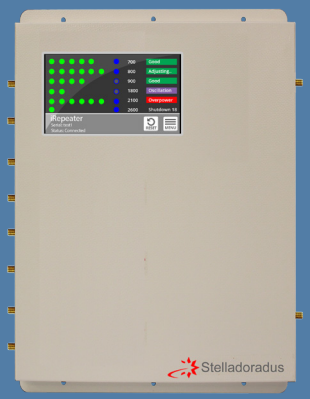
StellaDoradus
Mobile Signal Booster Manufacturer

ETSI World Class Standards

CombinerAmp

The CombinerAmp (iC) is a commercial grade cellular amplifier for ships and fleet vehicles that works for all mobile operators. It will allow your router to stay connected to mobile signal 30km from the coastline. It has 8 ports that can connect up to 4 radio cards in a 2X1 MIMO configuration, allowing for faster MIMO download speeds.
If connected to the Pepwave HD4, with 4 radio cards, it will reduce the number of cables to your outdoor antennas by a factor of 4.
When connected to the Stelladoradus cloud platform, you can remotely manage, monitor, and adjust the amplifier, as well as receive real-time measurements of signal power, signal gain, plus other control metrics for each band.

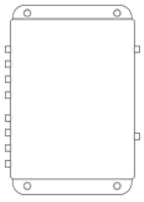


Features:

- LCD Touch Display - Enhanced user experience[1]
- 8X ports for up to 4 radio cards, 2X1 MIMO
- Reduce number of cables to your outdoor antennas
- Remote monitoring - Alarms/GPS/API/History Graphs[1]
- Boosts all operators - Works with all SIMs operators
- 5G ready
- Passed E.T.S.I specification

Models	Bands	Cloud	Interface	PSU	Weight	DIMS(cm)
iC5-USA	B4, B5, PCS, B1, B7	Yes	Touch LCD	12V,5A	2kg	43 X 30 X 3.8
iC6-EU	B28, B20, B8, B3, B1, B7	Yes	Touch LCD	12V,7A	2kg	43 X 30 X 3.8
[2]LTE-Combiner8	B28, B20, B8, B3, B1, B7	No	LEDs	12V,7A	1.8kg	35 X 30 X 3.5

Standard kit includes:


CombinerAmp


Power Supply

Works with:

- Pepwave
- Cisco
- Asus
- Huawei
- Siemens
- Viprinet
- TP-Link
- Teltonika
- Airbridge
- Passari

[1]Internet connected CombinerAmps only. (iC6/iC5)
[2]This is our previous generation iC which does not have monitoring or a touch LCD panel.

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Check models above for your frequencies

EU Bands	B28	B20	B8	B3	B1	B7
Downlink	758-788	791-821	925-960	1805-1880	2110-2170	2620-2690
Uplink	703-733	832-862	880-915	1710-1785	1920-1980	2500-2570

USA Bands	B28	B4	B5	B25	B7	
Downlink	758-788	869-894	2110-2155	1930-1990	2620-2690	
Uplink	703-733	824-849	1700-1755	1850-1915	2500-2570	

Amplifier Specs

Gain	Uplink Gp: 15dB Downlink Gp> 15dB
Pass band ripple	<4dB
I/O impedance	50 ohm/SMA female connector
Max up/down signal strength	27dBm / -25dBm
Ambient Temperature	-30°C to +70°C
Power supply input	110 - 240V AC
Oscillation Control	Automatic
AGC Level Control:	Automatic[1]
Uplink Switch On	Yes[2]
AGC Range	30dB
Surge protection	SMA connectors DC grounded, 12V DC port MOV protected
Ports (SMA)	8X ports (4 Radio cards 2X1 MIMO)

Antennas (Optional) Outdoor Omni

Nominal Gain	5dBi
3dB beam Pattern	38° x 35°
Bandwidth	700MHz - 2700MHz
VSWR	<2
Front to Back Ratio	> 20dB
Polarization	Vertical
Power Rating	100W
Impedance	50-OHM
Termination	N-Female
Cross Pol. Discrimination	-20dB
Dimensions	365x 33mm
Weight	0.4kg
Wind velocity	216km/hr
Working temperature	-40°C to +65°C

