Embeddable RFID

LOW, HIGH AND ULTRAHIGH-FREQUENCY TRANSPONDERS FOR ENCLOSURE INTO VIRTUALLY ANY FORM FACTOR

- **Customizable** – choose a size, chip and a disc or rod to fit any custom enclosure
- **Unsurpassed quality** – fully automated manufacturing and innovative DBond™ technology ensure tag reliability
- **Reliable operation** – built to withstand the rigors of tag processing, including plastic injection molding

Embeddable RFID transponders allow manufacturers to integrate HID Global electronic components seamlessly into tag designs optimized for any application.

Leveraging HID experience, manufacturers and integrators can combine their specialized market expertise to deliver optimized tagging solutions for custom automation applications. Manufacturers can save the time and expense of electronics design and production, and better focus resources on providing customer solutions.

With a variety of integrated chips, HID offers a range of Embeddable RFID components various operating frequencies, and form factors for incorporation into finished tagging solutions.

Choose from:
- **E-Unit Disc transponders** – low frequency HID coils and chips, ideal for key fobs and similar simple applications.
- **Inlays & Labels** – NFC or UHF inlays or printable labels are easy to apply via glue to smart posters etc.
- **PCB Coins** – UHF near-field transponders, small and robust.
- **Clear Disc transponders** – low and high frequency electronics sealed in a transparent plastic coating that provides resistance to chemical exposure, shock, vibration and thermal fluctuations, both during and after production.
- **e-Module transponders** – high frequency coils in a robust housing, to withstand the high heat manufacturing processes of special finished tags.
- **Piccolino Tag transponders** – for space-constrained applications, our smallest disc-shaped units deliver high frequency performance and up to a 16 kbit read-write memory.

When a rod form factor suits the target housing better than a coil – E-Unit Rod transponders provide the same high-performance coil design at the heart of the HID Glass Tag family, for embedding into your preferred housing. Rod-shaped units may also be preferred when a more precisely directed radio frequency field is needed. If a standard configuration does not fulfill your needs, HID engineers can customize a transponder unit to meet your requirements.
**Specifications**

<table>
<thead>
<tr>
<th>Embedded RFID</th>
<th>Clear Disc</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hitag S</strong></td>
<td><strong>Q5</strong></td>
</tr>
<tr>
<td>20 mm</td>
<td>30 mm</td>
</tr>
<tr>
<td>Base Model Number</td>
<td></td>
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<tr>
<td>623116</td>
<td>624116</td>
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</tbody>
</table>

**Electronic**

- **Operating Frequency**: 125 kHz, 13.56 MHz
- **Chip Type**: HITAG S, Q5, Unique, MIFARE 1K, MIFARE DESFire EV1
- **Memory**: 256 bit EEPROM, 2048 bit EEPROM, 2048 bit EEPROM, 256 bit EEPROM, 64 bit read-only, 1 KB EEPROM, 4 KB EEPROM
- **Anti-collision**: Yes, Yes

**Physical**

- **Outer Coil Diameter**: Ø 0.79 in (20 mm), Ø 1.18 in (30 mm), Ø 0.87 in (22 mm), Ø 1.18 in (30 mm), Ø 0.79 in (20 mm), Ø 1.18 in (30 mm), Ø 0.98 in (25 mm)
- **Inner Coil Diameter**: 0.02 in (0.6 mm), 0.03 in (0.75 mm)
- **Thickness**: 0.02 in (0.6 mm), 0.03 in (0.75 mm)
- **Mounting Method**: Embed, glue
- **Housing Material**: Polyethylene + Polyester (outside)

**Chemical and Mechanical**

- **Water**: Depends on finished product
- **Vibration**: Depends on finished product
- **Shock**: Depends on finished product
- **Vibration**: Depends on finished product
- **Storage**: -4° to +140° F (-20° to +60° C)
- **Operating**: -4° to +140° F (-20° to +60° C)

