

CELLULAR & LOCATION TECHNOLOGIES

FIXED & MOBILE CELLULAR REPEATERS / DAS / AVL / M2M / IoT
MOBILE PHONES / FIXED MOBILE BROADBAND / TELEMETRY DATA

5G

4G

GPS

ISM

WiFi



FREQUENCY BANDS

NETWORK TYPE	BANDS	FREQUENCY
WiFi	2.4 5.8	2.4 - 2.5 GHz, 4.9 - 5.8 GHz
GPS	L1	1575.4 MHz
ISM	900 433	915 - 930 MHz, 433.05 - 434.79 Mhz
4G	800 2200	690 - 960 MHz, 1710 - 2700 MHz
5G	800 2200 3.6	690 - 960 MHz, 1710 - 2700 MHz, 3.5 - 3.7 GHz

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CELLULAR REPEATERS



CEL-FI GO - STATIONARY

01101C01	Cel-Fi Go Stationary - Telstra
01104C03	Cel-Fi Go Stationary - Optus

FEATURES

- » Approved Smart Repeater suitable for multiple users
- » Suitable for fixed site installations
- » 3G/4G/4GX Voice and Data bands
- » Up to 1500m2 of Coverage
- » Controlled & install setup via Wave APP (iOS and Android compatible)
- » Suitable for Indoor Installations
- » Up to 100dB gain improvement
- » 3 Band RX and single band relay
- » Compact: 255mm x 87mm x 28mm, 600g

CEL-FI GO+

01104C04	Cel-Fi Go+ Mobile/Stationary – Optus & Vodafone
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FEATURES

- » Approved Smart Repeater suitable for multiple users
- » Controlled & install setup via Wave APP (iOS and Android compatible)
- » Suitable for Indoor and Outdoor Installations
- » 5G Over the Air (OTS) Band future upgradable
- » Up to 100dB gain improvement in Stationary & Mobile Mode
- » Multi-Carrier Support
- » Carrier switching via Wave APP
- » Suitable for Stationary & Mobile applications, switchable
- » 6 Band RX and dual band relay
- » Compact : 272.5mm x 96.5mm x 43.25mm, 850g

CEL-FI GO - MOBILE

01104C02	Cel-Fi Go Mobile - Telstra
01104C05	Cel-Fi Go Mobile - Optus

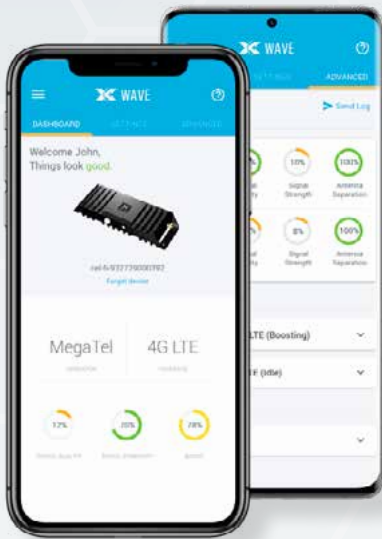
FEATURES

- » Approved Smart Repeater suitable for multiple users
- » Suitable for mobile vehicle, truck, caravan and maritime installations
- » 3G/4G/4GX Voice and Data bands
- » Up to 1500m2 of Coverage
- » Controlled & install setup via Wave APP (iOS and Android compatible)
- » Suitable for Indoor Installations
- » Up to 70dB gain improvement
- » 3 Band RX and single band relay
- » Compact: 255mm x 87mm x 28mm, 600g





CELLULAR REPEATERS



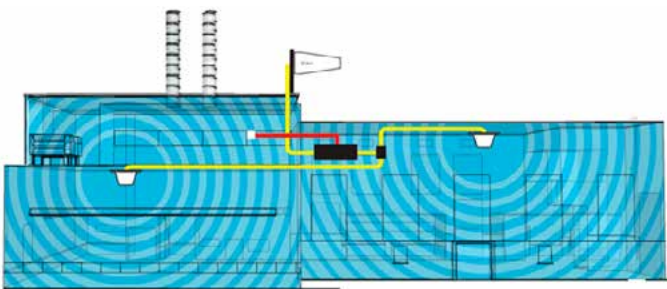
Cel-Fi Wave APP

- » Register and setup Cel-Fi Repeaters
- » Dashboard information with Boost Strength indicator
- » Change settings on repeaters
- » Real-time data and metrics to assist to enhance performance
- » Free Downloadable APP

