R&S®ARDRONIS
Countering threats early on

The R&S®ARDRONIS automatic radio-controlled drone identification solution is the ideal approach for the demanding applications in drone monitoring and countermeasures. It meets the challenges of countering radio-controlled drones by intercepting the radio-communications link to reliably detect and capture the direction of pilots and drones.

Meeting the challenges of drone monitoring and countermeasures
R&S®ARDRONIS provides early warning capability and fast detection once the remote control is turned on – even before take-off. R&S®ARDRONIS has outstanding capabilities. It reliably detects drone activity and identifies the direction of operators and also provides effective countermeasures with follower jamming.

Key features
R&S®ARDRONIS is an optimized solution that reliably detects, finds the direction of and disrupts targeted remote control signals in the shortest possible time.

- Reliable approach: drone monitoring based on radio communications link, ensuring high reliability of detection and low false alarm rate
- Early warning: very fast response solution to detect radio-controlled drones, even before take-off
- Situational awareness: complete detection list of all threats caused by drones in a defined area
- Fully automatic integrated workflow: easy-to-use GUI and fully integrated operation concept. Automatic and immediate trigger alarm and notification in case of threats
- Advanced direction finding: accurate geolocation of active remote control and drones (i.e. telemetry/video downlink)
- Effective countermeasures: countering threats early on. Prevent a radio-controlled drone from entering a defined area and deploy effective countermeasures in time with the high-precision follower jammer approach

Optimized applications
The capabilities and key functionalities of R&S®ARDRONIS include classification, direction finding and countermeasures for threats imposed by radio-controlled drones. These functionalities are categorized in four packages to meet users’ specific technical requirements.

<table>
<thead>
<tr>
<th>Packages</th>
<th>Type</th>
<th>Functionality</th>
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</thead>
<tbody>
<tr>
<td>R&amp;S®ARDRONIS Detection</td>
<td>R&amp;S®ARDRONIS-I</td>
<td>Classification – Direction finding – Countermeasure</td>
</tr>
<tr>
<td>R&amp;S®ARDRONIS Direction</td>
<td>R&amp;S®ARDRONIS-D</td>
<td>–</td>
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<tr>
<td>R&amp;S®ARDRONIS Disruption</td>
<td>R&amp;S®ARDRONIS-R</td>
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<tr>
<td>R&amp;S®ARDRONIS Protection</td>
<td>R&amp;S®ARDRONIS-P</td>
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</table>
Passive approach

**R&S®ARDRONIS-I**
Fast, reliable **classification** of emitted drone radio control links:
- Robust signal detection and classification
- Fast response and early warning
- Automatic alarm triggering
- Full-spectrum awareness
- Easy to use and fully automated, integrated workflow
- Extendable profile database
- Powerful, compact system
- Easy to transport

**R&S®ARDRONIS Detection**

<table>
<thead>
<tr>
<th>Antenna</th>
<th>Receiver</th>
<th>R&amp;S®ARDRONIS software</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;S®HE800 (20 MHz to 8 GHz)</td>
<td>R&amp;S®IN600</td>
<td>R&amp;S®ARDN (option: laptop)</td>
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<tr>
<td>R&amp;S®EB500</td>
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<td>Test kit (RC)</td>
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**R&S®ARDRONIS-D**
Simultaneous advanced **classification** and **direction finding** of radio control links:
- Covers all radio-controlled drone classification capabilities (R&S®ARDRONIS-I)
- Accurate bearings of active RCs and drones
- High sensitivity direction finding
- Superior DF accuracy and immunity to reflections
- Fast DF for FHSS/DSSS drones with high probability of intercept
- Integrated electronic map
- Display of video stream
- Open interface, customizable and interoperable

**Active approach**

**R&S®ARDRONIS-R**
**Classification** and **countermeasures**. Immediate counteracting of threats arising from detected radio-controlled drones:
- Covers all radio-controlled drone classification capabilities (R&S®ARDRONIS-I)
- Disrupt the connection between the RC and the drone
- Smart reactive jamming of each individual RC link
- Precise countermeasures with minimal output power
- Other signals in the frequency band are not affected
- Automatic jamming based on detection profiles
- Prevent a drone from flying into a protected area

**R&S®ARDRONIS Disruption**

<table>
<thead>
<tr>
<th>RX/TX omnidirectional/directional antenna</th>
<th>Follower jammer</th>
<th>R&amp;S®ARDRONIS software</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;S®AD016MC (800 MHz to 8 GHz)</td>
<td>R&amp;S®WSE, R&amp;S®WSE-RTA and R&amp;S®SGT100A</td>
<td>R&amp;S®ARDN</td>
</tr>
<tr>
<td>R&amp;S®HL040E (400 MHz to 6 GHz)</td>
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<td>Test kit (RC)</td>
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**R&S®ARDRONIS-P**
The comprehensive all-in-one solution against the threats arising from radio-controlled drones:
- Covers all radio-controlled drone classification, direction finding and countermeasure capabilities (R&S®ARDRONIS-I/-D/-R)

**R&S®ARDRONIS Protection**

<table>
<thead>
<tr>
<th>DF antenna</th>
<th>Direction finder</th>
<th>R&amp;S®ARDRONIS software</th>
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<tbody>
<tr>
<td>R&amp;S®ADD078</td>
<td>R&amp;S®DDF550</td>
<td></td>
</tr>
<tr>
<td>R&amp;S®AD016MC (800 MHz to 8 GHz)</td>
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