

JAHH-45C-R3B



8-port sector antenna, 2x 698–798, 2x 824–894 and 4x 1695–2360 MHz, 45° HPBW, low bands each have a RET and the high bands share a RET. Two internal SBTs.

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One RET for 700MHz, one RET for 850MHz, and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO
- Internal filter on low band and interleaved dipole technology providing for attractive, low wind load mechanical package
- Separate RS-485 RET input/output for low and high band
- Narrow beamwidth capacity antenna for higher level of densification and enhanced data throughput

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light Gray (RAL 7035)
Grounding Type	RF connector body grounded to reflector and mounting bracket
Performance Note	Outdoor usage Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN
Radome Material	Fiberglass, UV resistant
Radiator Material	Aluminum Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	4
RF Connector Quantity, total	8

Remote Electrical Tilt (RET) Information

RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	2 female 2 male
Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 Port 5

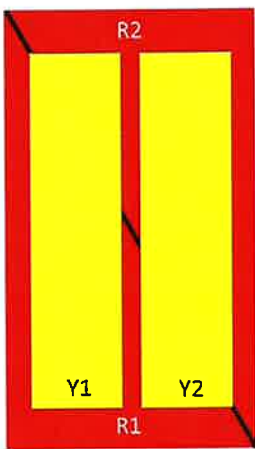
JAHH-45C-R3B

Internal RET	High band (1) Low band (2)
Power Consumption, idle state, maximum	1 W
Power Consumption, normal conditions, maximum	8 W
Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	457 mm 17.992 in
Depth	178 mm 7.008 in
Length	2437 mm 95.945 in
Net Weight, without mounting kit	48.2 kg 106.263 lb

Array Layout



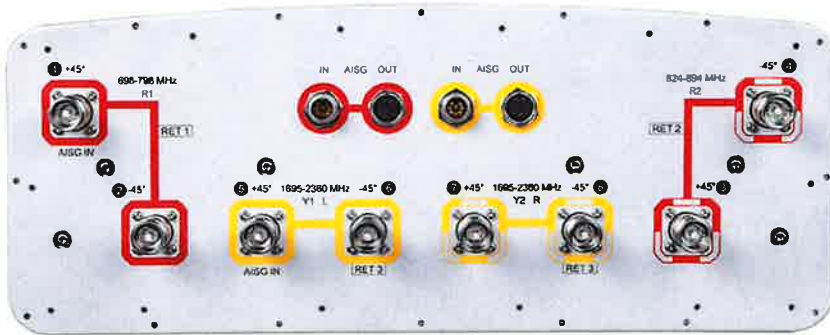
Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-798	1-2	1	ANxxxxxxxxxxxxxxxxx1
R2	824-894	3-4	2	ANxxxxxxxxxxxxxxxxx2
Y1	1695-2360	5-6	3	ANxxxxxxxxxxxxxxxxx3
Y2	1695-2360	7-8		

Left Right
Bottom

(Sizes of colored boxes are not true depictions of array sizes)

Port Configuration

JAHH-45C-R3B



Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2360 MHz 698 – 798 MHz 824 – 894 MHz
Polarization	±45°
Total Input Power, maximum	800 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	698–798	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	17.7	18.2	19.5	20	20.5	20.8
Beamwidth, Horizontal, degrees	48	43	44	42.6	42	38
Beamwidth, Vertical, degrees	9.1	8.2	5.8	5.4	5	4.5
Beam Tilt, degrees	0–10	0–10	0–8	0–8	0–8	0–8
USLS (First Lobe), dB	17	20	17	18	18	18
Front-to-Back Ratio at 180°, dB	35	35	36	37	39	40
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	28	28	28	28
VSWR Return loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0

JAHH-45C-R3B

PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	200	200	300	300	300	250

Electrical Specifications, BASTA

Frequency Band, MHz	698–798	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	17.4	18.1	19.1	19.8	20.2	20.6
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.2	±0.5	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0° 17.3 5° 17.5 10° 17.4	0° 18.0 5° 18.1 10° 18.0	0° 19.1 4° 19.2 8° 19.1	0° 19.8 4° 19.8 8° 19.7	0° 20.1 4° 20.2 8° 20.2	0° 20.5 4° 20.7 8° 20.4
Beamwidth, Horizontal Tolerance, degrees	±1.1	±2.2	±2	±2.1	±1.7	±1.9
Beamwidth, Vertical Tolerance, degrees	±0.5	±0.3	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	16	16	16	16	16	17
Front-to-Back Total Power at 180° ± 30°, dB	24	23	28	30	31	31
CPR at Boresight, dB	26	22	19	20	20	19
CPR at Sector, dB	18	17	12	14	15	18

Mechanical Specifications

Effective Projective Area (EPA), frontal	1.4 m ² 15.069 ft ²
Effective Projective Area (EPA), lateral	0.3 m ² 3.229 ft ²
Wind Loading @ Velocity, frontal	1,485.0 N @ 150 km/h (333.8 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	315.0 N @ 150 km/h (70.8 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	1,485.0 N @ 150 km/h (333.8 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	1,304.0 N @ 150 km/h (293.2 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h 149.75 mph

Packaging and Weights

Width, packed	608 mm 23.937 in
Depth, packed	346 mm 13.622 in
Length, packed	2579 mm 101.535 in
Weight, gross	73.5 kg 162.04 lb

JAHH-45C-R3B

Regulatory Compliance/Certifications

Agency

ISO 9001:2015



Classification

Designed, manufactured and/or distributed under this quality management system

Included Products

- BSAMNT-3
 - Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.
- BSAMNT-M
 - Middle Downtilt Mounting Kit for Long Antennas for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor bracket set.

* Footnotes

Performance Note

Severe environmental conditions may degrade optimum performance

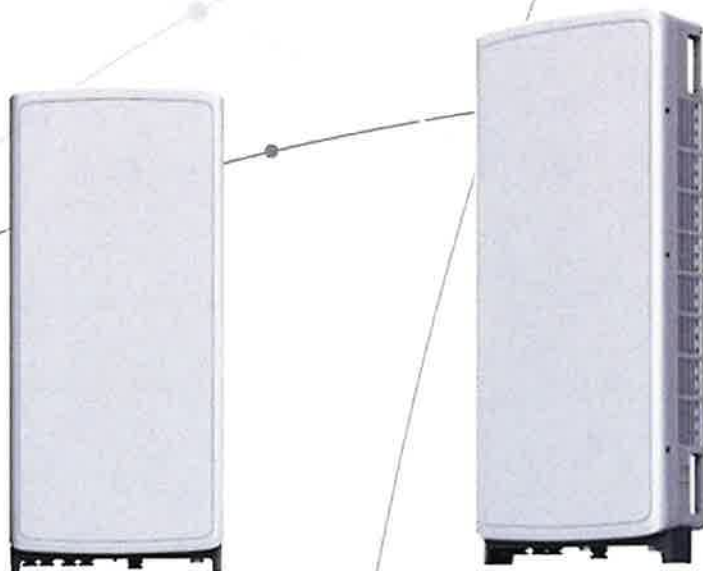
SAMSUNG

SAMSUNG C-Band 64T64R Massive MIMO Radio

for High Capacity and Wide Coverage

Samsung C-Band 64T64R Massive MIMO Radio enables mobile operators to increase coverage range, boost data speeds and ultimately offer enriched 5G experiences to users in the U.S..