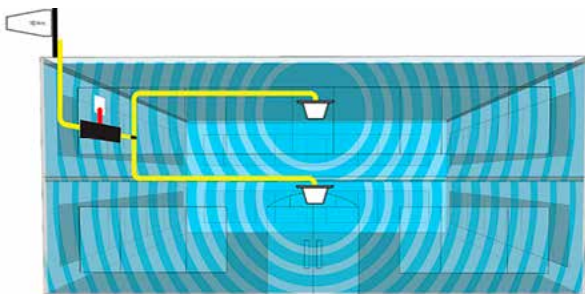
Download on:



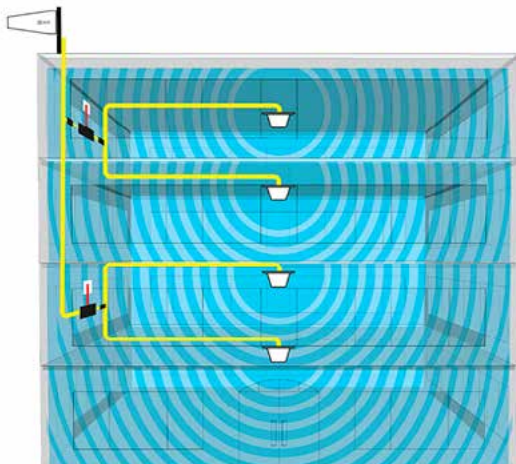
STATIONARY INTALLATION



Typical Single Level Install

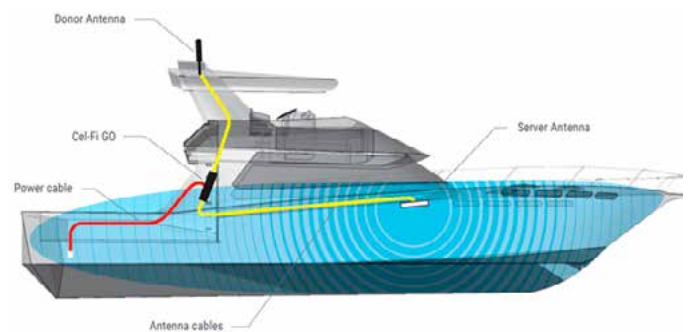
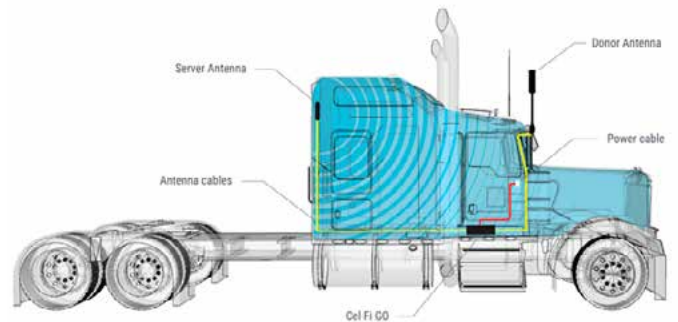
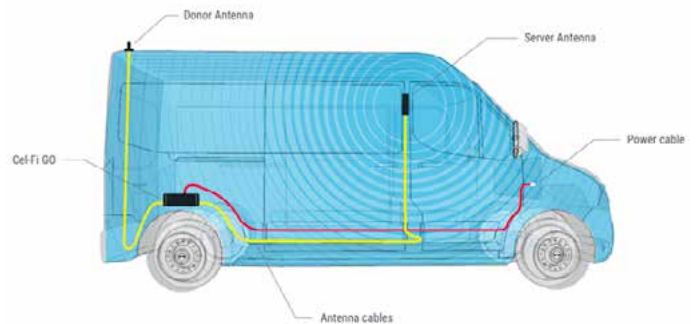


