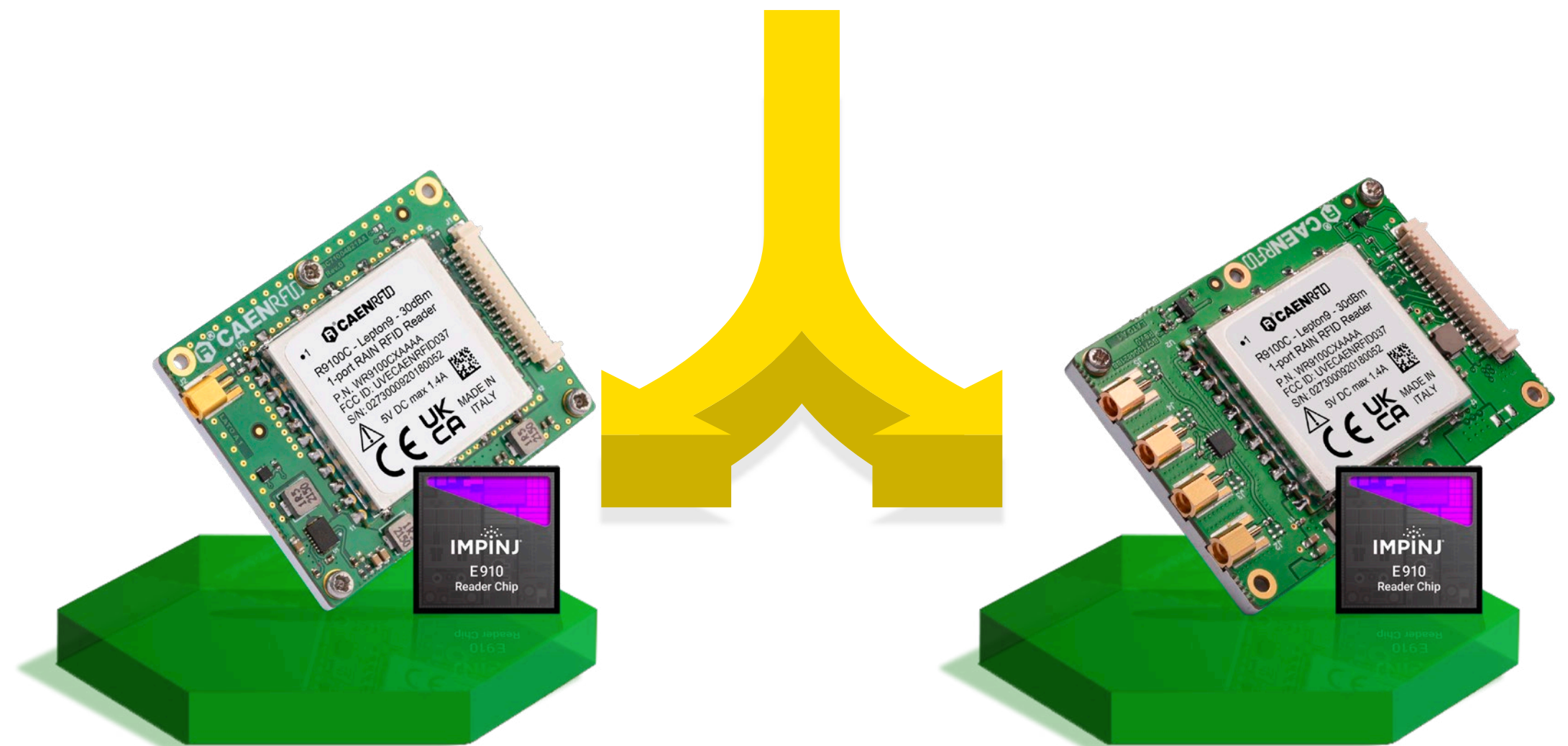
Lepton⁹ is the highest performing module of the Lepton series with an outstanding receiver sensitivity of **-90dBm** that makes it best suited for the most demanding applications.