Model Code: MT6407-77A



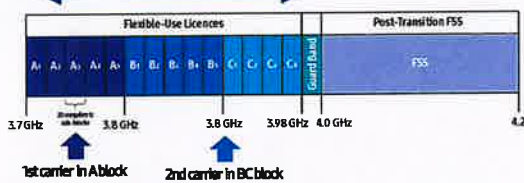
Points of Differentiation

Wide Bandwidth

With capability to support up to 2 CC carrier configuration, Samsung C-Band massive MIMO Radio supports 200 MHz bandwidth in the C-Band spectrum.

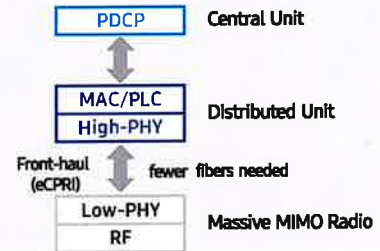
Samsung C-Band massive MIMO Radio covers the entire C-Band 280 MHz spectrum, so it can meet the operator's needs in current A block and future B/C blocks

C-Band spectrum supported by Massive MIMO Radio



Future Proof Product

Samsung C-Band 64T64R Massive MIMO radio supports not only CPRI but also eCPRI as front-haul interface. It enables operators can cut down on OPEX/CAPEX by reducing front-haul bandwidth through low layer split and using ethernet based higher efficient line.



Enhanced Performance

C-Band massive MIMO Radio creates sharp beams and extends networks' coverage on the critical mid-band spectrum using a large number of antenna elements and high output power to boost data speeds.

This helps operators reduce their CAPEX as they now need less products to cover the same area than before.

Furthermore, as C-Band massive MIMO Radio supports MU-MIMO (Multi-user MIMO), it enables to increase user throughput by minimizing interference.



Well Matched Design

Samsung C-Band Massive MIMO radio utilizes 64 antennas, supports up to 280MHz bandwidth, and delivers a 200W output power. despite the above advanced performance, the Radio has a compact size of 50.9L and 79.4lbs. This makes it easy to install the Radio.

It is designed to look solid and compact, with a low profile appearance so that, when installed, harmonizes well with the surrounding environment.



Technical Specifications

Item	Specification
Tech	NR
Band	n77
Frequency Band	3700 - 3980 MHz
ERP	78.5dBm (53.0 dBm+25.5 dBi)
IBW/OBW	280 MHz / 200 MHz
Installation	Pole/Wall
Size/Weight	16.06 x 35.06 x 5.51 inch (50.86L) / 79.4 lbs

SAMSUNG

About Samsung Electronics Co., Ltd.

Samsung inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, network systems, and memory, system LSI, foundry and LED solutions.

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Antennas

DATA SHEET

Three-Beam Special Events Antenna

MBA3R-K4A



- Four foot (1.3 m) tall, single band, six port multibeam array. Containing three Independent LTE Optimized Beams covering 694-960 MHz frequencies
- This multibeam array contains three multibeams, each with Independent AISG RET control. Each Independent LTE Optimized Beam has an electrical downtilt range of 4°-16°, an Industry First for this type of Multibeam Array.
- Six Low Band Dual-Pol +45°/-45°ports (two ports per beam) covering 694-960 MHz in a single antenna
- Full Spectrum Compliance for 694-960 MHz Frequencies and upcoming Band 14 Operations
- LTE Optimized Beams for improved LTE data throughput by minimizing beam crossover, providing for an efficient use of valuable radio capacity and frequency spectrum
- LTE Optimized FBR, USLS and Co-Pol Beam Isolation Performance. Essential for today's LTE Data Driven Networks
- Exceeds minimum PIM performance requirements

Overview

This CCI Three-Beam Antenna contains Three Independent LTE Optimized Beams and each LTE Optimized Beam has an Independent AISG RET control. This is an Industry First, for this type of Multibeam Array. Independent RET control for each beam will allow operators tremendous flexibility in the optimization and management of their high speed data cellular networks. This Three-Beam Antenna is intended for use at data hotspots and other congested locals, where social media and the ability to share photos and videos and other high demand applications require high capacity and high data rates. This Three-Beam antenna enables maximum spectrum re-use by sectorization, greatly increasing network capacity. Our LTE Optimized Beam Design approach provides fast roll off between beams, minimizing interference between sectors thus increasing the carrier to interference plus noise (CINR) ratio and lowering soft handover losses in LTE networks. Such an approach enhances data transfer rates within LTE network sectors and addresses "hotspots" in mobile wireless operator networks.

The single panel design of the CCI Three-Beam Special Event Antenna offers the opportunity to reduce antenna count and directly replaces multiple narrow beam antennas. The antenna minimizes the need for optimization as each beam is spaced optimally for maximum throughput thus providing significant CAPEX and OPEX cost savings. CCI antennas are designed and produced to ISO 9001 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

Applications

- Upgrade of data-throughput or capacity constrained sites
- Antenna intended for use where data throughput and capacity needs are paramount



Antennas

SPECIFICATIONS

Three-Beam Special Events Antenna

MBA3R-K4A

Electrical

	Ports	6 x Low Band Ports for 694-960 MHz			
	Frequency Range	694-806 MHz	790-862 MHz	824-896 MHz	880-960 MHz
Gain		18.0 dBi	18.9 dBi	19.1 dBi	19.3 dBi
Azimuth Beamwidth (-3dB)		18.6°	16.8°	16.1°	15.0°
Azimuth Beam Crossover		10.4°	10.5°	10.4°	10.5°
Elevation Beamwidth (-3dB)		17.7°	15.9°	15.2°	14.1°
Electrical Downtilt		4° to 16°	4° to 16°	4° to 16°	4° to 16°
Elevation Sidelobes (1st Upper)		< -19 dB	< -20 dB	< -20 dB	< -20 dB
Front-to-Back Ratio @180°		> 38 dB	> 38 dB	> 38 dB	> 38 dB
Cross-Polar Port-to-Port Isolation		> 24 dB	> 24 dB	> 24 dB	> 24 dB
Interbeam Co-Pol Isolation (Adjacent Beams) (Worst Case)		> 15 dB	> 15 dB	> 15 dB	> 15 dB
Interbeam Co-Pol Isolation (Non Adjacent Beams) (Worst Case)		> 12 dB	> 12 dB	> 12 dB	> 12 dB
Voltage Standing Wave Ratio (VSWR)		< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)		≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)		200 watts	200 watts	200 watts	200 watts
Polarization		Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance		50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection		DC Ground	DC Ground	DC Ground	DC Ground

Mechanical

Dimensions (LxWxD)	52.3x53.1x9.8 in (1329x1384x250 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	592 lbs (2634 N) @ 100 mph (161 kph)
Side Wind Load	121 lbs (539 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	23.1 ft ² (2.1 m ²)
Weight*	124.1 lbs (56.3 kg)
RET Weight	5.0 lbs (2.3 kg)
Connector	6 x 7-16 DIN female long neck or 4.3-10 female
Mounting Poles	2x 2 to 5 in (5 to 12 cm)
Mounting Pole Spacing	31.5 in (800 mm)

