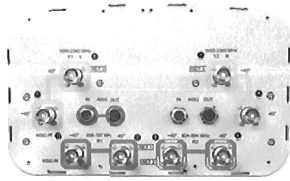


JAHH-65B-R3B



8-port sector antenna, 2x 698–787, 2x 824–894 and 4x 1695–2360 MHz, 65° HPBW, 3x RET and low bands have diplexers. Internal SBT's on first LB(Port 1) and first HB(Port 5).

- 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

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Effective Projective Area (EPA), frontal	0.28 m ² 3.014 ft ²
Effective Projective Area (EPA), lateral	0.24 m ² 2.583 ft ²
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, General

RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	2 female 2 male

Dimensions

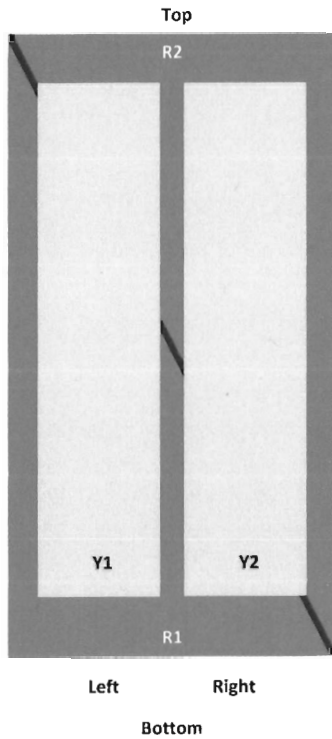
Width	350 mm 13.78 in
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JAHH-65B-R3B

Length 1828 mm | 71.969 in
Depth 208 mm | 8.189 in

Array Layout

JAHH-65A-R3B JAHH-65B-R3B JAHH-65C-R3B



Array	Freq (MHz)	Conns	RET (SRIT)	AISG RET UID
R1	698-787	1-2	1	ANXXXXXXXXXXXXX1
R2	824-894	3-4	2	ANXXXXXXXXXXXXX2
Y1	1695-2360	5-6	3	ANXXXXXXXXXXXXX3
Y2	1695-2360	7-8		

View from the front of the antenna
 (Sizes of colored boxes are not true depictions of array sizes)

Electrical Specifications

Impedance 50 ohm
Operating Frequency Band 1695 – 2360 MHz | 698 – 787 MHz | 824 – 894 MHz
Polarization ±45°

Remote Electrical Tilt (RET) Information, Electrical

Protocol 3GPP/AISG 2.0 (Single RET)
Power Consumption, idle state, maximum 2 W

JAHH-65B-R3B

Power Consumption, normal conditions, maximum	13 W
Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 Port 5
Internal RET	High band (1) Low band (2)

Electrical Specifications

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.5	15.8	18	18.4	18.5	18.8
Beamwidth, Horizontal, degrees	67	65	63	63	65	68
Beamwidth, Vertical, degrees	12.4	10.5	5.7	5.2	4.9	4.4
Beam Tilt, degrees	2–14	2–14	0–10	0–10	0–10	0–10
USLS (First Lobe), dB	18	18	20	20	21	23
Front-to-Back Ratio at 180°, dB	32	34	31	35	36	38
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	30	30	30	30
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
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port at 50° C, maximum, watts	200	200	300	300	300	250

Electrical Specifications, BASTA

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.3	14.9	17.6	18.1	18.2	18.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.5	±0.6	±0.4	±0.5	±0.6
Gain by Beam Tilt, average, dBi	2° 14.3 8° 14.3 14° 14.3	2° 15.0 8° 14.9 14° 15.4	0° 17.2 5° 17.6 10° 17.6	0° 17.6 5° 18.2 10° 18.2	0° 17.7 5° 18.3 10° 18.3	0° 17.9 5° 18.7 10° 18.7
Beamwidth, Horizontal Tolerance, degrees	±1.2	±1.4	±4	±2.4	±2.9	±2.7
Beamwidth, Vertical Tolerance, degrees	±0.9	±0.5	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	18	17	17	18	19	18
Front-to-Back Total Power at 180° ± 30°, dB	25	24	26	29	27	29
CPR at Boresight, dB	22	23	20	21	21	24

JAHH-65B-R3B

CPR at Sector, dB 11 12 11 11 11 8

Mechanical Specifications

Wind Loading at Velocity, frontal	301.0 N @ 150 km/h 67.7 lbf @ 150 km/h
Wind Loading at Velocity, lateral	254.0 N @ 150 km/h 57.1 lbf @ 150 km/h
Wind Loading at Velocity, maximum	143.4 lbf @ 150 km/h 638.0 N @ 150 km/h
Wind Speed, maximum	241 km/h 149.75 mph