**Other**

- **Standards**: Box Size
- **Box Size**: 5000 pcs, 2000 pcs, 5000 pcs, 2000 pcs, 5000 pcs, 2000 pcs, 500 pcs
- **Options**: Alternative sizes and chips (e.g. HDX). See separate datasheet for inlays & labels.
- **Warranty**: 2 Years
### SPECIFICATIONS

#### Embeddable RFID

<table>
<thead>
<tr>
<th>E-Unit Disc</th>
<th>E-Unit Rod</th>
<th>e-Module</th>
<th>Piccolino Tag</th>
<th>PCB Coin</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM4305</td>
<td>HITAG S</td>
<td>HITAG S</td>
<td>iCODE SLIX</td>
<td>F-Mem</td>
</tr>
<tr>
<td>24 mm</td>
<td>28 mm</td>
<td>24 mm</td>
<td>28 mm</td>
<td>15 mm</td>
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<tr>
<td>15 mm</td>
<td>7.5 mm</td>
<td>9.5 mm</td>
<td>6/9.5 mm</td>
<td>6/9.5 mm</td>
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<td>201045</td>
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<td>6C9192-06</td>
<td>6C9192-06</td>
<td>6C6164 (EU)</td>
<td>6C6163 (US)</td>
<td>6C6165 (US)</td>
</tr>
</tbody>
</table>

#### ELECTRONIC

- Operating Frequency: 13.42 kHz, 13.56 MHz, 869 MHz (EU), 915 MHz (US)
- Chip Type: EM4305, HITAG S, HITAG S, ICODE SLIX, ICODE SLIX (2), Vigo, F-Mem, Monza 4E
- Memory: 512 bit EEPROM, 256 bit EEPROM, 256 bit, 1024 bit EEPROM, 1664 bit (6 mm), 496 bit EPC + 96 bit TID + 128 bit user
- Anti-collision: Yes
- Reading Distance: Dependent upon reader, environment and application

#### PHYSICAL

- Outer Coil Diameter: Ø 0.97 in (Ø 24.3 mm), Ø 1.09 in (Ø 27.8 mm), Ø 0.97 in (Ø 24.3 mm), Ø 1.09 in (Ø 27.8 mm), Ø 0.57 in (Ø 14.5 mm), Ø 0.30 in (Ø 7.5 mm), Ø 0.37 in (Ø 9.5 mm), Ø 0.23/0.37 in (Ø 6/9.5 mm), Ø 0.63 in (Ø 16 mm), 0.75 x 0.47 in (19 x 12 mm)
- Inner Coil Diameter: Ø 0.79 in (Ø 20 mm), Ø 0.93 in (Ø 23.5 mm), Ø 0.79 in (Ø 20 mm), Ø 0.93 in (Ø 23.5 mm), Ø 0.27 in (Ø 6.8 mm)
- Thickness: 0.03 in (0.85 mm), 0.09 in (2.2 mm), 0.03 in (0.85 mm), 0.09 in (2.2 mm), Ø 0.07 x 2.59 mm (Ø 0.18 x 15 mm), 0.04 in (0.9 mm), 0.04 in (0.9 mm)
- Mounting Method: Embed, glue
- Housing Material: Depends on finished product, Epoxy glob top, Epoxy, PCB

#### CHEMICAL AND MECHANICAL

- Water: Depends on finished product
- Withstands Exposure To: Depends on finished product
- Vibration: Depends on finished product
- Shock: Depends on finished product
- Storage: -40° to +140° F (-40° to +60° C)
- Operating: -40° to +140° F (-40° to +60° C)
- Therm: -40° to +185° F (-40° to 85° C)
- Other Standards: ISO 11784, ISO 11785, ISO 15693, ISO 18000-3, ISO 15693
- Box Size: 1250 pcs, 1000 pcs, 1250 pcs, 1000 pcs, 39.912 pcs
- Options: Alternative sizes and chips (e.g. HDX). See separate datasheet for inlays & labels.
- Warranty: 2 Years

#### INDUSTRY AND LOGISTICS

- Application Areas:
  - Asset tracking and logistics: Gas bottles, Utility lines
  - Automation and manufacturing: Tool maintenance, Process accountability
  - Medical and health: Consumables, Instruments