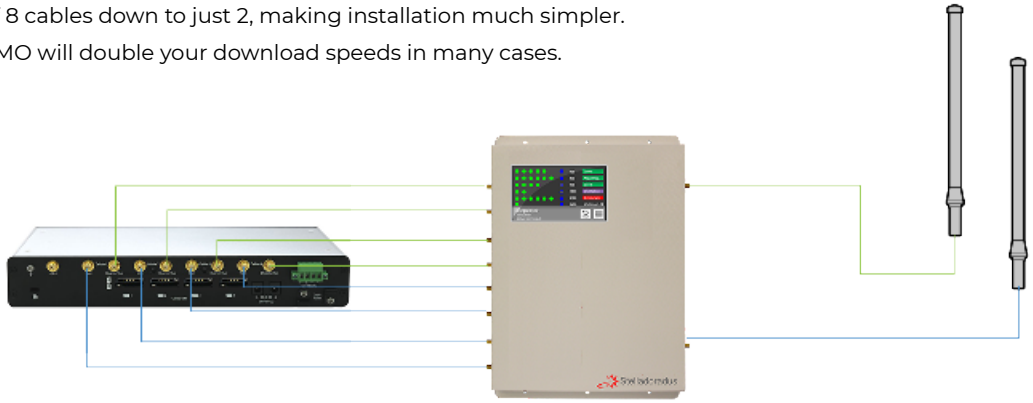
[1]Automatically adjusts during installation. Thereafter, automatically adjusts for seasonal variation in pathloss between the base station and the outdoor antenna.

[2]The uplink amplifiers switch off when the repeater is not in use. This reduces the uplink noise to almost zero. When the repeater is in use (phone call or data session), the uplink amplifiers switch on for the duration of the call/ data session only.

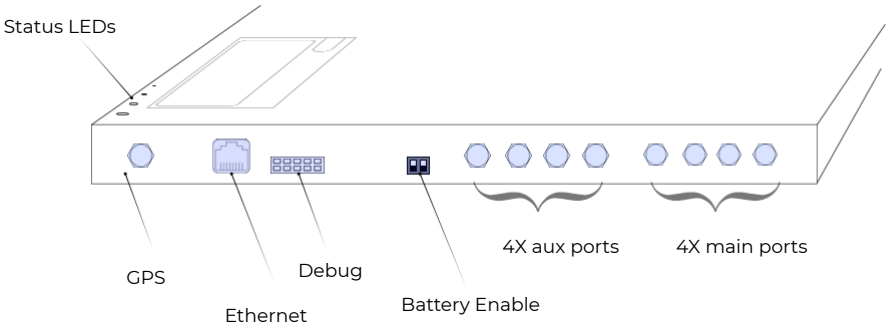
Note: Specifications subject to change without notice.

Install diagram

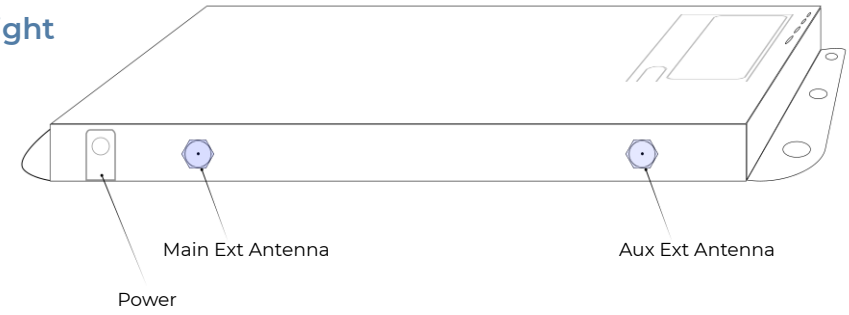
The iC can amplify the mobile signal of up to 4X radio cards. For example, with the Pepwave HD4 below, the blue lines signify the main ports, the green line, the auxiliary ports. There are 2X outdoor antennas that supply signal for all 4 radio cards. This reduces a total run of 8 cables down to just 2, making installation much simpler.
The 2X1 MIMO will double your download speeds in many cases.