* Weight excludes mounting and RET



Antennas

Three-Beam Special Events Antenna

MBA3R-K4A

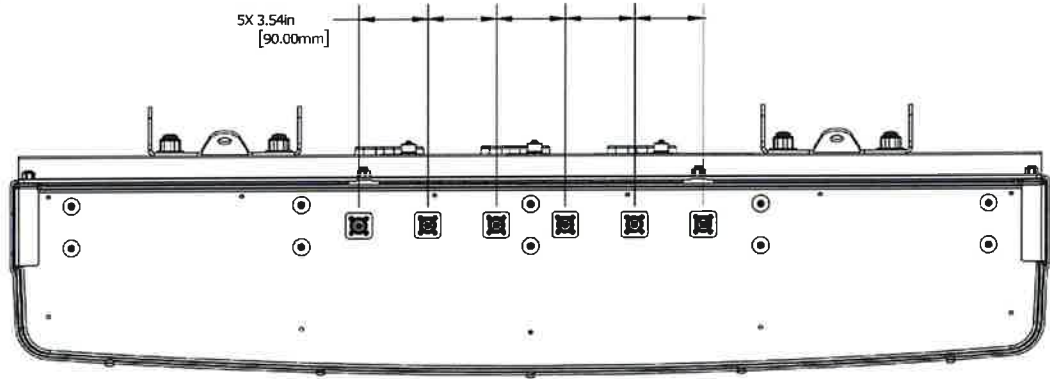
SPECIFICATIONS

Mechanical

Bottom View

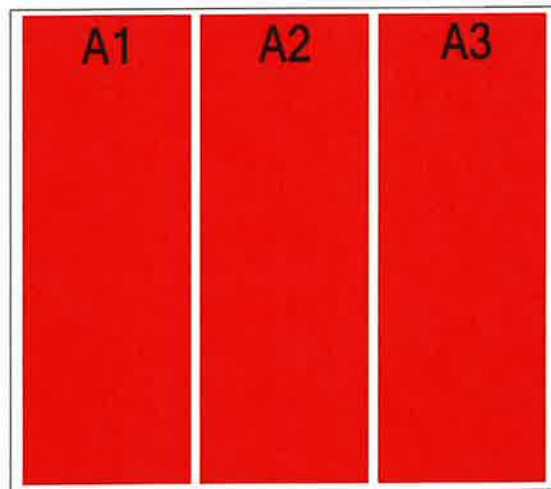


Connector Spacing

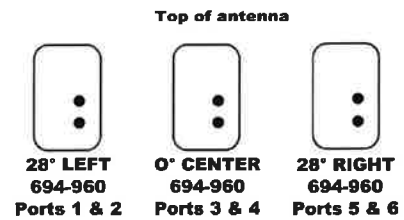


RET to Element Configuration

Element arrays as viewed from rear of antenna



RET placement as view from rear of antenna



Array	Ports	Freq (MHz)	Beam	Ports controlled by common RET
A1	1, 2	694-960	28° Left	1, 2
A2	3, 4	694-960	0°	3, 4
A3	5, 6	694-960	28° Right	5, 6



Antennas

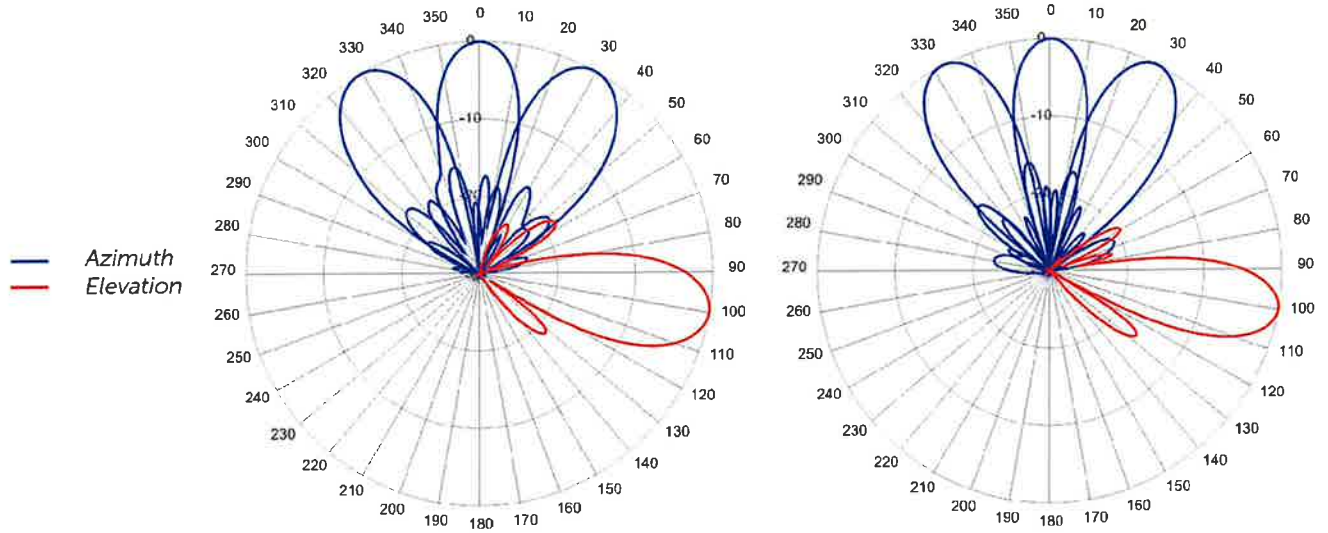
SPECIFICATIONS

Three-Beam Special Events Antenna

MBA3R-K4A

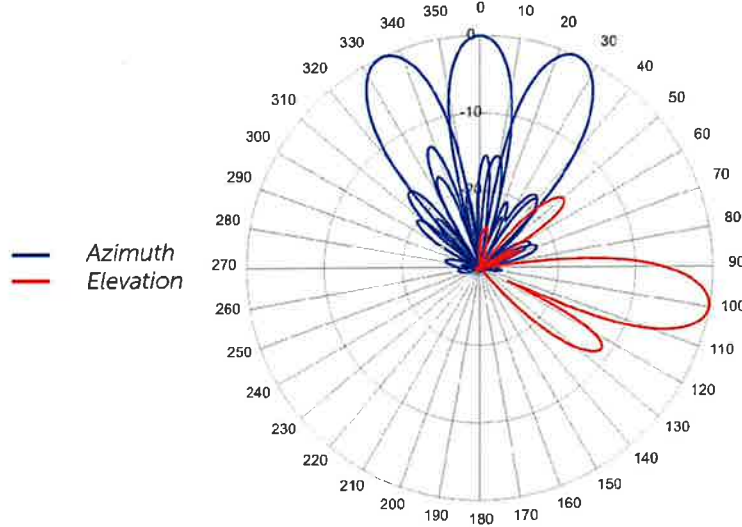
Typical Antenna Patterns

For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



734 MHz Azimuth with Elevation 10°

806 MHz Azimuth with Elevation 10°



925 MHz Azimuth with Elevation 10°



Antennas

ORDERING

Three-Beam Special Events Antenna

MBA3R-K4A

Parts & Accessories

MBA3R-K4AA-K	4 foot (1.3 m) Special Events 3-Beam Antenna with 4-3-10 female connectors, 3 factory installed BSA-RET200 actuators and 2x MBK-10 mounting bracket
MBA3R-K4AB-K	4 foot (1.3 m) Special Events 3-Beam Antenna with 7-16 DIN female long neck connectors , 3 factory installed BSA-RET200 actuators and 2x MBK-10 mounting bracket
MBK-10	Mounting bracket kit (top and bottom) with 0° to 12° mechanical tilt adjustment
BSA-RET200	Remote electrical tilt actuator
HPA-CBK-AG-RRU	RRU AISG cable kit for a 3 RET antenna
HPA-CBK-RA-AG-RRU	RRU AISG right angle cable kit for a 3 RET antenna