Packaging and Weights

Width, packed	456 mm 17.953 in
Depth, packed	357 mm 14.055 in
Length, packed	1975 mm 77.756 in
Net Weight, without mounting kit	29.2 kg 64.375 lb
Weight, gross	42.5 kg 93.696 lb

Regulatory Compliance/Certifications

Agency	Classification
CHINA-ROHS	Above maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
ROHS	Compliant/Exempted



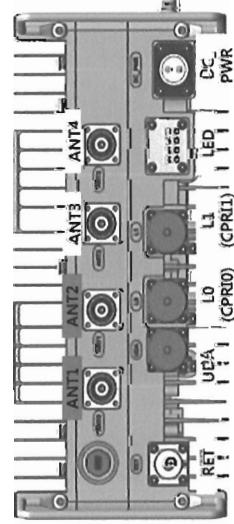
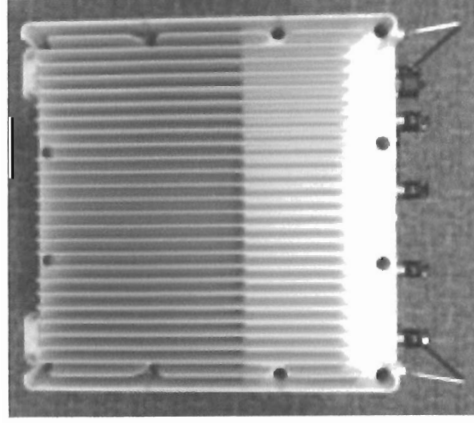
Included Products

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.

* Footnotes

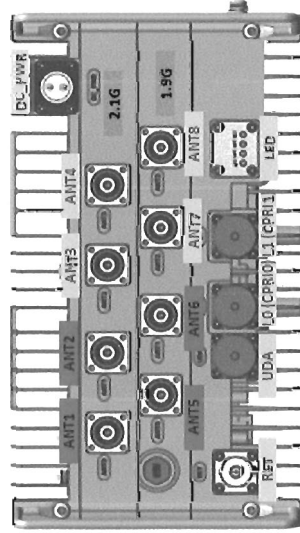
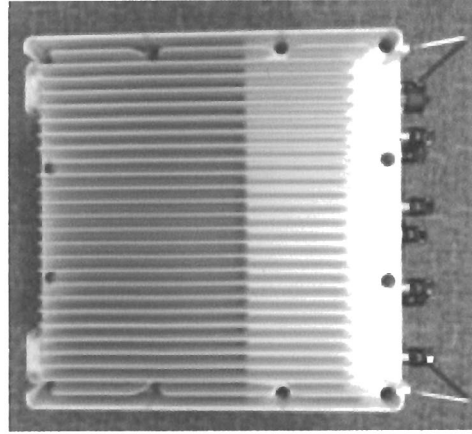
Performance Note Severe environmental conditions may degrade optimum performance

700+850MHz Dual Band RRH(Model : RFV01U-D2A)



Item	Specification
Band	Band13 (700MHz) Band5 (850MHz)
Frequency	DL : 746~756MHz UL : 777~787MHz
IBW	10MHz
OBW	10MHz
Carrier Bandwidth	10MHz
# of carriers	1 carrier
Total # of carriers	4C
RF Chain	4T4R, 2T4R, 2T2R (SW configurable)
RF Output Power	Total : 320W 4 x 40W or 2 x 60W 4 x 40W or 2 x 60W
Spectrum Analyzer	TX/RX Support
Noise Figure	Less than 3.0 dB
RX Sensitivity	Typical : -105dBm @1Rx (25RBs 5MHz)
Modulation	256QAM support
Input Power	-48VDC (-38VDC to -57VDC)
Power Consumption	About 1.106Watt @ 100% RF load, typical conditions + TMA/RET
Size (WHD)	380 x 380 x 207 mm (15.0" x 15.0" x 8.1")
Volume	29.9 L
Weight	31.9 kg(70.3 lb) w/o solar shield(finger guard) & mount bracket 37.2 kg(82.0 lb) with solar shield(finger guard) & mount bracket
Operating Temperature	-40°C (-40°F) ~ 55°C (131°F) (Without solar load)
Cooling	Natural convection
Unwanted Emission	3GPP 36.104 Category A, 3GPP 36.104 Category A FCC 47 CFR 27.53 c), f) FCC 47 CFR 22.917
CPRI Cascade	Not supported
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP, single mode, Duplex
RET & TMA Interface	AISG 2.2
Bias-T	2 ports (Max. 49W)
Mounting Options	Pole, wall, tower, side by side, back to back
NB-IoT	Support
PIM Cancellation	Support
# of antenna port	4
External Alarm	4

