



# RF Savvy Technologies External Antenna Isolator Box

**Part Number: RFST-RFCBOX001A**

**Features:**

- Low Insertion loss (<1.2dB @915MHz)
- Universal (10 bands) operation for mesh, 2G/3G/4G LTE cellular, GPS and Iridium satellite SBD network coverage:
  - 700/850/900/1800/1900/2170MHz
  - 433MHz & 900MHz ISM bands
  - 1616MHz (Iridium) & 1575MHz (GPS) Satellite bands
- 10kV Electrical isolation
- IP 66 NEMA 4.X & UL 94V-2 rated encl. w/neoprene gasket
- NEMA 4.X cable glands
- (Product UL certification pending)



Fig 1.0  
Antenna Isolator Box  
(NEMA 4.X Enclosure/Cable glands)  
(MMCX term. for illustration only)

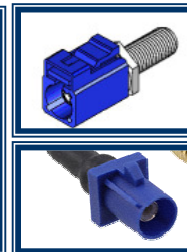


Fig 1.1  
FAKRA-SMA jack w/o-ring  
bulk-head mount (top dwg)  
Fig 1.2  
RG174 & FAKRA Plug  
(bottom dwg)

**Application:**

This RF Savvy external antenna isolator is a rugged weather tight electrical safety isolation box featuring high isolation combined with a *low-loss* broadband (300MHz-2170MHz) RF coupler. (For 2.45GHz ISM band solution refer to separate product p/no: RFST-RFCBOX002A). It is suitable for use as a universal accessory with external antennas on most electric utility meter installations where rural and/or other off-network locations dictate the use of an external antenna for improved connectivity/range.

Other applications include LED SMART street lights that contain embedded RF communications modules and require an external antenna.

The RFST-RFCBOX001A series is suitable for applications, where electrical isolation between the radio modem RF output and external antenna is required. The 10kV electrical isolation enables safe routing of the RF signal from the NIC or wireless modem to a remote external antenna via a bulk head connection\* in the meter base or body of the communications module. The RF Savvy series antenna isolator box is a stand-alone accessory that can be placed internal to or external to the meter housing, in a meter socket or cabinet.

The input and output RF connections are provided via Qty 2 8" long (200mm) RG174 pig tailed cables via NEMA 4.X weather tight cable glands and an insulated SMB Fakra D male (plug) connector (fig 1.2) for both the input and the output termination.

\* Contact [info@rfsavvy.com](mailto:info@rfsavvy.com) for external antenna recommendations as well as availability of an insulated FAKRA D (jack) bulkhead female (jack) to SMA Jack bulkhead with o-ring solution (fig 1.1) for use on the meter itself.

**Disclaimer: Customer is cautioned that safe installation requires the input and output coaxial cable assemblies to be run inside of the customer application in such a manner so as not to allow them to cross paths which if permitted can severely degrade the quoted 10kV electrical safety isolation of this product.**

**Electrical Properties:**

Operating Frequencies:	<ul style="list-style-type: none"> <li>• 902-928MHz (ISM band)</li> <li>• 433MHz (ISM band)</li> <li>• 700/850/900/1800/1900/2170MHz</li> <li>• 900MHz ISM band</li> <li>• 1616MHz (Iridium Satellite SBD)</li> <li>• 1575MHz (GPS L1)</li> </ul>
Input/Output Impedance:	50 Ohms (nominal)
Max VSWR:	<1.5:1 @ 433MHz/915MHz/2170MHz (typ)
Insertion Loss:	<1.0dB @ 433MHz (typ)
*Includes 200mm (x2) RF cable loss.	<1.2dB @ 915MHz (typ) <3.5dB @ 2.170MHz (typ)
Electrical Isolation (DC)	10kV (no damage)
Max RF power:	2 Watts(+33dBm)



Fig 2.0 RF Coupler  
Insertion Loss S21 (dB) \*

**Mechanical Properties:**

Enclosure Nominal Dimensions:	65mm x 50mm x35mm
Enclosure Material:	Polycarbonate
RF cables/ Terminations:	Qty 2: 200mm length RG174 pig tailed cables with FAKRA SMB plug (male) via NEMA 4.X plastic cable gland.

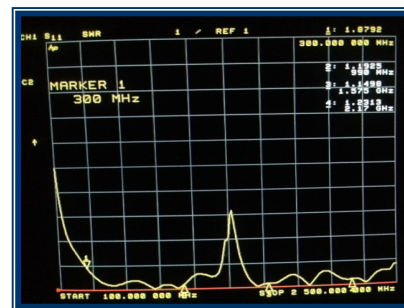


Fig 3.0 RF Coupler  
VSWR  
Rev 2.0 |11/12/2014

**Environmental:**

Operating Temperature:	-40°C to +80°C (all components)
Rugged Weather-tight Enclosure:	UL 94V-2/NEMA 4.x/UL 508 (Product UL certification pending)

RF Savvy Technologies Patent Pending  
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**Preliminary and Subject to change**