Antennas

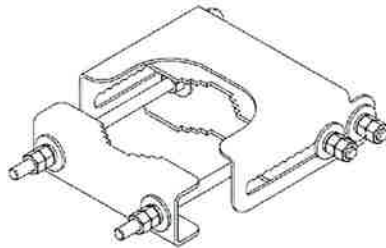
ACCESSORIES

Mounting Bracket Kit

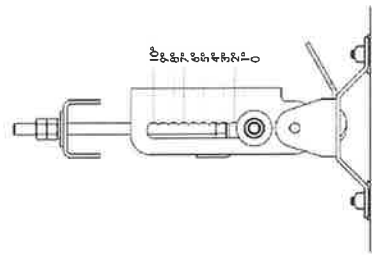
MBK-10

Mechanical

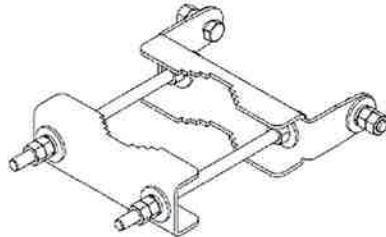
Weight	14.0 lbs (6.4 kg)
Hinge Pitch	23.6 in (600 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-10 Top Adjustable Bracket



MBK-10 Top Adjustable Bracket Side View



MBK-10 Bottom Fixed Bracket



Antennas

ACCESSORIES

Remote Electrical Tilt Actuator (RET)

BSA-RET200

General Specifications

Part Number	BSA-RET200
Protocols	AISG 2.0
RET Type	Type 1
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40° C to 70° C

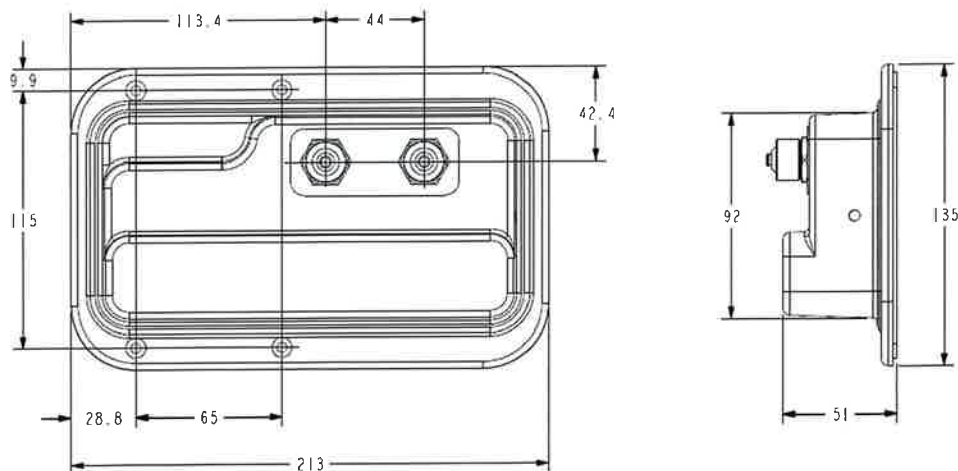
Electrical

Data Interface Signal	DC
Input Voltage	10-30 Vdc
Current Consumption Tilt	120 mA at $V_{in}=24$
Current Consumption Idle	55 mA at $V_{in}=24$
Hardware Interface	AISG-RS 485 A/B
Input Connector	Male 1 x 8 pin Daisy Chain
Output Connector	Female 1 x 8 pin Daisy Chain

Mechanical

Dimensions (LxWxD)	8.0x5.0x2.0 in. (213x135x51 mm)
Housing	ASA/ABS/Aluminum
Weight	1.7 lbs (0.75 kg)

ASA= Acrylic Styrene Acrylonitrile
ABS= Acrylonitrile Butadiene Styrene





Antennas

ACCESSORIES

AISG Cable Kit

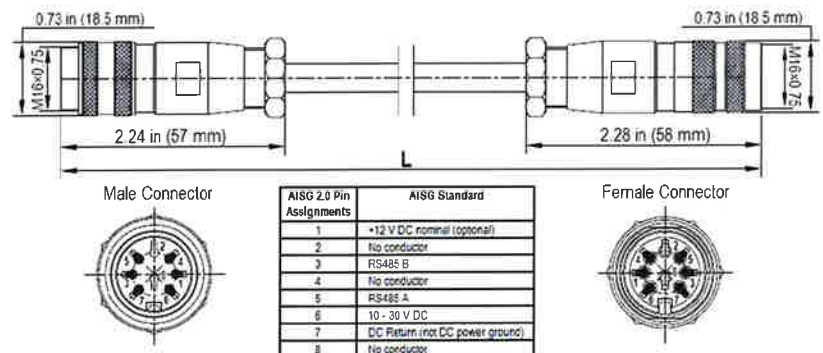
HPA-CBK-AG-RRU

Electrical Specifications

Individual Cable Part Number	AISGC-M-F-18	AISGC-M-F-10FT
Cable style	UL2464	UL2464
Protocol	AISG 1.1 and AISG 2.0	AISG 1.1 and AISG 2.0
Maximum voltage	300 V	300 V
Rated current	5 A at 104° F (40° C)	5 A at 104° F (40° C)

Mechanical Specifications

Individual Cable Part Number	AISGC-M-F-18	AISGC-M-F-10FT
Cables per kit	2	2
Connectors	2 x 8 pin IEC 60130-9 Straight male/straight female	2 x 8 pin IEC 60130-9 Straight male/straight female
Tightening torque	Hand tighten only ≈ 1.84 ft-lbs (2.5 N·m)	Hand tighten only ≈ 1.84 ft-lbs (2.5 N·m)
Construction	Shielded (Tinned Copper Braid)	Shielded (Tinned Copper Braid)
Braid coverage	85%	85%
Jacket Material	Matte Polyurethane (Black)	Matte Polyurethane (Black)
Conductors	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464
Cable Diameter	0.307 in (7.8 mm)	0.307 in (7.8 mm)
Length	18 - 20 in (457 - 508 mm)	120 in (3048 mm)
Weight	0.27 lbs (0.12 kg)	0.69 lbs (.31 kg)
Minimum bend radius	3.9 in (100 mm)	3.9 in (100 mm)



