

Tri Band Duplexed Antenna Kit with GPS  
108-174 450-520 746-870 MHz NMO Mount/N Type Connectors



**HG104574DU-GPS**

**Features**

- Duplexer (VHF/UHF 108-174MHz/450-520MHz/746-870MHz) with integral N-Type (m) Connectors (3 ea.)
- Low Loss HG-GPSNMO58-SMA NMO Combination mount with integrated GPS antenna (1 ea.)
- RG-58/U NMO mount (1 ea.)
- HG4574PF-NMO multiband antenna (1 ea.)
- HG102PS-NMO tunable VHF/UHF antenna (1 ea.)
- RG-58/U Feed Cable (1 ea.)

**Applications**

- Service Vehicles
- Public Safety
- Public Transportation
- Mining & Construction

**Description**

Combined with a GPS antenna, this Tri-band duplexed mobile antenna kit is ideally suited for multipoint mobile applications including service vehicles, public transportation, public safety, mining and construction vehicles, as well as numerous other commercial and industrial applications where mobility and wide coverage is desired. The antenna kit features a Tri-band deplexer, a pair of mobile antenna, and a GPS antenna. This gives users the flexibility to operate radio transceivers in any VHF and UHF band with optimum performance. The kit allows the user to upgrade/switch to any NMO-type antenna.

**Configuration**

Design	Duplexed
Application Band	VHF/UHF
Band Type	Tri
Cable Length	204 in [518.16 cm]
Connector Type	NMO Mount
Interface 2	N

**Duplexer Electrical Specifications**

Description	Minimum	Typical	Maximum	Units
Frequency Range (VHF)	100		180	MHz
Frequency Range (UHF)	380		870	MHz
Input VSWR (All Ports)			1.6:1	
Impedance		50		Ohms
Isolation (VHF↔UHF-870)	50			dB

Electrical Specification Notes:  
Electrical specifications data applies to Duplexer

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications:  
[Tri Band Duplexed Antenna Kit with GPS 108-174 450-520 746-870 MHz NMO Mount/N Type Connectors HG104574DU-GPS](#)

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**GPS Electrical Specifications**

Description	Min	Typ	Max	Max
Frequency Bandwidth (L1)		1575.42 ± 3		MHz
Gain @ 5VDC		30		dB
VSWR (IN/OUT)			2:1	
Impedance		50		Ω
Operational Voltage	3		5.5	V
Current Drain	6		20	mA
Filter Type		SAW		
Attenuation wrt L1 (L1±50 MHz)	35			dB
Attenuation wrt L1 (L1±100 MHz)	45			dB
Input Power		10		W

**GPS Passive Element Specifications**

Description	Min	Typ	Max	Max
Center Frequency Band		1575.42		MHz
Antenna VSWR			1.5:1	
Impedance		50		Ω
Polarization		RHCP		

**NMO Combination Mount Electrical Specifications**

Description	Min	Typ	Max	Max
Frequency Band	30		1000	MHz
VSWR			1.5:1	
Impedance		50		Ω
Cable Type		RG58/U		
Insertion Loss			3	dB
Power Rating			150	W

**NMO Combination Mount Mechanical Specifications**

Height	0.88 in [22.4 mm]
Width	2.2 in [55.9 mm]
Length	4.5 in [114.3 mm]
Mounting Application	Bulkhead, ¾ in. Thru-Hole
Cable Length NMO	17 ft. [5.1 m]
Cable Type	RG174/U
Connector GPS	SMA Plug
Color	Black
GPS Radiator	Ceramic, Silver
Operating Temperature	-40°C to 85°C
Corrosion	Salt Fog
Humidity	95%
Vibration	AAR & MIL-STD-810E

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### HG102PS-NMO Field Tunable Antenna Electrical Specifications

Description	Min	Typ	Max	Max
Frequency Band (Tunable Range)	108		520	MHz
VSWR (15 MHz Bandwidth @150MHz)			2.0:1	
VSWR (50 MHz Bandwidth @450MHz)			1.5:1	
VSWR (100 MHz Bandwidth @450MHz)			2.0:1	
Impedance		50		$\Omega$
Gain		2		dBi
Power Rating		150		W
Polarization		Linear, Vertical		
E-Plane		50		Degrees
H-Plane		Omnidirectional		
Groundplane		Required		

### HG102PS-NMO Field Tunable Antenna Mechanical Specifications

Overall Length	(@108 MHz) 29 in [737 mm] (@150 MHz) 19.75 in [502 mm] (@450 MHz) 7.75 in [197 mm]
Whip Material, Finish	17-7 SS, Black Chrome
Spring Material	Black Molded Polymer Alloy
Base Material	Xenoy™ w/TPV over mold grip ring
Mounting Application	¾ inch Thru-Hole NMO Mount
Operating Temperature	-40°C to 85°C
Humidity	95%