Typical usage of the Lepton⁹ modules is to build **high-performance fixed reader**

or any application that needs long range reading capability, high speed and reading accuracy in complex environments with large population of tags.



Lepton⁹



Lepton⁹x1

Lepton⁹x4

SMD Variants

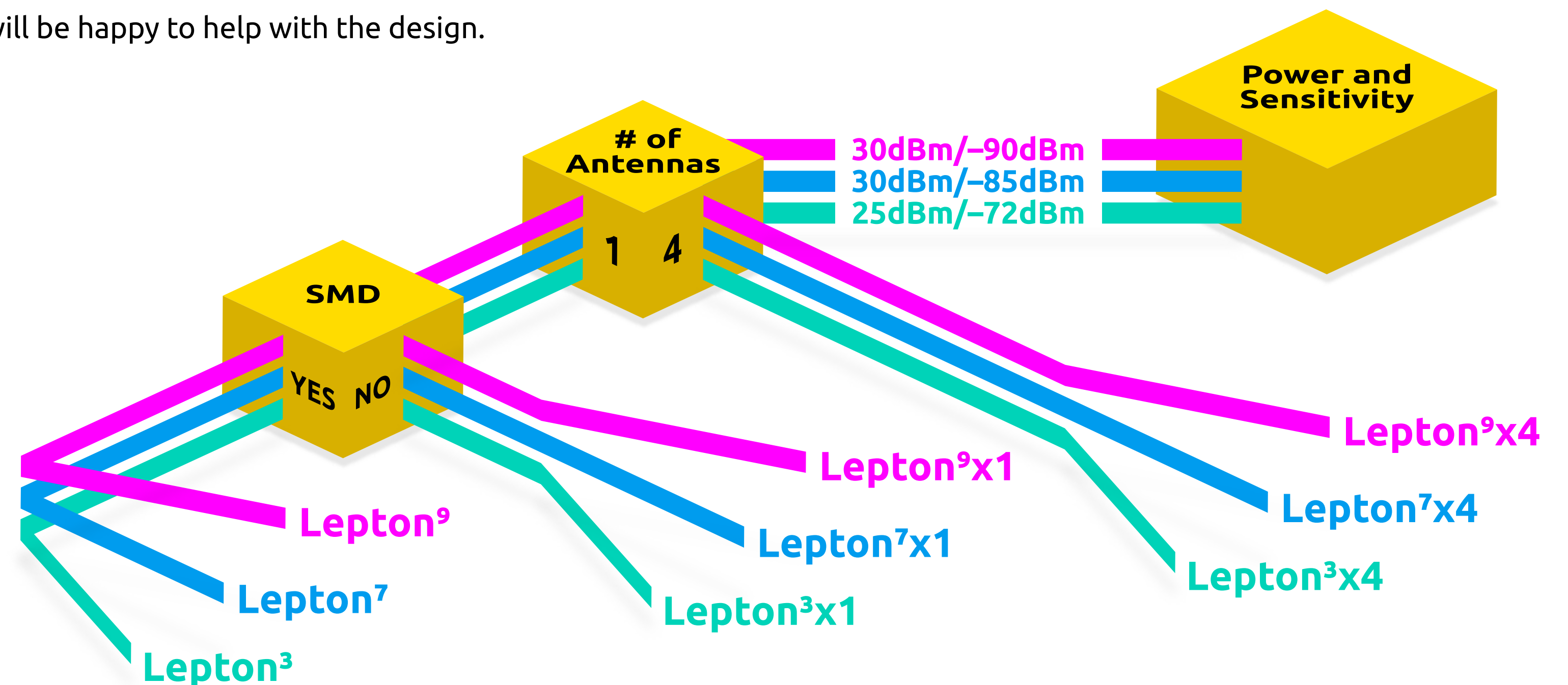
Lepton base models (**Lepton³**, **Lepton⁷** and **Lepton⁹**) are **SMD** (Surface Mount Devices) that means that they need to be soldered on a base board as the majority of modern electronic components. SMD components, even if they can be soldered manually, are best suited for automatic soldering machines and, for this reason, the **Lepton** modules are provided in standard trays that are accepted by pick and place machines.