AISG-Male to AISG-Female Jumper Cable

Environmental Specifications

Individual Cable Part Number	AISGC-M-F-18	AISGC-M-F-10FT
Temperature Range	-40° to 80° C	-40° to 80° C
Flammability	UL 1581 VW-1	UL 1581 VW-1
Ingress Protection	IEC 60529:2001, IP67	IEC 60529:2001, IP67



Antennas

ACCESSORIES

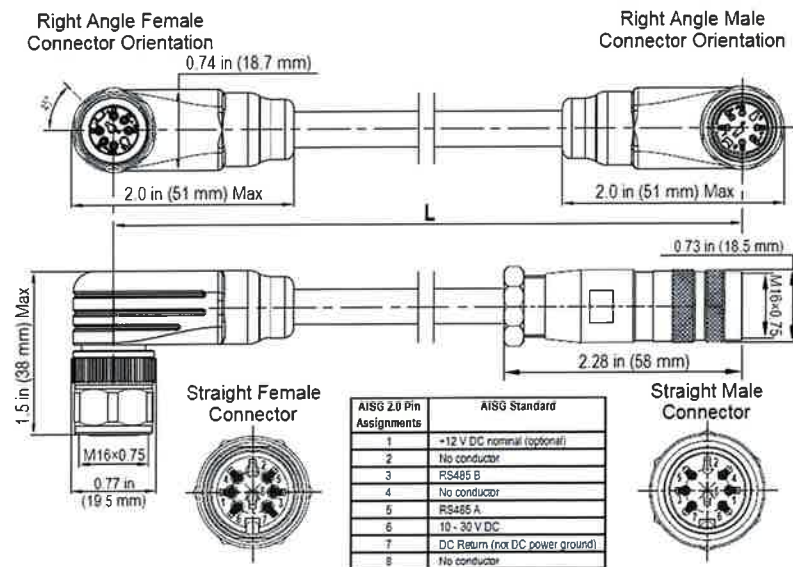
AISG Cable Kit

HPA-CBK-RA-AG-RRU

Electrical/Mechanical/Environmental Specifications

	RET to RET Cables	RRU to Antenna Cables
Individual Cable Part Number	AISGC-MRA-FRA-20	AISGC-M-FRA-10FT
Cable style	UL2464	
Protocol	AISG 1.1 and AISG 2.0	
Maximum voltage	300 V	
Rated current	5 A at 104° F (40° C)	
Temperature Range	-40° to 80° C	
Flammability	UL 1581 VW-1	
Ingress Protection	IEC 60529:2001, IP67	
Tightening torque	Hand tighten only ≈ 1.84 ft-lbs (2.5 N·m)	
Construction	Shielded (Tinned Copper Braid)	
Braid coverage	85%	
Jacket Material	Matte Polyurethane (Black)	
Conductors	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464	
Cable Diameter	0.307 in (7.8 mm)	
Minimum bend radius	3.9 in (100 mm)	
Connectors	2 x 8 pin IEC 60130-9 Right angle male/right angle female	2 x 8 pin IEC 60130-9 Straight male/right angle female
Length	20 in (508 mm)	120 in (3048 mm)
Weight	0.23 lbs (0.10 kg)	0.77 lbs (0.35 kg)
Cables per kit	2	2

Mechanical Specifications



Right Angle to Right Angle and Right Angle to Straight Jumper Cable



Antennas

STANDARDS & CERTIFICATIONS

Three-Beam Special Events Antenna

MBA3R-K4A

Standards & Compliance

Safety	EN 60950-1, UL 60950-1
Emission	EN 55022
Immunity	EN 55024
Environmental	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-5, IEC 60068-2-6, IEC-60068-2-11, IEC 60068-2-14, IEC 60068-2-18, IEC 60068-2-27, IEC 60068-2-29, IEC 60068-02-30, IEC 60068-2-52, IEC 60068-2-64, GR-63-CORE 4.3.1, EN 60529, IP 24

Certifications

Antenna Interface Standards Group (AISG), Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001



SAMSUNG

AWS/PCS MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This AWS/PCS 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

Model Code RF4439d-25A



Homepage
samsungnetworks.com

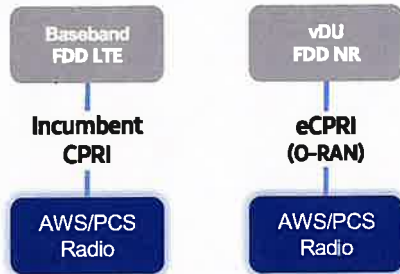


Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

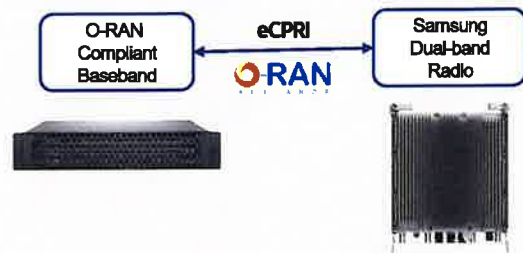
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help in implementing cost-effective networks, which are capable of sending more data without compromising additional investments.

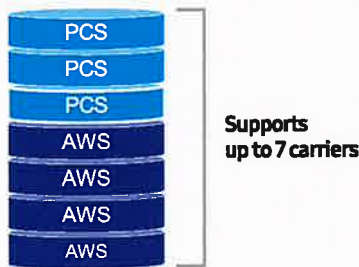
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

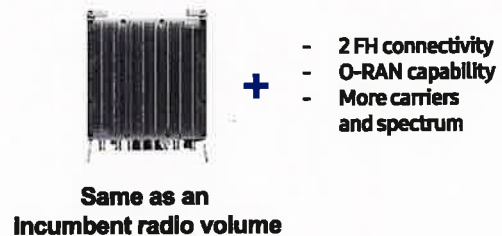
The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

The new AWS/PCS dual-band radio can support up to 3 carriers in the PCS (1.9GHz) band and 4 carriers in the AWS (2.1GHz) band, respectively.



Brand New Features in a Compact Size

Samsung's AWS/PCS macro radio offers several features, such as dual connectivity for baseband for both CDU and vDU, O-RAN capability, more carriers and an enlarged PCS spectrum, combined into an incumbent radio volume of 36.8L.



Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B25(PCS), B66(AWS)
Frequency Band	DL: 1930 – 1995MHz, UL: 1850 – 1915MHz DL: 2110 – 2200MHz, UL: 1710 – 1780MHz
RF Power	(B25) 4 × 40W or 2 × 60W (B66) 4 × 60W or 2 × 80W
IBW/OBW	(B25) 65MHz / 30MHz (B66) DL 90MHz, UL 70MHz / 60MHz
Installation	Pole, Wall
Size/Weight	14.96 x 14.96 x 10.04inch (36.8L) / 74.7lb

700/850 4T4R Macro 320W ORU - New Filter (RF4461d-13A)

SAMSUNG

Specifications



Item	Specification
Air Interface	LTE, NR(HW resource ready)
Band	Band13 (700MHz) DL: 746~756MHz UL: 777~787MHz
Frequency	Band5 (850MHz) DL: 869~894MHz UL: 824~849MHz
IBW	10MHz
OBW	10MHz
Carrier Bandwidth	LTE/NR 5*/10MHz
# of carriers	2C*
Total # of carriers	4C + B13 (SDL) 1C 4T4R/2T4R/2T2R/1T2R 2T2R-2T2R bi-sector Total : 320W
RF Chain	TX/RX Support 4 x 40W or 2 x 60W
RF Output Power	4 x 40W or 2 x 60W
Spectrum Analyzer	Typ. -104.5dBm @1Rx (25RB8; 5MHz)
RX Sensitivity	256QAM support, (1024QAM with 1~2dB power back-off)
Modulation	-48VDC (-38VDC to -57VDC)
Input Power	1,165 Watt @ 100% RF load, room temperature
Power Consumption	380 x 380 x 260 mm (14.96 x 14.96 x 10.23 inch)
Size (WHD)	37.5 L
Volume	35.9 kg (79.1 lb)
Weight (w/o Solar Shield & finger guard)	-40°C (-40°F) ~ 55°C (131°F) (Without solar load)
Operating Temperature	Natural convection
Cooling	3GPP 36.104 FCC 47 CFR 27.53 c, f)
Unwanted Emission	-69 dBm/100 kHz per path @ 896 ~901MHz FCC 47 CFR 22.917
CPRI Cascade	Not supported
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP+, single mode, Duplex (Option: Bi-di)
RET & TMA Interface	AISG 3.0
Bias-T	4 ports (2 ports per band)
Mounting Options	Pole, wall
NB-IoT	2GB+2IB or 4IB
PIM Cancellation	Support
# of antenna port	4
External Alarm	2SA+2GB or 2GB+2IB or 4GB
Fronthaul Interface	Opt. 8 CPRI / Opt. 7-2x selectable (not simultaneous support)
CPRI compression	Not Support

* 5MHz supporting in B13(700MHz) depends on 3Gpp std. and UE capability.
External filters in interferer and victim sides for Mexican boarder to support 5MHz service need to be considered
** Finger guard is not needed.

HYBRID CABLE



HUBER+SUHNER's hybrid cable combine optical fiber and DC power, are highly flexible and easy-to-route. Two rip cords between the shielding and the jacket allows a quick stripping of the jacket. The shielding, a copper foil under the jacket and the drain wire maintain contact throughout the cable run and allow potential equalisation and a safe installation with regard to lightning strikes.

HYBRID CABLE SPECIFICATIONS

		LSFH(TM) hybrid cable, global market	UL listed hybrid cable, US market
Jacket material		thermoplastic, low smoke, halogen free (LSFH(TM))	PVC
Standard		IEC 60502-1:2004-04	UL 1277, TC-OF-ER
Temperature range	in service installation	-40 to +75 °C -10 to +50 °C	-40 to +75 °C -10 to +50 °C
Operating voltage		48 Vdc	48 Vdc
Rated voltage		10 × cable Ø 8 × cable Ø	12 × cable Ø 10 × cable Ø
Conductors		6 mm ² , 10 mm ² 16 mm ²	AWG 10, 8, 6
Drain wire		6 mm ² , 10 mm ² class 2	AWG 6 class B
Cable shielding		copper foil 100 % coverage (contacted with drain wire)	copper foil 100 % coverage (contacted with drain wire)



Fiber optic	5 mm loose-tube cable with up to 36 single mode fibers	5 mm loose-tube cable with up to 36 single mode fibers
Halogen free	yes	no
Flame retardant	IEC 60332-1-2:2004	UL 1685 (UL 1581) vertical tray flame test (70 000 BTU/hr)
UV resistant	IEC 60068-2-5	UL1581

DO YOU HAVE A QUESTION?



CONTACT US



SD050 | 3.4L | 50 kW
INDUSTRIAL DIESEL GENERATOR SET
 EPA Certified Stationary Emergency

Standby Power Rating
 50 kW, 63 kVA, 60 Hz

Prime Power Rating*
 45 kW, 56 kVA, 60 Hz




Image used for illustration purposes only



*EPA Certified Prime ratings are not available in the US or its Territories

Codes and Standards


Not all codes and standards apply to all configurations. Contact factory for details.


 UL2200, UL6200, UL1236, UL142


 CSA C22.2


 BS5514 and DIN 6271

 SAE J1349


 NFPA 37, 70, 99, 110

 NEC700, 701, 702, 708

 ISO 3046, 7637, 8528, 9001

 NEMA ICS10, MG1, 250, ICS6, AB1

 ANSI C62.41

 IBC 2009, CBC 2010, IBC 2012, ASCE 7-05, ASCE 7-10, ICC-ES AC-156 (2012)

Powering Ahead

For over 50 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SD050 | 3.4L | 50 kW INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

STANDARD FEATURES

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Critical Silencer (Enclosed Units Only)

Fuel System

- Fuel Lockoff Solenoid
- Primary Fuel Filter

Cooling System

- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- Radiator Drain Extension
- 50/50 Ethylene Glycol Antifreeze
- 120 VAC Coolant Heater

Electrical System

- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

- UL2200 GENprotect™
- 12 Leads (3-Phase, Non 600V)
- Class H Insulation Material
- Vented Rotor
- 2/3 Pitch
- Skewed Stator
- Auxiliary Voltage Regulator Power Winding
- Brushless Excitation
- Sealed Bearing
- Automated Manufacturing (Winding, Insertion, Lacing, Varnishing)
- Rotor Dynamically Spin Balanced
- Full Load Capacity Alternator
- Protective Thermal Switch

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)
- Silencer Mounted in the Discharge Hood (Enclosed Only)
- Silencer of Heat Shield

ENCLOSURE (If Selected)

- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuated Enclosures)
- Gasketed Doors
- Stamped Air-Intake Louvers
- Upward Facing Discharge Hoods (Radiator and Exhaust)
- Stainless Steel Lift Off Door Hinges
- Stainless Steel Lockable Handles
- RhinoCoat™ - Textured Polyester Powder Coat Paint

FUEL TANKS (If Selected)

- UL 142/ULC S-601
- Double Wall Construction
- Vents
- Sloped Top
- Sloped Bottom
- Factory Pressure Tested - 2 psi
- Rupture Basin Alarm
- Fuel Level
- Check Valve In Supply and Return Lines
- RhinoCoat™ - Textured Polyester Powder Coat Paint
- Stainless Steel Hardware

CONTROL SYSTEM



Digital H Control Panel- Dual 4x20 Display

Program Functions

- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable Logic Controller
- RS-232/485 Communications
- All Phase Sensing Digital Voltage Regulator
- 2-Wire Start Capability
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors

- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus® Protocol
- Predictive Maintenance Algorithm
- Sealed Boards
- Password Parameter Adjustment Protection
- Single Point Ground
- 16 Channel Remote Trending
- 0.2 msec High Speed Remote Trending
- Alarm Information Automatically Annunciated on the Display

Full System Status Display

- Power Output (kW)
- Power Factor
- kW Hours, Total, and Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents

- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency

Alarms and Warnings

- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Overspeed
- Battery Voltage
- Alarms and Warnings Time and Date Stamped
- Snap Shots of Key Operation Parameters During Alarms and Warnings
- Alarms and Warnings Spelled Out (No Alarm Codes)

SD050 | 3.4L | 50 kW INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

CONFIGURABLE OPTIONS

ENGINE SYSTEM

- Engine Coolant Heater
- Oil Heater
- Industrial Silencer (Open Set)
- Air Filter Restriction Indicator
- Fan and Belt Guards (Enclosed Units Only)

FUEL SYSTEM

- Flexible Fuel Lines
- Primary Fuel Filter

ELECTRICAL SYSTEM

- 10A UL Listed Battery Charger
- Battery Warmer

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical Coating
- Permanent Magnet Excitation

GENERATOR SET

- 8 Position Load Center

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

ENCLOSURE

- Weather Protected Enclosure
- Level 1 Sound Attenuated
- Level 2 Sound Attenuated
- Level 2 Sound Attenuated with Motorized Dampers
- Steel Enclosure
- Aluminum Enclosure
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- AC/DC Enclosure Lighting Kit
- Door Open Alarm Switch
- Pad Vibration Isolator
- Enclosure Heater

WARRANTY (Standby Gensets Only)

- 2 Year Extended Limited Warranty
- 5 Year Limited Warranty
- 5 Year Extended Limited Warranty
- 7 Year Extended Limited Warranty
- 10 Year Extended Limited Warranty

CONTROL SYSTEM

- NFPA 110 Compliant 21-Light Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Oil Temperature Sender with Alarm
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- Remote Communication - Modem
- 10A Engine Run Relay
- Ground Fault Indication and Protection Functions
- 100 dB Alarm Horn
- 120V GFCI and 240V Outlets

FUEL TANKS (Size On Last Page)

- 8 in (203.2 mm) Fill Extension
- 13 in (330.2 mm) Fill Extension
- 19 in (482.6 mm) Fill Extension
- Overfill Protection Valve
- Vent Extensions
- Tank Risers
- Fuel Drop Tube
- Return Hose
- 90% Fuel Level Alarm

ENGINEERED OPTIONS

ENGINE SYSTEM

- Coolant Heater Ball Valves
- Fluid Containment Pan

CONTROL SYSTEM

- Spare Inputs (x4) / Outputs (x4)
- Battery Disconnect Switch

ALTERNATOR SYSTEM

- 3rd Breaker System

GENERATOR SET

- Special Testing
- IBC Seismic Certification

TANKS

- UL2085 Tank
- Stainless Steel Tanks

SD050 | 3.4L | 50 kW
INDUSTRIAL DIESEL GENERATOR SET
 EPA Certified Stationary Emergency



APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Generac
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emission Data Sheet
Cylinder #	4
Type	In-Line
Displacement - in ³ (L)	207.48 (3.4)
Bore - in (mm)	3.86 (98)
Stroke - in (mm)	4.45 (113)
Compression Ratio	18.5:1
Intake Air Method	Turbocharged/Aftercooled
Cylinder Head *	Cast Iron OHV
Piston Type	Aluminum
Crankshaft Type	Forged Steel

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full Flow Cartridge
Crankcase Capacity - qt (L)	7.4 (7)

Cooling System

Cooling System Type	Closed Recovery
Water Pump Type	Pre-Lubed, Self Sealing
Fan Type	Pusher
Fan Speed - rpm	2,250
Fan Diameter - in (mm)	560 (22)

Fuel System

Fuel Type	Ultra Low Sulfur Diesel Fuel #2
Fuel Specifications	ASTM
Fuel Filtering (microns)	10
Fuel Inject Pump	Bosch (VE)
Fuel Pump Type	Engine Driven Gear
Injector Type	Pintel - 2,100 psi (14,479 kPa)
Fuel Supply Line - in (mm)	0.312 (7.92) NPT
Fuel Return Line - in (mm)	0.312 (7.92) NPT

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	K0050124Y21
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5% (3-Phase)
Telephone Interference Factor (TIF)	< 50

Standard Excitation	Synchronous Brushless
Bearings	Single Sealed Cartridge
Coupling	Direct via Flexible Disc
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.25%

SD050 | 3.4L | 50 kW INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency



OPERATING DATA

POWER RATINGS

		Standby
Single-Phase 120/240 VAC @1.0pf	50 kW	Amps: 208
Three-Phase 120/208 VAC @0.8pf	50 kW	Amps: 173
Three-Phase 120/240 VAC @0.8pf	50 kW	Amps: 150
Three-Phase 277/480 VAC @0.8pf	50 kW	Amps: 75
Three-Phase 346/600 VAC @0.8pf	50 kW	Amps: 60

MOTOR STARTING CAPABILITIES (skVA)

skVA vs. Voltage Dip			
277/480 VAC	30%	208/240 VAC	30%
K0050124Y21	98	K0050124Y21	75
K0060124Y21	124	K0060124Y21	95

FUEL CONSUMPTION RATES*

Fuel Pump Lift - ft (m)	Diesel - gph (Lph)	
	Percent Load	Standby
3 (1)	25%	1.3 (4.9)
	50%	2.3 (8.7)
Total Fuel Pump Flow (Combustion + Return) - gph (Lph)	75%	3.3 (12.5)
3.6 (13.5)	100%	4.3 (16.4)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Coolant Flow	gpm (Lpm)	12.2 (46)
Coolant System Capacity	gal (L)	2.5 (9.5)
Heat Rejection to Coolant	BTU/hr (kW)	135,900 (39.8)
Inlet Air	scfm (m³/hr)	7,500 (212)
Maximum Operating Ambient Temperature	°F (°C)	122 (50)
Maximum Ambient Temperature (Before Derate)	See Bulletin No. 0199280SSD	
Maximum Radiator Backpressure	in H ₂ O (kPa)	0.5 (0.12)

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power - scfm (m³/min)	166 (4.7)

ENGINE

		Standby
Rated Engine Speed	RPM	1,800
Horsepower at Rated kW**	hp	86
Piston Speed	ft/min (m/min)	1,335 (406.9)
BMEP	psi (kPa)	169 (1,165)

EXHAUST

		Standby
Exhaust Flow (Rated Output)	scfm (m³/min)	448 (12.7)
Max. Allowable Backpressure	inHg (kPa)	1.5 (5.1)
Exhaust Temp (Rated Output)	°F (°C)	1,044 (562)

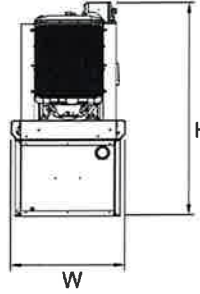
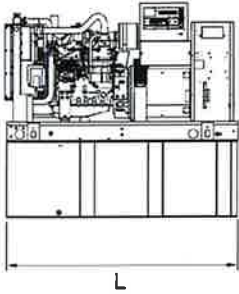
** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please contact a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528, and DIN6271 standards.
Standby - See Bulletin 0187500SSB
Prime - See Bulletin 0187510SSB