Profile left



Profile right



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Main screen:

The green dots represent the downlink signal power.

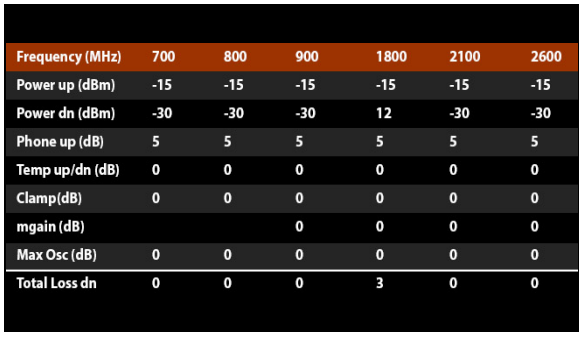
The blue dot means that the band is switched on. This will happen when the radio is initiating a data session. Once the data session is over, the band switches off and the blue dot also switches off.

Good	Band has no problems.
Adjusting	Band is optimizing itself. This usually happens only once at boot up and only if there is a lot of down link power.
Overpower	There is a very strong outdoor signal. There is no need to do anything in this case as the repeater will optimize itself to deal with this.
Oscillation	Interference between the indoor and outdoor antennas. You should separate these antennas from each other to avoid oscillation. A separation of at least one solid block wall is recommended.

Decibel (dB) page:

The dB page shows the raw data coming from the amplifier. These dB values are very accurate.

Here we can see how the AGC (Automatic Gain Control) works on both uplink and downlink, and also how the amplifier manages oscillations.



Frequency (MHz)	700	800	900	1800	2100	2600
Power up (dBm)	-15	-15	-15	-15	-15	-15
Power dn (dBm)	-30	-30	-30	12	-30	-30
Phone up (dB)	5	5	5	5	5	5
Temp up/dn (dB)	0	0	0	0	0	0
Clamp(dB)	0	0	0	0	0	0
mgain (dB)			0	0	0	0
Max Osc (dB)	0	0	0	0	0	0
Total Loss dn	0	0	0	3	0	0

Power Up	Uplink power received by the repeater. (Power emitted by your phone)
Power dn	Downlink power received by the repeater. (from the base station)
Phone up	Uplink AGC - for phones passing nearby internal antennas, or just high power devices. Controls spikes in the uplink signal.
Temp up/dn	Uplink *and* downlink AGC. This controls the uplink and downlink gain at the same time, for when the base station downlink signal is too strong.
Clamp	Extra attenuation added for when there is an oscillation or high sustained DL power. This ensures any oscillation is completely removed.
mgain:	This is the manul gain. You can add your own attenuation to any band. Sometimes this is neccessary for when there is too much power on any one band.
Max Osc:	This value is a permanent reduction to the gain of the amplifier, due to an oscillation.*
Total loss:	This is a sum of the temp up/dn + clamp + mgain + max osc. This value can be entered into the stellacontrol floorplan tool to help you to design your repeater systems.

Other LCD features

Pin Access	The default PIN code is 888888. This can be changed at a later stage on stellacontrol.com
Band On/Off	Turn any band on or off.
Band attenuation	Add up to 15dB of attenuation to any band.
Internal location	Here you can type a note about the amplifier. This note is sent and displayed on the stellacontrol inventory page. An example note would be the internal location of the amplifier.

*Every 24 hours these oscillation reductions are cleared.

Stellacontrol online platform

The iC can be monitored and configured from the Stellacontrol online platform. This allows you to monitor the health of your iC from anywhere.

- Be warned in advance of any issues and take corrective action even before your client is aware of anything.
- Troubleshoot issues without having to travel to the customers premises.
- Global view of your full repeater/ LineAmp system. Configure and optimize the system before, during and after installation.
- Grow and easily manage your customers, vehicles and ships.