Typical Double Level Install



Typical Three Level Install

MOBILE INSTALLATION



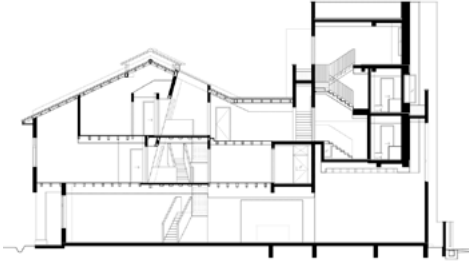
Typical Mobile Installs



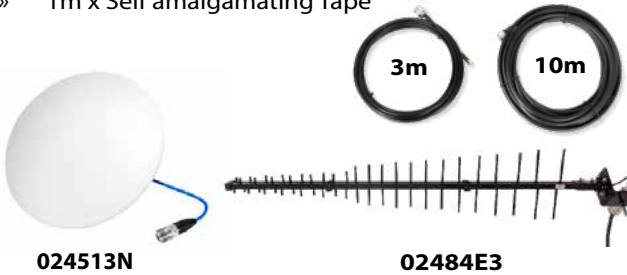
REPEATER INSTALL KITS

Select a Repeater, and then an Install Kit to suit your Installation.

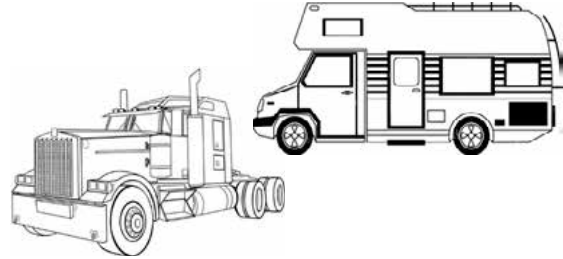
SITE INSTALL KIT (Part # 024801K)



- » 1 x 02484E3 - 4G 12dBi Log Yagi with bracket Ns
- » 1 x 024513N - 5G Ceiling low profile Ant Ns
- » 1 x 10m LL400 Np to SMAp lead
- » 1 x 3m x LL195 Np to SMAp lead
- » 1m x Self amalgamating Tape



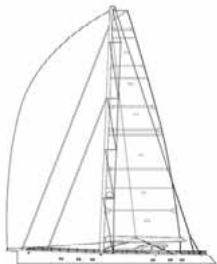
LAND INSTALL KIT (Part # 024501K)



- » 1 x 024575 5G 6dBi Colinear w/ Spring and 5m cable SMAp
- » 1 x 024571G Internal 4G Antenna SMAp
- » 1 x 02732 Universal Bull bar Bracket SS
- » 1 x 02734 Guard Z Bracket SS
- » 1 x 02728 Mirror Bracket SS



YACHT INSTALL KIT (Part # 024601K)



- » 1 x 024579BW 5G 7.5dBi Mast Mount Antenna Ns
- » 1 x 025222 Mast Mount Bracket SS
- » 1 x 024513N 5G Ceiling low profile Ant Ns
- » 1 x 20m LL400 Np to SMAp lead
- » 1 x 3m x LL195 Np to SMAp lead
- » 1 x 1m x Self amalgamating Tape



POWER BOAT INSTALL KIT (Part # 024602K)



- » 1 x 02463CH - G 6dBi 2.4m Marine Deck Mount Ant 5m lead SMAp
- » 1 x 02737 - 2 Way Deck Mount Bracket 1" SS
- » 1 x 024513N - 5G Ceiling low profile Ns
- » 1 x 3m x LL195 Np to SMAp Indoor lead



If these off-shelf kits don't suit your installation needs, our sales team can help you design a suitable Install Kit for your special case requirement.