PCS+AWS Dual Band RRH(Model : RFV01U-D1A)



8 port Dual Band

Item	Specification
Band	Band2 (1.9GHz) Band66 (2.1GHz)
Frequency	DL : 1930~1990MHz UL : 1850~1910MHz
IBW	60MHz
OBW	20MHz
Carrier Bandwidth	5MHz, 10MHz, 15MHz, 20MHz
# of carriers	2 carriers
Total # of carriers	4 carriers
RF Chain	4T4R, 2T4R, 2T2R (SW configurable) Total : 320W (for OBW 40MHz)
RF Output Power	4 x 40W or 2 x 60W 4 x 60W or 2 x 90W
Spectrum Analyzer	TX/RX Support
Noise Figure	Less than 3.0 dB
RX Sensitivity	Typical : -105dBm @1Rx (25RBs 5MHz)
Modulation	256QAM support
Input Power	-48VDC (-38VDC to -57VDC)
Power Consumption	About 1,270 Watt @ 100% RF load, typical conditions (w/ BAS OOBEx)+TMA/RET
Size (WHD)	380 x 380 x 255 mm (15.0" x 15.0" x 10.0") (w/ BAS OOBEx)
Volume	36.8 L
Weight	38.3 kg (84.4 lb) w/o solar shield(finger guard) & mount bracket 44.2 kg (97.5 lb) with solar shield(finger guard) & mount bracket
Operating Temperature	-40°C (-40°F) ~ 55°C (131°F) (Without solar load)
Cooling	Natural convection
Unwanted Emission	3GPP 36.104 Category A [B2] : FCC 47 CFR 24.238 [B66] : FCC 47 CFR 27.53 h
CPRI Cascade	Not supported
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP, single mode, Duplex
RET & TMA Interface	AISG 2.2
Bias-T	4 ports (2 ports per band) (Max. 49W)
Mounting Options	Pole, wall, tower, side by side, back to back
NB-IoT	Support
PIM Cancellation	Support
# of antenna port	4
External Alarm	4

STANDBY POWER RATING
 25 kW, 31 kVA, 60 Hz

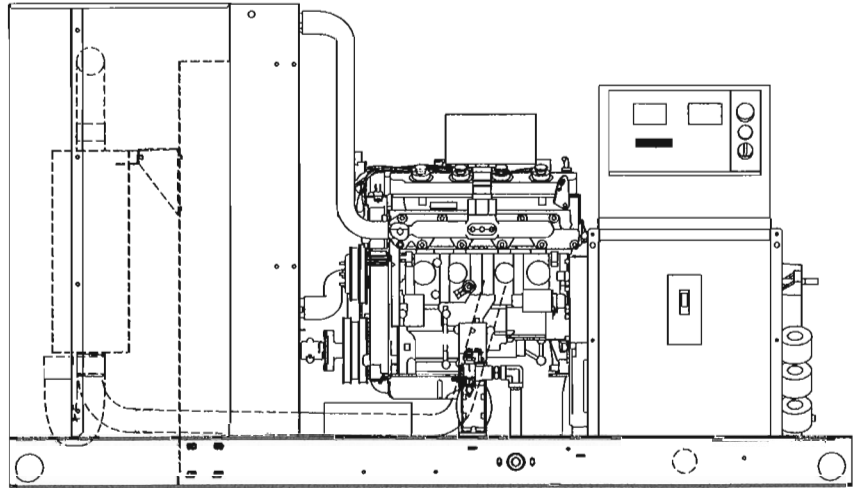
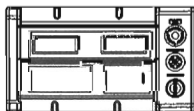
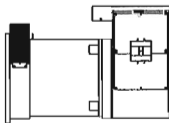
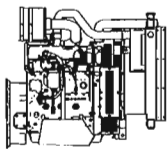
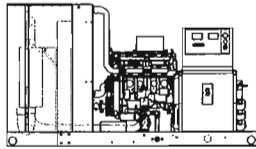