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### HG4574PF-NMO Antenna Electrical Specifications

Description	Min	Typ	Max	Max
Frequency Range	450		960	MHz
Input VSWR		1.5:1		
Impedance		50		Ω
Gain		2		dBi
Horizontal (Azimuth) Beam Width		Omnidirectional		
Vertical (Elevation) Beam Width		70		Degrees
Input Power			150	Watts

### HG4574PF-NMO Antenna Mechanical Specifications

Radome Material	Xenoy™
Housing Material	Brass
Housing Plating/Color	Black Chrome
Mounting Application	NMO Mount
Base Diameter	1.6 in [40.64 mm]
Height	4.95 in [125.73]

### Specifications by Band

Description	Band 1	Band 2	Band 3	Band 4	Band 5	Units
Range	100-180	380-520	746-870			MHz
Insertion Loss	0.2	0.3	0.5			dB
Maximum Input Power	150	100	75			Watts

### Duplexer Mechanical Specifications

Duplexer Connectors	N
<b>Size</b>	
Length	3.27 in [83.06 mm]
Width	2.1 in [53.34 mm]
Height	1.1 in [27.94 mm]

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**Installation Instructions**

**IMPORTANT: PLEASE CAREFULLY READ ALL INSTRUCTIONS BEFORE BEGINNING THE INSTALLATION PROCESS.**

**Caution:** Radio output power cannot exceed rated power for each band of the duplexer

- **150W, max:** (100-180 MHz)
- **100W, max:** (380-520 MHz)
- **75W, max:** (746-870 MHz)

**Parts (Figure 1):** Verify all parts are included. Reference items in Figure 1:

1. (1 ea.) Multi-Band Duplexer
2. (1 ea.) HG102PS-NMO, Field Tunable, VHF ¼ Wave Antenna
3. (3 ea.) Type N Connectors, RG-58/U & 195 Type
4. (1 ea.) HG-GPSNMO58-SMA NMO/GPS Combination Mount
5. (1 ea.) 195 Low Loss NMO Cable Mount
6. (1 ea.) RG-58/U Feed Cable, 17 ft. (5.1m) length
7. (1 ea.) HG4574PF-NMO Multi-Band UHF/700-800 MHz Antenna

**Tools/Materials Required:**

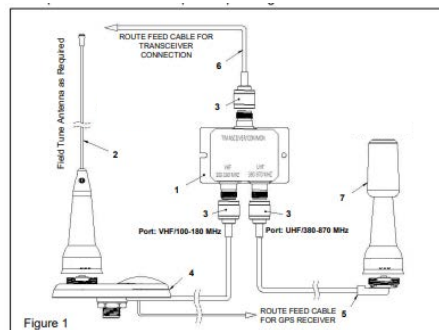
- Drill and Hole Punch, ¼" (19.05mm) Diameter – NMO Cable Mount Installation
- #8 Self Tapping or Machine Screws (2 ea.) – Duplexer Installation
- Cable Stripping Tools for RG-58/U & 195 type cable – Connector Installations
- Coaxial Connector (sold separately) for attaching Feed Cable (RG-58/U) to radio transceiver

**Pre-Installation Checklist and Tips:**

- ✓ Locate a suitable mounting location for the Duplexer providing the shortest cable lengths for installing both antennas.
- ✓ **Important: Duplexer intended for interior or environmentally protected installation only. Do not install with direct exposure to outdoor environment.**
- ✓ Follow all instructions provided with each NMO Cable Mount and Field Tunable Antenna to be installed.
- ✓ **Best Performance Recommendations:**
  - Minimize all cable lengths during installation to reduce unnecessary cable insertion loss.
  - Feed the UHF of 700/800 MHz Antenna using the 195 Low Loss NMO Cable Mount.
  - Separate antennas by largest distance possible to prevent VSWR mismatch or radiated obstruction. (**Note:** Duplexer provides >50 dB isolation between VHF and UHF/700-800 MHz antenna ports, maximizing cross-talk rejection.)

**Installation:**

1. Refer to figure 1 for antenna/duplexer system configuration.
2. Install Duplexer to a suitable mounting surface using #8 screws. Mounting Hole spacing: 2-15/16" (74.6mm).
3. Install NMO Cable mounts for each antenna according to the individual instructions.
4. Verify antenna cable routing. Cut excess cable. Strip ends of the NMO cable mounts according to the N Type Connector instructions provided with the connectors. Attach N Type connectors to the cables. Crimp and verify operation.
5. Repeat Step 4 for one end only of RG-58/U Feed Cable. Attach radio transceiver connector (sold separately) to the opposite end of the RG-58/U Feed Cable.
6. Install antennas according to the individual antenna instructions provided. Verify operation.
7. Install all remaining connections according to the system diagram in Figure 1.
8. Verify radio transceiver performance for all required operating bands or channels.