	MARINE						MOBILE					
	5G						5G					
PART #	02462C	02462CH	02463C	02463CH	02461CK	024579BW	024573	024575	024575R	024579	024579R	024579RK
IMAGE												
TERM.	5m x LL195 SMAp	5m x LL195 SMAp	5m x LL195 SMAp	5m x LL195 SMAp	Ns	Ns	5m x LL195 SMAp	5m x LL195 SMAp	5m x LL195 SMAp	5m x LL195 SMAp	5m x LL195 SMAp	5m x LL195 SMAp
NOTES	DECK MOUNT	DECK MOUNT	DECK MOUNT	DECK MOUNT	MAST MOUNT	MAST MOUNT	RUGGED SPRING MOUNT	VEHICLE	VEHICLE	VEHICLE	VEHICLE REMOVABLE	VEHICLE REMOVABLE
SIZE	1800 mm	1800 mm	2400 mm	2400 mm	365 mm	1040 mm	430 mm	905 mm	905 mm	1240 mm	1240 mm	430/1240 mm
GAIN	3dB	3 / 7.5 dB	3dB	3 / 7.5 dB	3 dB	3 / 7.5 dB	3 dBi	3 / 6 dBi	3 / 6 dBi	3 / 7.5 dBi	3 / 7.5 dBi	3 / 7.5 dBi



MOBILE	
BAND	5G
PART#	024563
GAIN	3 dBi
TYPE	LOW PROFILE PANEL MOUNT
TERM.	2m x LL195 SMap



AVL						
BAND	2x5G	2xWIFI	2xGPS	2x5G	2xWIFI	2xGPS
PART#	02942051P	MIMO		02942051M	MIMO	
GAIN	3 ~ 26 dBi			3 ~ 26 dBi		
TYPE	6 - BAND SHARK FIN			6 - BAND SURFACE MOUNT		
TERM.	6 x 0.3M FEED CABLE SMap	Requires Cable Kit A		6 x 0.3M FEED CABLE SMap	Requires Cable Kit A	

BAND	4G
PART#	02471
GAIN	3 dBi
TYPE	SHARK FIN PANEL MOUNT
TERM.	5m x LL195 SMap



BAND	2x5G	4xWIFI	2xGPS	4G	GPS
PART#	02942052M	MIMO		0294206	
GAIN	3 ~ 26 dBi			5 ~ 28 dBi	
TYPE	8 - BAND SURFACE MOUNT			MULTI - BAND SHARK FIN	
TERM.	8 x 0.3M FEED CABLE SMap	Requires Cable Kit B		5M X LL195/LL100 SMap	

BAND	3G
PART#	02457
GAIN	UNITY
TYPE	GLASS MOUNT
TERM.	5m x LL195 SMap



BAND	3G	GPS
PART#	0294207	
GAIN	UNITY	
TYPE	GLASS MOUNT	
TERM.	5m x LL100 SMap	



BAND	3G	GPS
PART#	0294208	
GAIN	UNITY	
TYPE	COVERT MOUNT	
TERM.	5m x LL100 SMap	



CABLE KIT



BAND	4xWIFI	GNSS
PART#	0294201	
GAIN	5/26 dBi	
TYPE	DUAL BAND PANEL ANTENNA	
TERM.	5M x LL195/LL100 SMap	



MIMO

BAND	WIFI	GPS
PART#	029327	
GAIN	UNITY	
TYPE	GLASS MOUNT	
TERM.	5M x LL195/LL100 QMap/SMap	





Multiband AVL Panel Mount Antenna Cable Kits

Cable Kit A -
6 x 5m Low Loss Flexible RG58

Cable Kit B -
8 x 5m Low Loss Flexible RG58


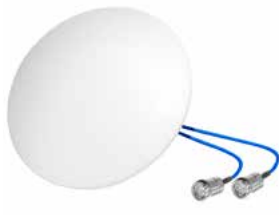




Cables are labelled and tailored to your needs.
Termination options:
SMap
SMap - reverse pin
QMap

RAIL			
BAND	4G	4G	GPS
PART#	02471R	0294206R	
GAIN	3 dBi	5~25 dBi	
TYPE	RAIL MOBILE PANEL	RAIL PANEL SHARK FIN	
TERM.	N SOCKET	N SOCKET/LL100 SMap	






