

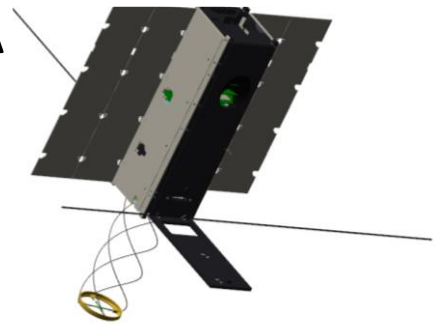
400 or 437MHz Heritage UHF QHA

634 Barnes Boulevard Suite #206, Rockledge, FL 32955

O: 321-208-8978

E: HelicalCommunicationTech@gmail.com

<https://www.helicomtech.com/>



About Us

Helical Communication Technologies was formed to serve the increasing need for specialized antennas for use with ground-based and space-based communication with satellites placed in low earth orbit and deep space.

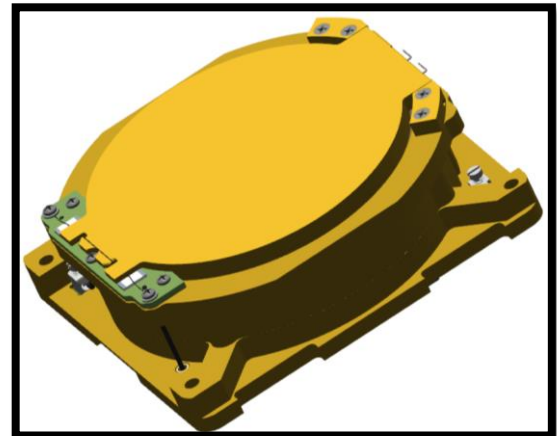
1. Heritage QHA

A QHA is a type of antenna consisting of 4 radiating wires wound in a helix. The filars that form the antenna are constructed from super-elastic Shape Memory Alloy materials.

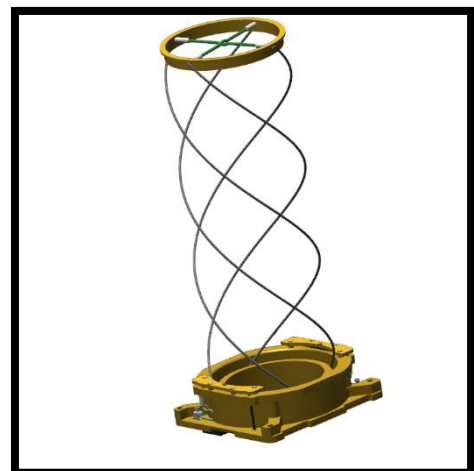
HCT Heritage QHA has been part of numerous projects, displaying flight heritage since December 2018.

1.1 Module Mechanical Dimensions

Mechanical Parameter	Nominal Value
Depth	~100mm
Width	~100mm
Height (400MHz Deployed)	<=270mm
Height (437MHz Deployed)	<=260mm
Height (Stowed)	<=40mm
Mass	<=180g
Thermal Knife Cord Material	50lb. test line
Housing Construction	Ultem 1000 with 18-8 stainless steel fasteners
Filar Construction	Super elastic Shape Memory Wire
Deployment Mechanism	Thermal Knife/Spring Loaded/Super-Elastic Filars
DC Connector	10-Pin Harwin Connector



STOWED



DEPLOYED

1.2 Electrical Specifications

Prior to QHA deployment, the filars are held in stowed configuration by a thermal knife retention system. During deployment, electrical power is applied to the thermal knife, heating up the resistors until severing the retention line. The deployment sensor provides an indication to an external interface that the filars have been released for deployment.

DC Electrical Parameter	Nominal Value
Voltage Input	+5VDC or +12VDC or +24VDC or +28VDC
Thermal Knife Power Dissipation	13W
TK Current (at +5VDC)	2.6A
TK Current (at +12VDC)	1.1A
TK Current (at +24VDC)	542mA
TK Current (at +28VDC)	464mA
Displacement Sensor Voltage	3VDC or 3.3VDC or 5VDC or 12VDC
Deployment Sensor Output (stowed in pull-up configuration)	< 0.8VDC
Deployment Sensor Output (stowed in pull-down configuration)	Vcc
Deployment Sensor Output (deployed in pull-up configuration)	Vcc
Deployment Sensor Output (deployed in pull-down configuration)	~0 VDC
Deployment Sensor Output (stowed in open-collector configuration)	< 100 μ A
Deployment Sensor Output (deployed in open-collector configuration)	> 1mA
Optical Sensor Collector Input	3VDC or 3.3VDC or 5VDC or 12VDC
Thermal Knife deployment time	< 20 seconds (typical)
Deployment Sensor Current	<= 20mA (typical)

1.3 RF Specifications

RF Parameter	Nominal Value
Frequency	400 MHz or 437MHz
Gain	3.5dBi
-3dB Beamwidth	120° *Other beamwidths available
Axial Ratio	<2dB
VSWR	<1.5:1
Polarization	RHCP, LHCP
Transmit Power	10W
RF Connector	SMA (Straight/Right Angle) or SMP (Straight/Right Angle)

*If QHA desired frequency is not listed, customized QHA are available from 350 MHz to 3000 MHz. Module mechanical dimensions and RF specs may vary upon desired frequency.