

A multi purpose shark fin antenna for LTE450 UHF, GNSS, GPS, 2G/3G/4G and dual WiFi 2.4 + 5.0 GHz

DESCRIPTION

- > Can be configured as 3in1, 4in1, and 5in1
- > In-built UHF antenna available.
- > In-built 4G antenna (698 - 960 MHz and 1710 - 2700 MHz).
- > GNSS antenna for GPS L1, Glonass, Beidou and Galileo.
- > Model available with optional antenna for GPS L1.
- > Dual WiFi 2.4 and 5.0 GHz.
- > Supports external whip.
- > No duplexer needed.
- > The ProFin provides antennas for multiple technologies.
- > The ProFin covers UHF, GNSS, GPS L1, 2G/3G/4G cellular bands, dual WiFi 2.4 and 5.0 GHz and an optional whip.
- > The ProFin can support antenna whip in the range 66 - 520 MHz.
- > All ProFin configurations are prepared for external whip.
- > Easily removable whip for car wash.
- > Full hemispherical coverage for the GNSS and GPS.
- > Built-in high gain, low noise amplifier.
- > Preselector filter ensures high GNSS/GPS amplifier blocking level for out-of-band signals.
- > Right-Hand Circular Polarization (RHCP).
- > 3 - 15 V DC for GNSS/GPS supply.
- > DC supply via GNSS or GPS RF-connector.
- > ECE R118.02 approved cable.



SHOWN WITH OPTIONAL EXTERNAL WHIP.



SPECIFICATIONS

| Electrical                  |   |
|-----------------------------|---|
| Model                       | ProFin  |
| Frequency                   | UHF : 380 - 470 MHz (in three models)<br>WIFI : 2300 - 2500 MHz, 5000 - 6000 MHz<br>4G : 698 - 960 MHz, 1710 - 2700 MHz |
| Antenna Type                | Mobile Shark Fin Style Antenna  |
| Max. Input Power            | 10 W for built-in UHF<br>25 W for 4G Antenna<br>100 W for whip  |
| Polarisation                | Vertical  |
| Pattern Type                | Omnidirectional   |
| Impedance                   | 50 Ω  |
| VSWR                        | < 2.0:1 (< 2.5:1 for 698 -960 MHz)  |
| Gain (EIA RS-329-1)         | Varies over frequency (see gain table and plots)  |
| Mechanical                  |   |
| Compliance                  | ECE R118.02 approved cable  |
| Antenna Colour              | Black (RAL 9005)  |
| Connection(s)               | SMA(m) (all antennas)   |
| Materials                   | Reinforced PA, Zamak 5  |
| Installation Torque         | 4 ± 0.5 Nm  |
| Dimensions                  | Approx. 76 x 142.5 mm / 2.99 x 5.61 in.   |
| Max. Roof Thickness         | 3 mm / 0.12 in.   |
| Whip Connection             | M5  |
| Height                      | Approx. 66 mm / 2.6 in.   |
| Weight                      | Approx. 0.26 kg / 0.57 lb.  |
| Mounting                    | 18.5 mm / 0.8 in. dia. hole<br>Max roof curvature : 2.0 mm / 0.08 in.<br>(on 142 mm)                                    |
| Environmental               |   |
| Operating temperature range | -50 °C to +75 °C  |
| Ingress Protection          | IP67  |

| GPS Antenna                          |   |
|--------------------------------------|---|
| Noise Figure (GPS Amplifier)         | < 1.5 dB (typ. 1.1 dB)  |
| Gain (GPS Amplifier)                 | 22 dB ± 2 dB  |
| Frequency (GPS)                      | 1575 MHz  |
| Power Supply (GPS)                   | 3 - 15 V DC   |
| Current Consumption (GPS Amplifier)  | < 12 mA   |
| Impedance (GPS)                      | 50 Ω  |
| GNSS Antenna                         |   |
| Noise Figure (GNSS Amplifier)        | 1.6 dB (typ.)   |
| Cross Polar Discrimination (GNSS)    | > 10 dB (typ.)  |
| Gain (GNSS Amplifier)                | 26 dB (typ.)  |
| Selectivity (GNSS Amplifier)         | > 25 dB down @ 0 - 1540 MHz<br>> 27 dB down @ 1625 - 3000 MHz |
| VSWR (GNSS Amplifier)                | < 2.0:1   |
| Frequency (GNSS)                     | 1559 - 1609 MHz (GPS L1, Glonass, Beidou and Galileo)         |
| Power Supply (GNSS)                  | 3 - 15 V DC   |
| Current Consumption (GNSS Amplifier) | Approx. 20 mA   |
| Polarisation (GNSS)                  | RH Circular   |
| Impedance (GNSS)                     | 50 Ω  |