FIXED SITE INDOOR (OMNI - Directional)

BAND	5G	WIFI	2x5G	WIFI	MIMO	4G	
PART#	024513		024513M			024581M	
GAIN	4.6 ~ 6.3 dBi		3 ~ 4 dBi			3 dBi	
TYPE	ULTRA SLIM CEILING		ULTRA SLIM 2 PORT CEILING			MAGNETIC 1/4 WAVE	
TERM.	4.3-10 DINs		2 x 4.3-10 DINs			1m x LL100 SMAp	<i>Includes Metal Plate 70 x 70 mm</i>
PART#	024513N		024513MN			024571G	
GAIN	4.6 ~ 6.3 dBi		3 ~ 4 dBi			4 dBi	
TYPE	ULTRA SLIM CEILING		ULTRA SLIM 2 PORT CEILING			ADHESIVE DIPOLE	
TERM.	Ns		2 x Ns			1.5m x LL100 SMAp	



FIXED SITE (Directional)

4G	5G	TYPE	GAIN	SIZE	TERM.	5G	TYPE	GAIN	SIZE	TERM.
PART# 02484E3	4G BASE LOG YAGI		12 dBi	L x W x H 1170 x 205 x 75 mm	Ns	PART# 02485	SHROUDED BASE LOG YAGI	9.5 dBi	L x W x H 405 x 210 x 65 MM	Ns
02484E5	5G BASE LOG YAGI		13-14 dBi	1500 x 250 x 100 mm	4.3-10 DINs					<i>Includes Pole Mounting Bracket</i>
										<i>Includes Pole Mounting Bracket with 4 Rotation Angle Positions</i>

BAND	5G	5G	5G	MIMO	BAND	4G	
PART#	02492	024921	024922		PART#	02487	
GAIN	8 dB	8 dB	8 dB		GAIN	20 dBi	
TYPE	INDOOR PANEL WALL MOUNT	OUTDOOR PANEL	OUTDOOR MiMo PANEL		TYPE	PARABOLIC GRID	
TERM.	Ns	Ns	2 x Ns		SIZE	L x W x H 1500 x 1500 x 560 mm	
	<i>Includes Mounting Bracket</i>	<i>Includes Mounting Bracket</i>	<i>Includes Mounting Bracket</i>		TERM.	Ns	



FIXED SITE OUTDOOR (OMNI - Directional)

BAND	5G	5G	5G	5G
PART#	024579B	024579BW	024563	024584
GAIN	3/7.5 dB	3/7.5 dB	3 dBi	1.8 ~ 4.7 dBi
TYPE	CELLULAR STUD MOUNT	CELLULAR	LOW PROFILE PANEL MOUNT	CELLULAR DIPOLE
TERM.	Ns Stud	6m x LL195 SMAp	2m x LL195 SMAp	3m x LL195 SMAp
				
				024585 5m Cable Model
				5m x LL195 SMAp

GPS										
BAND	GPS	Active Antenna	GPS	Active Antenna	GPS	Active Antenna	GPS	Receiver R232	GPS	Active Antenna
PART#	0294101 ↳ SMA Plug 0294101F ↳ Fakra Blue		0294104 ↳ SMA Plug 0294104F ↳ Fakra Blue		0294105 ↳ SMA Plug 0294105D ↳ TNC Plug		96ST004		0294104B	
GAIN	5dBi - 27dB		5dBi - 27dB		27dBi		28		5dBi - 27dB	
TYPE	GLASS MOUNT		BRACKET, PANEL MOUNT		MAGNETIC WATER-PROOF		GLASS MOUNT		BASE STATION	
TERM.	5m x LL100		5m x LL100		5m x LL100		2m x DB		N SOCKET	