Image used for illustration purposes only



Features

Generator Set

- PROTOTYPE & TORSIONALLY TESTED
- UL2200 TESTED
- RHINOCOAT PAINT SYSTEM

Engine

- EPA COMPLIANT
- INDUSTRIAL TESTED, GENERAC APPROVED
- POWER-MATCHED OUTPUT
- INDUSTRIAL GRADE

Alternator

- TWO-THIRDS PITCH
- LAYER WOUND ROTOR & STATOR
- CLASS H MATERIALS
- DIGITAL 3-PHASE VOLTAGE CONTROL

Controls

- ENCAPSULATED BOARD W/ SEALED HARNESS
- 4-20mA VOLTAGE-TO-CURRENT SENSORS
- SURFACE-MOUNT TECHNOLOGY
- ADVANCED DIAGNOSTICS & COMMUNICATIONS

Benefits

- › PROVIDES A PROVEN UNIT
- › ENSURES A QUALITY PRODUCT
- › IMPROVES RESISTANCE TO ELEMENTS
- › ENVIRONMENTALLY FRIENDLY
- › ENSURES INDUSTRIAL STANDARDS
- › ENGINEERED FOR PERFORMANCE
- › IMPROVES LONGEVITY AND RELIABILITY
- › ELIMINATES HARMFUL 3RD HARMONIC
- › IMPROVES COOLING
- › HEAT TOLERANT DESIGN
- › FAST AND ACCURATE RESPONSE
- › EASY, AFFORDABLE REPLACEMENT
- › NOISE RESISTANT 24/7 MONITORING
- › PROVIDES VIBRATION RESISTANCE
- › HARDENED RELIABILITY

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Generac
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Engine Reference	See Emissions Data Sheet
Cylinder #	4
Type	In-line
Displacement - L (cu In)	2.4
Bore - mm (in)	86.61 (3.41)
Stroke - mm (in)	100.08 (3.94)
Compression Ratio	9.5:1
Intake Air Method	Naturally Aspirated
Number of Main Bearings	5
Connecting Rods	Forged
Cylinder Head	Aluminum
Cylinder Liners	No
Ignition	High Energy
Piston Type	Aluminum Alloy
Crankshaft Type	Cast
Lifter Type	Overhead Cam
Intake Valve Material	Steel Alloy
Exhaust Valve Material	Hardened Steel
Hardened Valve Seats	yes

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	+/- 0.25%

*Fuel pressure must remain within specified range and not drop more than 1 in. w.c from static (no-load) to full load.

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-Flow spring-on Cartridge
Crankcase Capacity - L (qts)	3.8 (4)

Cooling System

Cooling System Type	Pressurized Closed
Water Pump Flow -gal/min	11
Fan Type	Pusher
Fan Speed (rpm)	2150
Fan Diameter mm (in)	457 (18)
Coolant Heater Wattage	1500
Coolant Heater Standard Voltage	120 VAC

Fuel System

Fuel Type	Natural Gas, Propane Vapor
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard
Operating Fuel Pressure (Standard)	5" - 14" H ₂ O*

Engine Electrical System

System Voltage	12 VDC
Battery Charging Alternator (Amps)	30
Battery Size	See Battery Index 01619708BY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	390mm
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50

Standard Excitation	Brush Type
Bearings	Sealed Ball
Coupling	Flexible Disc
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Full Digital
Number of Sensed Phases	3
Regulation Accuracy (Steady State)	±0.25%

CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)

NFPA 99	BS5514
NFPA 110	SAE J1349
ISO 8528-5	DIN6271
ISO 1708A.5	IEEE C62.41 TESTING
ISO 3046	NEMA ICS 1
	UL2200

Rating Definitions:

Standby – Applicable for a varying emergency load for the duration of a utility power outage with no overload capability. (Max. load factor = 70%)

QT025A | 2.4L | 25 kW
INDUSTRIAL SPARK-IGNITED GENERATOR SET
 EPA Certified Stationary Emergency



OPERATING DATA

POWER RATINGS

		Natural Gas	Propane Vapor
Single-Phase 120/240 VAC @1.0pf	25 kW	Amps: 104	Amps: 104
Three-Phase 120/208 VAC @0.8pf	25 kW	Amps: 87	Amps: 87
Three-Phase 120/240 VAC @0.8pf	25 kW	Amps: 75	Amps: 75
Three-Phase 277/480 VAC @0.8pf	25 kW	Amps: 38	Amps: 38

STARTING CAPABILITIES (sKVA)

		sKVA vs. Voltage Dip											
		480 VAC						208/240 VAC					
Alternator	kW	10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	25	16	25	33	41	49	57	12	19	25	31	37	43