ORDERING

| Model                        | Product No. | Description  |
|------------------------------|-------------|--|
| ProFin G1                    | 132000230   | 4G, WIFI,GNSS  |
| ProFin G2                    | 132000231   | 4G, WIFI,GNSS,GPS  |
| ProFin G1-395                | 132000232   | 4G, WIFI,GNSS,UHF 380 - 410 MHz  |
| ProFin G1-430                | 132000233   | 4G, WIFI,GNSS,UHF 410 - 450 MHz  |
| ProFin G1-450                | 132000234   | 4G, WIFI,GNSS,UHF 430 - 470 MHz  |
| ProFin G2-395                | 132000236   | 4G, WIFI,GNSS,GPS,UHF 380 - 410 MHz                                      |
| ProFin G2-430                | 132000237   | 4G, WIFI,GNSS,GPS,UHF 410 - 450 MHz                                      |
| ProFin G2-450                | 132000238   | 4G, WIFI,GNSS,GPS,UHF 430 - 470 MHz                                      |
| <b>Accessories - Whips</b>   |             |  |
| MP-SS-S/FM whip              | 132000244   | Stainless steel whip with shock spring.                                  |
| MP-SS-S/150 whip             | 132000245   | Stainless steel whip with shock spring. (adjustable by customer)         |
| MP_SS_S/DAB whip             | 132000260   | Stainless steel whip with shock spring.                                  |
| MP-B/450/405 MHz whip        | 132000247   | Flexible whip (0 dB acc. to TIA-329.2-C)                                 |
| MP-B/450/445 MHz whip        | 132000248   | Flexible whip (0 dB acc. to TIA-329.2-C)                                 |
| MP-SS/450-4/395 MHz whip     | 132000249   | Stainless steel collinear whip (4 dB acc. to TIA-329.2-C)                |
| MP-SS/450-4/425 MHz whip     | 132000250   | Stainless steel collinear whip (4 dB acc. to TIA-329.2-C)                |
| MP-SS/450-4/455 MHz whip     | 132000251   | Stainless steel collinear whip (4 dB acc. to TIA-329.2-C)                |
| MP-G-S/150/450/.../...whip   | 132000224   | Flexible whip with shock spring (factory adjusted)                       |
| MP-G-S/450/FM/395 whip       | 132000256   | Flexible whip with shock spring (factory adjusted)                       |
| <b>Accessories - Cables</b>  |             |  |
| 5m ProFin Cable Kit          | 132000243   | "6 pcs. RG174 cables in one cable bundle. Provides ease of installation" |
| 3m SMA(f)-BNC(m)             | 130002416   | RG 58 A/U-L cable  |
| 4m SMA(f)-BNC(m)             | 130002417   | RG 58 A/U-L cable  |
| 5m SMA(f)-BNC(m)             | 130002418   | RG 58 A/U-L cable  |
| 3m SMA(f)-TNC(m)             | 130002421   | RG 58 A/U-L cable  |
| 4m SMA(f)-TNC(m)             | 130002422   | RG 58 A/U-L cable  |
| 5m SMA(f)-TNC(m)             | 130002423   | RG 58 A/U-L cable  |
| 3m SMA(f)-SMA(m)             | 130002426   | RG 58 A/U-L cable  |
| 4m SMA(f)-SMA(m)             | 130002427   | RG 58 A/U-L cable  |
| 5m SMA(f)-SMA(m)             | 130002428   | RG 58 A/U-L cable  |
| <b>Accessories - Adaptor</b> |             |  |
| SMA(f)-N(m)                  | 130002429   |  |
| SMA(f)-BNC(m)                | 130002430   |  |
| SMA(f)-TNC(m)                | 130002431   |  |
| SMA(f)-SMB(m)                | 130002432   |  |
| SMA(f)-QMA(m)                | 130002522   |  |

NOMENCLATURE

Use the guide below to configure the ProFin you would like to order.

| Model Name            | No. of GNSS | Internal UHF antenna                                | Cable length(m)   | Connectors on LTE                 | Connectors on WIFI  | Connectors on GNSS                | Connectors on internal UHF antenna | Connectors on external whip antenna |
|-----------------------|-------------|---|---|-----------------------------------|---|-----------------------------------|------------------------------------|-------------------------------------|
| ProFin                | G1<br>G2    | -Blank when no internal UHF<br>-395<br>-430<br>-450 | Blank (approx. 0.3 m / 1 ft cable length)<br>-P5 (5 m / 16.4 ft cable length) | -S (SMA-M)<br>-FAKRA (on request) | /S (SMA-M)<br>/RP-S (Reverse Polarity SMA-M)<br>/FAKRA (on request) | /S (SMA-M)<br>/FAKRA (on request) | /S (SMA-M)<br>/FAKRA (on request)  | /S (SMA-M)<br>/FAKRA (on request)   |
| <b>Naming Example</b> |             |   |   |                                   |   |                                   |                                    |                                     |
| ProFin                | G1          | -395  | -P5   | -S (SMA-M)                        | /RP-S (Reverse Polarity SMA-M)                                      | /S (SMA-M)                        | /S (SMA-M)                         | /S (SMA-M)                          |