As a result, if you are looking for high volume production where optimization of manufacturing time and PCB space is important, the best choice is to use one of the base Lepton models. The choice of the model depends on the performance needs of the final product. Using the SMD variant of the modules on the other hand requires a more accurate design of the base board PCB including the usage of a heat-sink at least for the more powerful **Lepton⁷** or **Lepton⁹** modules. All the guidelines

for correct usage and mounting of the modules are included in the respective technical manual.

All the base modules have a single antenna output so, if the final product requires multiple antennas outputs, you need to add an antenna multiplexing circuit on your base board, our technical support team will be happy to help with the design.

All the Lepton modules share the same pinout so you can design a single base board and install a **Lepton³**, **Lepton⁷** or **Lepton⁹** to obtain variants of your final product with different performance levels.



Connector Variants

| | Chip | Power | Sensitivity | Antenna Ports | Mounting mode | Antenna conn. | Data conn. | Input Voltage | Dimension (L×W×H) |
|-----------------------|------|-------|-------------|---------------|---------------|---------------|------------|------------------|-------------------------------------------------------------------------|
| Lepton ³ | E310 | 25dBm | -72dBm | 1 | SMD | N/A | N/A | 3.2 ÷ 5.25 V DC | 32 × 29 × 4.1 mm ³ 1.26 × 1.14 × 0.16 inches ³ |
| Lepton ^{3x1} | | | | | Connectors | 15 pin Molex | 1×MMCX | | 51 × 42 × 8.1 mm ³ 2.01 × 1.65 × 0.32 inches ³ |
| Lepton ^{3x4} | | | | 4 | | | 4×MMCX | | 60 × 42 × 8.1 mm ³ 2.36 × 1.65 × 0.32 inches ³ |
| Lepton ⁷ | E710 | 30dBm | -85dBm | 1 | SMD | N/A | N/A | 4.75 ÷ 5.25 V DC | 32 × 29 × 4.1 mm ³ 1.26 × 1.14 × 0.16 inches ³ |
| Lepton ^{7x1} | | | | | Connectors | 15 pin Molex | 1×MMCX | | 51 × 42 × 8.1 mm ³ 2.01 × 1.65 × 0.32 inches ³ |
| Lepton ^{7x4} | | | | 4 | | | 4×MMCX | | 60 × 42 × 8.1 mm ³ 2.36 × 1.65 × 0.32 inches ³ |
| Lepton ⁹ | E910 | 30dBm | -90dBm | 1 | SMD | N/A | N/A | 4.75 ÷ 5.25 V DC | 32 × 29 × 4.1 mm ³ 1.26 × 1.14 × 0.16 inches ³ |
| Lepton ^{9x1} | | | | | Connectors | 15 pin Molex | 1×MMCX | | 51 × 42 × 8.1 mm ³ 2.01 × 1.65 × 0.32 inches ³ |
| Lepton ^{9x4} | | | | 4 | | | 4×MMCX | | 60 × 42 × 8.1 mm ³ 2.36 × 1.65 × 0.32 inches ³ |

LeptonX models (**Lepton^{3x1}**, **^{3x4}**, **^{7x1}**, **^{7x4}**, **^{9x1}** and **^{9x4}**) are equipped with connectors for both data communication and antennas. The modules are all based on the respective base SMD models adding the connectors and, in case of the **x4** variant, the antenna multiplexing circuit to drive 4 antenna outputs.

You should choose a **LeptonX** variant if your production volume does not require automatic mounting, space saving or if you prefer to mount the modules manually for any reason related to the mechanical architecture of your final product.

Although it is possible to use **LeptonX** variants for portable devices, it is preferable to use the base version mostly because of the reduced dimensions. **LeptonX** variants are more well suited for **fixed readers** or **integrated readers**.