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### Environmental Specifications

#### Temperature

Operating Range -40 to +85 deg C

**Compliance Certifications** (see [product page](#) for current document)

### Plotted and Other Data

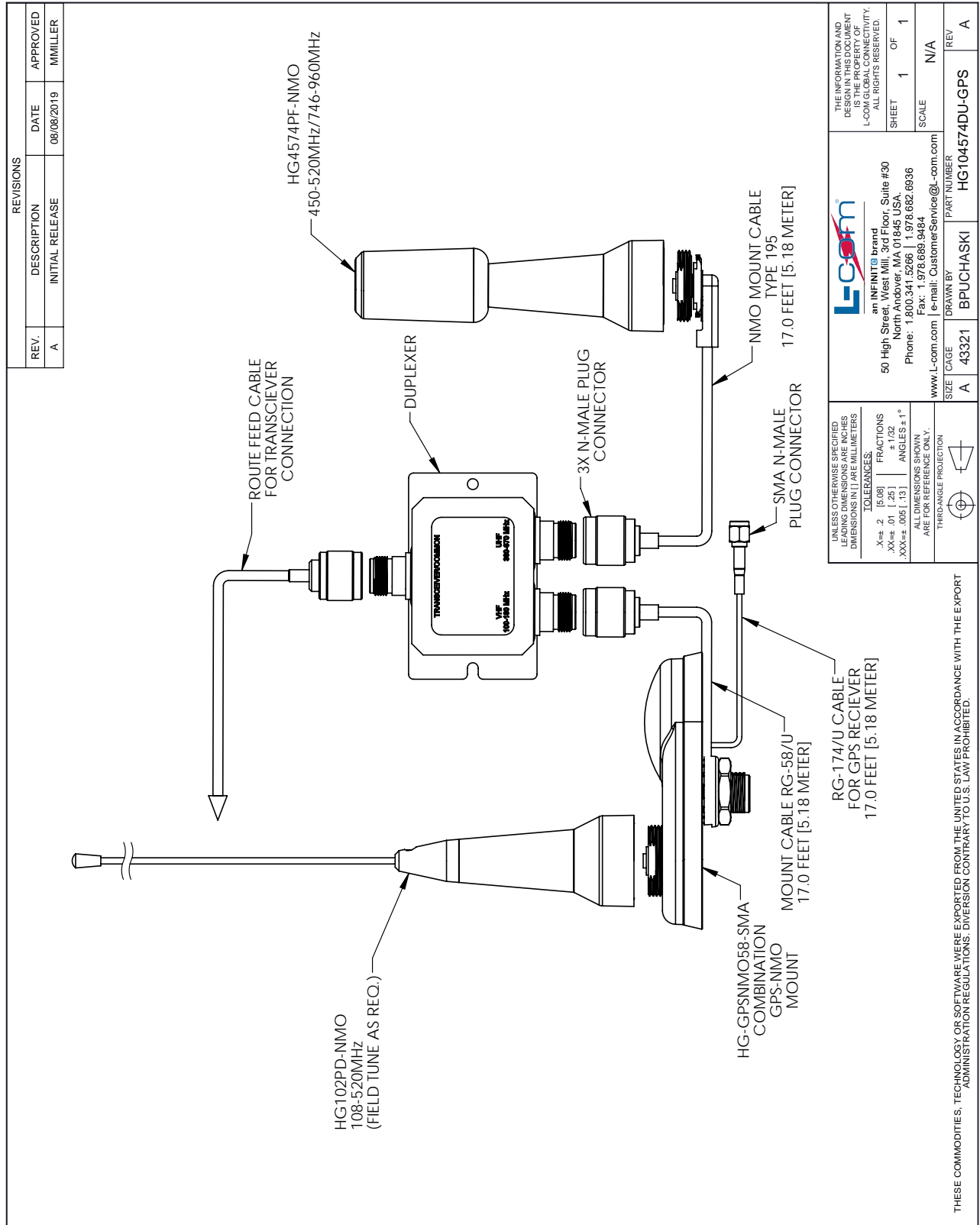
Notes:

Tri Band Duplexed Antenna Kit with GPS 108-174 450-520 746-870 MHz NMO Mount/N Type Connectors from L-com has same day shipment for domestic and International orders. Our portfolio includes coaxial cable assemblies, connectors, adapters and custom products as well as lightning and surge protectors, NEMA rated enclosures, and an RF product line which includes antennas, amplifiers, passive, and active components.

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## L-com CAD Drawing



REVISIONS		
REV.	DESCRIPTION	DATE
A	INITIAL RELEASE	08/08/2019
		APPROVED
		MMILLER

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [ ] ARE MILLIMETERS

TOLERANCES:  
 .X=±.2 [5.08] FRACTIONS ± 1/32  
 .XX=±.01 [25] ANGLES ± 1°  
 .XXX=±.005 [13] ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.  
 THIRD-ANGLE PROJECTION

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SHEET 1 OF 1

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