RF LOW LOSS 50Ω CABLES

RG58 LOW LOSS STRANDED CENTRE 5.0MM 50Ω COAX CABLE							1/2" LOW LOSS COAX CORRUGATED FEEDER CABLE						
PART#	ATTENUATION LOSS			CONDUCTOR	FITS		PART#	ATTENUATION LOSS			CONDUCTOR	FITS	
05603 ↳ 100m	MHz	450	900	2000	FLEXIBLE STRANDED CENTRE	STANDARD RG58C/U CONNECTORS	05703 ↳ 500m 057032 ↳ 200m	MHz	450	900	2000	SOLID CENTRE	SPINNER MLS SERIES CONNECTORS
	dB/m	0.27	0.395	0.7				dB/m	0.0475	0.0685	0.107		
													
LL195 LOW LOSS SOLID CENTRE 5.0MM 50Ω COAX CABLE							LL400 LOW LOSS SOLID CENTRE 10MM 50Ω COAX CABLE						
PART#	ATTENUATION LOSS			CONDUCTOR	FITS		PART#	ATTENUATION LOSS			CONDUCTOR	FITS	
056031 ↳ 100m 0560313 ↳ 305m	MHz	450	900	2000	SOLID CENTRE	STANDARD RG58C/U CONNECTORS	056041 ↳ 100m 0560413 ↳ 305m	MHz	450	900	2000	SOLID CENTRE	L400/LMR400 CONNECTORS E.G SPRING FINGER CENTER
	dB/m	0.26	0.37	0.645				dB/m	0.094	0.125	0.198		
													

RF 50Ω CONNECTORS

040013	SMAp LL195 Crimp centre and Outer
040014	SMAp LL400 Spring finger centre and Crimp Outer
04206	N plug LL195/RG58 Crimp centre and Outer
04225	N socket LL400 Spring finger centre and Crimp Outer
04209	N plug LL400 Spring finger centre and Crimp Outer
04209L	N plug Angled LL400 Spring finger centre and Crimp Outer
048309	4.3-10 plug LL400 Spring Finger centre and crimp Outer
048309L	4.3-10 plug Angled LL400 Spring Finger centre and crimp Outer
048319	4.3-10 socket LL400 Spring Finger centre and crimp Outer
048305MS	4.3-10 plug 1/2" Feeder Cable Spinner Multi-Fit BN431117
048305MLS	4.3-10 plug Angled 1/2" Feeder Cable Spinner Multi-Fit BN431116
048315MS	4.3-10 socket 1/2" Feeder Cable Spinner Multi-Fit BN431017
042005MLS	N Plug for 1/2" Feeder Cable Spinner Premium Multi-Fit BN706417
042105MLS	N socket for 1/2" Cable Spinner Premium Multi-Fit BN846417



A wider range of connectors are available to view on our website.



DAS COMPONENTS

5G HYBRID COMBINERS

17831S	4G 2:2 Port Hybrid Combiner Ns Spinner BN923070, -155dBc, 25dB Isolation
17832S	5G 2:2 Port Hybrid Combiner 4.3-10s Spinner BN923083, -153dBc, 25dB Isolation
178323S	5G/UHF 380-3800MHz 3:3 Hybrid Combiner 4.3-10s Spinner BN570754, -160dBc, 28dB Isolation
17834S	5G 4:4 Port Hybrid Combiner 4.3-10s Spinner BN570681, -153dBc, 25dB Isolation

5G DIRECTIONAL COUPLERS/TAPPERS

174312	4G 694 - 2700 MHz Directional Coupler 4.8dB Ns Spinner BN923071, -155dBc
174313	4G 694 - 2700 MHz Directional Coupler 6dB Ns Spinner BN923056, -155dBc
174314	4G 694 - 2700 MHz Directional Coupler 10dB Ns Spinner BN923058, -155dBc
174315	4G 694 - 2700 MHz Directional Coupler 15dB Ns Spinner BN923059, -155dBc
174312S	5G Directional Coupler/Tapper 4.8dB 4.3-10s Spinner BN818449, -153dBc W/ Bracket B30578
174313S	5G Directional Coupler/Tapper 6.1dB 4.3-10s Spinner BN818450, -153dBc W/ Bracket B30578
174314S	5G Directional Coupler/Tapper 10.4dB 4.3-10s Spinner BN818454, -153dBc W/ Bracket B30578
174315S	5G Directional Coupler/Tapper 15.1dB 4.3-10s Spinner BN818456, -153dBc W/ Bracket B30578

Other coupling values available on request, Replacement brackets also available.