Flexible token payment system

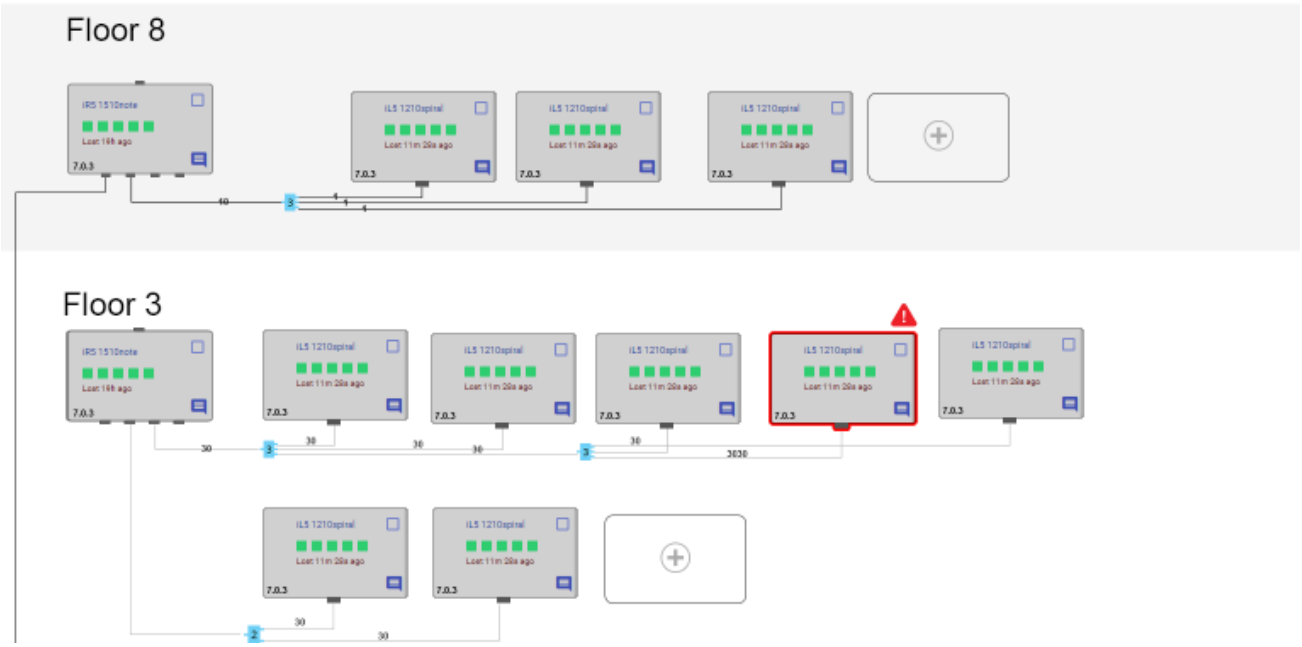
- Every metric you can see on the LCD display is visiblle on the cloud dashboard.
- Main page and dB page.
- Turn bands on/off, attenuate any band.
- Remotely update the firmware.
- History graphs

Places page

The Places page is where you keep all your ships and vehicles. Each place can be divided up into floor, or zones. This is particularly useful for managing large places, like multistory ships.

- Design your repeater system before going on site.
- Have a global view over all your devices.
- Enter the cable lengths/ splitters between the amplifiers. The system calculates real time if you have made any mistakes.
- After installation, use the Places page to easily locate any device with an issue. See image below..

Large Ship



History Graphs (on the way)

With the History Graphs you can view the following metrics of the amplifier over time.

- Power uplink (dBm)
- Power downlink (dBm)
- Oscillations (dB)
- Temperature
- GPS coordinates
- Band usage

History Graphs for ships (on the way)

- Plot the signal strength per band on google maps.
- Learn how the amplifier is behaving at every point on your journey
- Compare past journeys to help troubleshoot any current issues.