

Maven DAS Rail

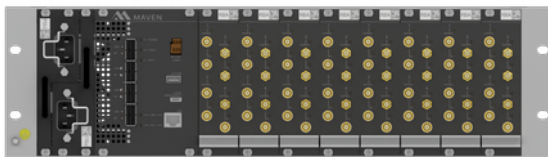
The game changer in wireless coverage



Datasheet version 1.2

System Features

- Redundant system with automatic fail over
- Highly efficient requiring less battery backup
- Fanless high power +43 dBm remotes
- Low weight remote, one man lift
- Hot swappable band modules
- Multi standard support
- Fully digital end-to-end DAS system
- Excellent PIM and noise performance
- System auto-commissioning
- Channel or Band selective digital filtering
- Time slot based ALC and squelch



Maven DAS is a highly capable end-to-end digital DAS platform supporting multi-technology, multi-band installations. It is particularly suited to GSM-R systems operating in the 900 MHz band. The system consists of Stratus high power remotes, connected to Orion 19" head-end master rack units which convert BTS RF into CPRI digital data streams feeding the remotes.

The system is highly optimised for efficiency. The high power Stratus remotes implement up to 4 RF bands at +43 dBm composite power each, with an efficiency of around 30% enabling fan-less operation of all variants. The Orion head-end unit embeds all functionality in one single 3U unit which can be fitted with 8 separate RF modules.

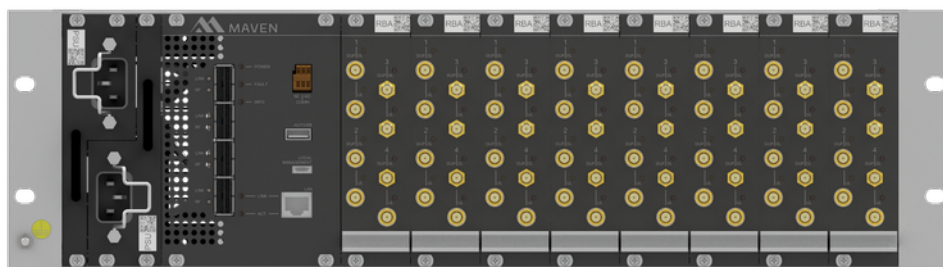
The digital fibre interface connects with SFP+ and QSFP+ modules, giving spare bandwidth for future spectrum allocations or for sharing system infrastructure with commercial cellular operators. The system supports various topologies for flexibility and redundancy such as

star and ring topologies. The Stratus remotes can be cascaded flexibly. Both single mode and multi mode fibre can be used. GSM-R can be combined with other bands for example Cellular or TETRA 400 MHz, 700 MHz and 800MHz. RX Diversity can be supported along with advanced Automatic Level Control (ALC) behaviours. Broadband or channel selective passbands can be implemented in UL and DL directions.

Installation of the Maven DAS is quick thanks to few components, minimal cabling; and also since the high power Stratus remotes are a one man lift. The system has auto-commissioning functionality which gets the system up and running quickly.

The secure web interface is intuitive and easy to use, making it useful for any level of technician. The equipment can be accessed from a laptop or a tablet. The standardised supervision interface can be connected to any standard NMS using SNMP v2c or v3. The Orion rack also provides a dry-contact relay output for alarm status.

Orion specification



General

Mains power	85 – 264 VAC, redundant, field replaceable (hot swap) -48 VDC, redundant, field replaceable (hot swap)
Power consumption	100 W max fully loaded
Management	Ethernet 10/100/1000 micro USB Standard USB accessory connector Summary alarm output (NC/NO)
Operating temperature	+5 to +45 °C
RF input	Up to 8 hot swappable band modules
System Gain	15 to 45dB in 0.1dB steps
Gain flatness	1dB pp

Digital interface

CPRI ports	Up to 16 digital links
Single mode fibre	1310 nm band, up to 40 km distance
Multi mode fibre	850 nm band, up to 300 m distance

RF module

Connections	2 RF interfaces, each with a duplex and simplex QMA connection.	
RF input range	0 to +30 dBm composite per RF module	
Frequencies	<u>Uplink (UL)</u> 873 – 880 MHz	<u>Downlink (DL)</u> 918 - 925 MHz

Mechanical

Dimensions (height, width, depth)	130 x 436 x 309 mm in standard 19" rack format
Weight	7 kg fully loaded in all slots

Stratus specification



General

Mains power	85 – 264 VAC, -48 VDC optional
Power consumption	150 W max (single band)
Management	Ethernet 10/100/1000, micro USB, Standard USB accessory connector
Operating temperature	-25 to +55 °C
Ingress protection	IP65
Antenna port	4 x 4.3-10 or 7/16 optional
Digital interface	3 x QSFP and 4 x SFP+
Number of bands	1 - 4 bands in one enclosure, 8 bands in cascade

RF parameters

Output power	+43 dBm per band @ 8 dB Peak-to-average ratio
Noise figure	3 dB typical at max gain
Return loss	> 14 dB
System impedance	50 Ω
Maximum input power	+17 dBm, non destructive *

Band	Uplink (UL)	Downlink (DL)	Operational bandwidth	Composite output power	Technologies
900-R	873 – 880 MHz	918 - 925 MHz	7 MHz	+ 43 dBm	GSM-R, LTE

Mechanical

Dimensions (height, width, depth)	670 x 383 x 270 mm
Weight	19 kg

Standards & approvals

EMC & safety	EMC directive 2004/108/EC Low voltage directive 73/23/EEC RED directive 2014/53/EU EN50155
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* noise figure increases slowly and gradually after -37 dBm

Ordering information

Orion head end unit

Item	Description	Part number
Orion Chassis	Orion head end 19" 3U main chassis	MRN00001
Power module VAC	110-230 VAC power supply module	PSU00001
Power module VDC	-48 VDC power supply module	PSU00002
900R band module	RF band module 918 - 925 MHz GSM-R, Dual port	RBA00032
Blanking plate	Blanking plate	RBA00099

Stratus-R +43 dBm remote unit

Item	Description	Part number
Stratus SB 9R DC	Stratus single band 9-R remote -48 DC	RHN00062
Stratus SB 9R AC	Stratus single band 9-R remote 230 AC	RHN00016
Stratus cellular modem	Stratus cellular quad band (4G/3G/2,5G) integrated modem	MOD00001
Stratus GSM-R modem	Stratus GSM-R quad band integrated modem	MOD00002

Note: All parameters are subject to change