5G SYMMETRIC SPLITTERS

174502	5G Splitters 2 Way Ns Spinner BN923063, -160dBc
174503	5G Splitters 3 Way Ns Spinner BN923064, -160dBc
174504	5G Splitters 4 Way Ns Spinner BN923065, -160dBc
174502S	5G Splitters 2 Way 4.3-10s Spinner BN433006, -160dBc w/ Mounting bracket B23656
174503S	5G Splitters 3 Way 4.3-10s Spinner BN433007, -160dBc w/ Mounting bracket B23656
174504S	5G Splitters 4 Way 4.3-10s Spinner BN433008, -160dBc w/ Mounting bracket B23657

5G EMP PROTECTORS

176134	5G EMP Protector Quarter Wave Stub 4.3-10s Spinner BN766440 -165dBc
176134B	Bracket for 176134B



176134



176134B



17832S



17834S



17831S



174312 / 174313
174314 / 174315



174312S / 174313S



174502



174503



174504



174502S



174503S



174504S



CELLULAR ANTENNA ACCESSORIES

VEHICLE BRACKETS

02714S	Gutter Bracket - Fold Down - All S/S
02726S	Gutter Bracket - H/D - All S/S
02728	Mirror Bracket / Roof Bar - S/S
02728B	Mirror Bracket / Roof Bar - ZPS
027291	Mobile L Bracket - Lightweight S/S
02730	Bull Bar Bracket - Right Angle - S/S
02730B	Bull Bar Bracket - Right Angle - ZPS
027303	Adjustable Swivel "Lip" Mount
027313	Wrap Around Bull Bar Bracket (45mm)
027314	Wrap Around Bull Bar Bracket (50mm)
027315	Wrap Around Bull Bar Bracket (63mm)
027316	Wrap Around Bull Bar Bracket (76mm)
02732	Bull Bar Bracket - H/D - S/S
027321	Bull Bar Bracket (76mm) - H/D - S/S
02734	'Z' Trunk Groove Bracket - S/S
02734B	'Z' Trunk Groove Bracket - ZPS
027423	'Super Sucker' Magnetic Suction - 16mm Hole

BASE & MARINE BRACKETS

025222	Marine Mast Mount Bracket - S/S
027281	240mm (16mm hole) S/S Wall Mounting Bracket
02729	100mm S/S Wall Mounting Bracket
02735	Two Way Marine Deck Mount - H/D - Glass-Filled Nylon
02737	Two Way Marine Deck Mount - H/D - S/S

LOW LOSS CABLE ASSEMBLIES

101206	Coaxial Lead 3m x LL195 SMAp to Np (For EMP)
1012081	Coaxial Lead 5m x LL195 SMAp to Np (For EMP)
101209	Coaxial Lead 10m x LL400 Np to Np (For EMP)
1012093	Coaxial Lead 15m x LL400 Np to Np (For EMP)
101205	Coaxial Lead 6m x LL195 SMAp to Np
1012095	Coaxial Lead 12m x LL400 SMAp to Np
10120951	Coaxial Lead 15m x LL400 SMAp to Np
1012096	Coaxial Lead 20m x LL400 SMAp to Np

DEVICE PATCH LEADS

1013102	TS9 to SMA's 40cm x LL100 - Straight
1013102L	TS9 to SMA's 40cm x LL100 - Right Angled
1013104	CRC9 to SMA's 40cm x LL100
1013107	SSMB to SMA's 40cm x LL100
1013108	MS147 to SMAp 40cm x LL100



02714S 02726S 02728 (S/S) / 02728B (ZPS) 027291



02730 (S/S) / 02730B (ZPS) 027303 027313 027314



027315 02731 02732 027321



02734 (S/S) / 02734B (ZPS) 027423 025222 027281



02729 02735 02737 101206 / 1012081



101209 / 1012093 101205 / 1012095 10120951 / 1012096 1013102



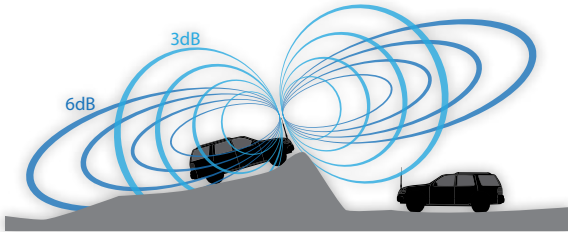
1013102L 1013104 1013107 1013108



ANTENNA SELECTION GUIDE

WHICH ANTENNA DO I NEED?