SD050 | 3.4L | 50 kW
INDUSTRIAL DIESEL GENERATOR SET
 EPA Certified Stationary Emergency

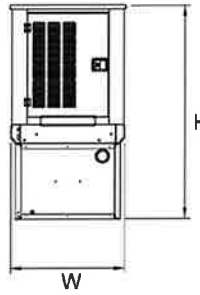
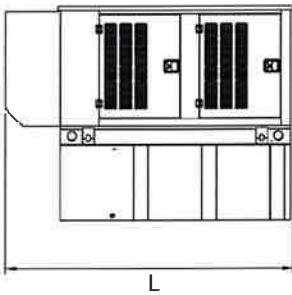


DIMENSIONS AND WEIGHTS*



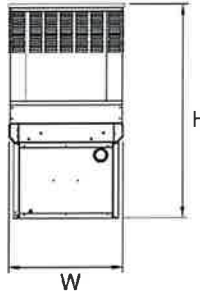
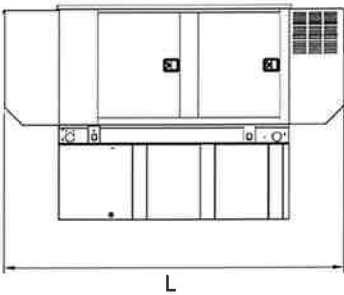
OPEN SET (Includes Exhaust Flex)

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Minimum Weight - lbs (kg)	Maximum Weight - lbs (kg)
No Tank	-	76.7 (1,948) x 37.4 (950) x 45.2 (1,147)	1,710 (776)	1,836 (833)
12	54 (204)	76.7 (1,948) x 37.4 (950) x 58.2 (1,477)	2,190 (993)	2,316 (932)
30	132 (499)	76.7 (1,948) x 37.4 (950) x 70.2 (1,782)	2,420 (1,098)	2,546 (979)
44	190 (719)	76.7 (1,948) x 37.4 (950) x 82.2 (2,087)	2,629 (1,192)	2,755 (1,022)
49	211 (799)	106.0 (2,692) x 37.4 (950) x 71.2 (1,807)	2,634 (1,192)	2,760 (1,023)
69	300 (1,136)	92.9 (2,360) x 37.4 (950) x 85.7 (2,176)	2,692 (1,221)	2,816 (1,035)



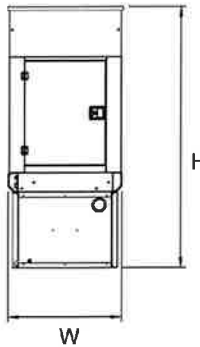
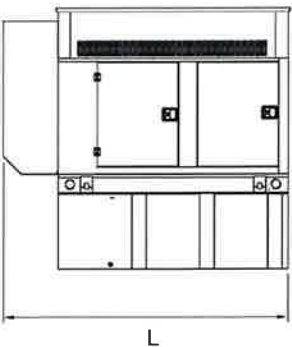
WEATHER PROTECTED ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Steel Weight Minimum - lbs (kg)	Steel Weight Maximum - lbs (kg)	Aluminum Weight Minimum - lbs (kg)	Aluminum Weight Maximum - lbs (kg)
No Tank	-	94.8 (2,409) x 38.0 (965) x 49.5 (1,258)	2,158 (979)	2,286 (1,037)	1,935 (878)	2,965 (1,345)
12	54 (204)	94.8 (2,409) x 38.0 (965) x 62.5 (1,588)	2,638 (1,197)	2,766 (1,255)	2,415 (1,096)	3,445 (1,563)
30	132 (499)	94.8 (2,409) x 38.0 (965) x 74.5 (1,893)	2,868 (1,301)	2,996 (1,359)	2,645 (1,200)	3,675 (1,667)
44	190 (719)	94.8 (2,409) x 38.0 (965) x 86.5 (2,198)	3,077 (1,396)	3,205 (1,454)	2,854 (1,295)	3,884 (1,762)
49	211 (799)	106.0 (2,692) x 38.0 (965) x 99.0 (2,516)	4,316 (1,958)	4,572 (2,074)	3,870 (1,755)	5,930 (2,690)
69	300 (1,136)	94.8 (2,409) x 38.0 (965) x 90.0 (2,287)	3,140 (1,424)	3,268 (1,482)	2,917 (1,323)	3,947 (1,790)



LEVEL 1 SOUND ATTENUATED ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Steel Weight Minimum - lbs (kg)	Steel Weight Maximum - lbs (kg)	Aluminum Weight Minimum - lbs (kg)	Aluminum Weight Maximum - lbs (kg)
No Tank	-	94.8 (2,409) x 38.0 (965) x 49.5 (1,258)	2,158 (979)	2,286 (1,037)	1,935 (878)	2,965 (1,345)
12	54 (204)	94.8 (2,409) x 38.0 (965) x 62.5 (1,588)	2,638 (1,197)	2,766 (1,255)	2,415 (1,096)	3,445 (1,563)
30	132 (499)	94.8 (2,409) x 38.0 (965) x 74.5 (1,893)	2,868 (1,301)	2,996 (1,359)	2,645 (1,200)	3,675 (1,667)
44	190 (719)	94.8 (2,409) x 38.0 (965) x 86.5 (2,198)	3,077 (1,396)	3,205 (1,454)	2,854 (1,295)	3,884 (1,762)
49	211 (799)	106.0 (2,692) x 38.0 (965) x 99.0 (2,516)	4,316 (1,958)	4,572 (2,074)	3,870 (1,755)	5,930 (2,690)
69	300 (1,136)	94.8 (2,409) x 38.0 (965) x 90.0 (2,287)	3,140 (1,424)	3,268 (1,482)	2,917 (1,323)	3,947 (1,790)



LEVEL 2 SOUND ATTENUATED ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Steel Weight Minimum - lbs (kg)	Steel Weight Maximum - lbs (kg)	Aluminum Weight Minimum - lbs (kg)	Aluminum Weight Maximum - lbs (kg)
No Tank	-	94.8 (2,409) x 38 (965) x 70.1 (1,780)	2,389 (1,084)	2,517 (1,142)	2,035 (923)	2,163 (981)
12	54 (204)	94.8 (2,409) x 38 (965) x 62.5 (1,588)	2,638 (1,197)	2,766 (1,255)	2,415 (1,095)	3,445 (1,563)
30	132 (499)	94.8 (2,409) x 38 (965) x 74.5 (1,893)	2,868 (1,301)	2,996 (1,359)	2,645 (1,200)	3,675 (1,667)
44	190 (719)	94.8 (2,409) x 38 (965) x 86.5 (2,198)	3,077 (1,396)	3,205 (1,454)	2,854 (1,295)	3,884 (1,762)
49	211 (799)	106.0 (2,692) x 38 (965) x 99 (2,516)	4,316 (1,958)	4,572 (2,074)	3,870 (1,755)	5,930 (2,690)
69	300 (1,136)	94.8 (2,409) x 38 (965) x 110.6 (2,809)	3,371 (1,529)	3,499 (1,587)	3,017 (1,368)	3,145 (1,427)

* All measurements are approximate and for estimation purposes only. Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.