Examples

ProFin G1-395-P5-S/RP-S/S

ProFin G1-S/S/S/S

BY SELECTING THE PROPER PROFIN MODEL, FOLLOWING RECOMMENDATIONS MUST BE CONSIDERED:

- We recommend not to use an external whip on ProFin models with in-built UHF antenna, since performance of the UHF antenna will be degraded.
- If an external whip is used on a ProFin model with in-built UHF antenna, the tuning frequency/operating frequency of the external whip must be minimum 50 MHz apart from the center frequency of the in-built UHF antenna. Example: For ProFin G1-395 / ProFin G2-395, the tuning frequency/operating frequency of the external whip must be ≤ 345 MHz or ≥ 445 MHz.
- Max. recommended frequency of an external whip is 520 MHz.
- If more than 10 W is needed in the UHF band, we recommend using an external whip on a ProFin model without in-built UHF antenna or on a ProFin Plus model.

GAIN TABLE FOR IN-BUILT ANTENNAS

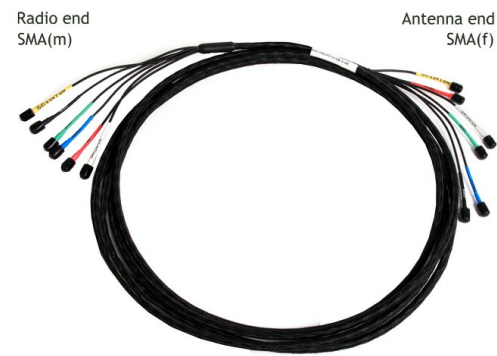
| TYPE             | FREQUENCY (MHz) | PEAK GAIN (dBi) | AVERAGE GAIN H-PLANE (dBi) | AVERAGE GAIN H-PLANE (dBq) * |
|------------------|-----------------|-----------------|----------------------------|------------------------------|
| UHF element      | 400             | -3.0            | -7.0                       | -6.5                         |
|                  | 700             | 4.0             | -1.5                       | -1.0                         |
|                  | 900             | 4.0             | -1.0                       | -0.5                         |
|                  | 1800            | 5.0             | -1.0                       | 0.0                          |
| 2G/3G/4G element | 2500            | 9.0             | 1.0                        | 1.5                          |
|                  | 2400            | 5.0             | -2.0                       | -2.0                         |
|                  | 5500            | 6.0             | -2.0                       | -3.0                         |

\* According to TIA-329.2-C

WHIP MODELS



ACCESSORIES - CABLES



5 m ProFin Cable Kit.  
6 pcs. RG 174 cables in one cable bundle (ø9 mm).  
Provides ease of installation.

ORDERING DESIGNATIONS - WHIP MATRIX

| TYPE                       | DESCRIPTION  | FM<br>88-108 MHz | VHF<br>144..240 MHz | UHF<br>380..470 MHz | UHF (Gain)<br>380..470 MHz |
|----------------------------|--|------------------|---------------------|---------------------|----------------------------|
| MP-SS-S/FM whip            | Stainless steel whip with shock spring.                      | ◆                |                     |                     |                            |
| MP-SS-S/150 whip           | Stainless steel whip with shock spring.                      | ◆                | ◆                   |                     |                            |
| MP-SS-S/DAB whip           | Stainless steel whip with shock spring.                      | ◆                | ◆                   |                     |                            |
| MP-B/450/...whip           | Flexible whip<br>(0 dB acc. to TIA-329.2-C)                  |                  |                     | ◆                   |                            |
| MP-SS/450-4/...whip        | Stainless steel collinear whip<br>(4 dB acc. to TIA-329.2-C) |                  |                     |                     | ◆                          |
| MP-G-S/150/450/.../...whip | Flexible whip with shock spring (factory adjusted)           |                  | ◆                   | ◆                   |                            |
| MP-G-S/450/FM/... whip     | Flexible whip with shock spring (factory adjusted)           | ◆                |                     | ◆                   |                            |

For more information we refer to the corresponding whip datasheets. The in-built antennas can be used without an external ground-plane, but with degraded electrical performance.

TYPICAL VSWR CURVES



\* VSWR measured with no whip and 5 m (197 in.) of RG58 cable on a 1000 x 1000 mm (39 x 39 in.) ground plane.  
 \*\* VSWR measured with collinear whip and 5 m (197 in.) of RG58 cable on a 1000 x 1000 mm (39 x 39 in.) ground plane.

RADIATION PATTERNS