- » Gain describes the shape of the radiation from an antenna.
- » Use a higher gain antenna for better performance in open flat terrain.
- » Use a lower gain antenna for better performance in rough mountainous terrain or city areas.
- » We recommend the use of a lower gain antenna for the communications in vehicle convoy situations.



- » Glass mount antennas are ideal for built up city areas where signal strength is higher.
- » Hi-gain antennas are better suited for regional areas where long range is required.
- » Fixed site directional antennas send all the signal in one direction - they need to be rotated and/or tilted until the strongest cell site signal is obtained during installation.
- » Fixed site omni-directional antennas are ideal when reasonable signal is available in the area. This is an easier installation option.

CONNECTOR IDENTIFICATION



CABLE / CONNECTOR ADVICE

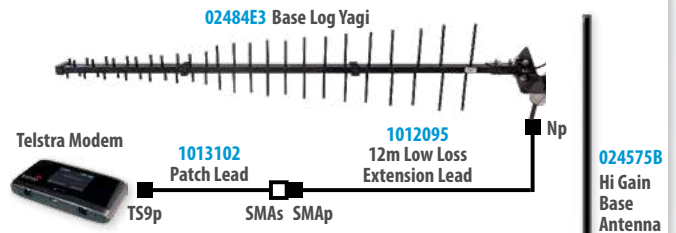
- » Only use low loss cables for cellular installations as the cable quality is as important as the antenna. Benelec cables are designed to provide optimum performance.
- » Do not crimp or damage cable during installation.
- » Do not bend cable through an extreme radius.
- » Take care to tighten all fittings.
- » Waterproof any exposed connectors.

MOUNTING TIPS

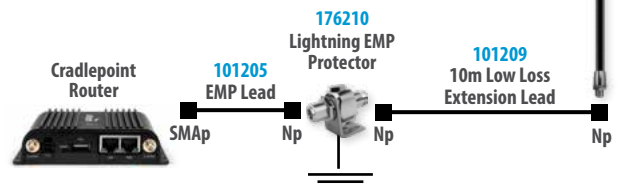
- » For better performance, mount the antenna higher on the vehicle, or as high as possible in a fixed installation. Height always improved performance and range.
- » Do not mount antennas close to each other. The minimum distance should be 70cm between UHF/ Cellular antennas. The further apart the two antennas, the better the performance of each respective antenna.
- » Do not mount antennas closer than 70cm to any metal vertical surface.
- » Antennas must be mounted vertically. This is particularly important with higher gain antennas.
- » Avoid affixing any object to the antenna as it could affect the performance of the communications system.
- » Do not mount antennas operating on the same band, at the same horizontal level unless a switch selects them.

WIRING CONFIGURATIONS

- » Patch leads are used to interface your device to an external antenna, or other devices.



- » EMP protectors provide lightning protection for your modems and should be used in lightning prone areas.



MIMO

MIMO technology utilises Multiple Input and Multiple Output antennas to maximise the signal link and data carrying capacity of the wireless system.

Typically, WiFi (802.11n) 2.4 / 5.8GHz systems or newer 4G LTE-A transceiver systems (eg, broadband wireless modems) have two antenna ports, and thus need a MIMO dual port antenna system to make use of this technology.

Should you use only one port, this will result in reduced data rates.

Benelec recommends using our MIMO range of antennas where two antenna ports are provided. Benelec can offer a range of both WiFi and 4G MIMO antennas to suit your application.

BENELEC

Innovative Radio Technology



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