FUEL CONSUMPTION RATES*

Natural Gas				Propane Vapor			
Percent Load		ft ³ /hr	m ³ /hr	Percent Load		ft ³ /hr	m ³ /hr
25%		140	3.9	25%		56	1.6
50%		220	6.2	50%		87	2.5
75%		300	8.5	75%		119	3.4
100%		380	10.8	100%		151	4.3

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

COOLING

		Standby
Air Flow (inlet air combustion and radiator)	ft ³ /min(m ³ /min)	1500 (42.48)
System Coolant Capacity	gal (Liters)	2.5 (9.46)
Heat Rejection to Coolant	BTU/hr	95,000
Max. Operating Ambient Temperature	°F (°C)	122 (50)
Max. Ambient Temperature	°F (°C)	104 (40)
Maximum Radiator Backpressure	in H ₂ O	0.5

COMBUSTION AIR REQUIREMENT

	Standby
Flow at Rated Power	cfm (m ³ /min)
	70

ENGINE

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	40
Piston Speed	ft/min	1182
B.M.E.P.	psi	120

EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m ³ /min)	220 (6.2)
Max. Backpressure (Post Turbo)	inHg (Kpa)	1.5 (5.1)
Exhaust Temp (Rated Output - post silencer)	°F (°C)	975 (524)
Exhaust Outlet Size (Open Set)	mm (in)	63.5 (2.5)

** 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 consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

STANDARD FEATURES AND OPTIONS

GENERATOR SET

- Genset Vibration Isolation Std
- Extended warranty Opt
- Gen-Link™ Communications Software Opt
- Steel Enclosure Opt
- Aluminum Enclosure Opt

ENGINE SYSTEM

General

- Oil Drain Extension Std
- Critical Exhaust Silencer Std
- Air cleaner Std
- Fan guard Std
- Radiator duct adapter Std

Fuel System

- Fuel lockoff solenoid Std
- Secondary Fuel Regulator Std
- Flexible fuel lines Std

Cooling System

- 120VAC Coolant Heater Std
- Closed Coolant Recovery System Std
- UV/Ozone resistant hoses Std
- Factory-Installed Radiator Std
- Radiator Drain Extension Std

Engine Electrical System

- Battery charging alternator Std
- Battery cables Std
- Battery tray Std
- Solenoid activated starter motor Std
- 10A UL float/equalize battery charger Std
- Rubber-booted engine electrical connections Std

ALTERNATOR SYSTEM

- UL2200 GENprotect™ Std
- Main Line Circuit Breaker Std

CONTROL SYSTEM

Control Panel

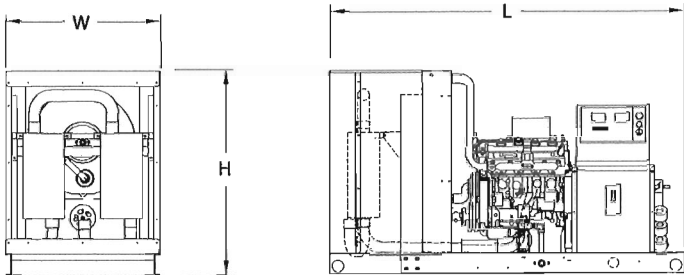
- Digital H Control Panel - Dual 4x20 Display Std
- Programmable Crank Limiter Std
- 21-Light Remote Annunciator Opt
- Remote Relay Panel (8 or 16) Opt
- 7-Day Programmable Exerciser Std
- Special Applications Programmable PLC Std
- RS-232 Communications Std
- RS-485 Communications Std
- All-Phase Sensing DVR Std
- Full System Status Std
- Utility Monitoring (Req. H-Transfer Switch) Std
- 2-Wire Start Compatible Std
- Power Output (kW) Std
- Power Factor Std
- Reactive Power Std
- All phase AC Voltage Std
- All phase Currents Std
- Oil Pressure Std
- Coolant Temperature Std
- Coolant Level Std
- Fuel Pressure Std
- Engine Speed Std
- Battery Voltage Std
- Frequency Std
- Isochronous Governor Control Std
- -40deg C - 70deg C Operation Std
- Waterproof Plug-In Connectors Std
- Audible Alarms and Shutdowns Std
- Not in Auto (Flashing Light) Std
- Auto/Off/Manual Switch Std
- E-Stop (Red Mushroom-Type) Std
- NFPA 110 Level I and II (Programmable) Std
- Remote Communication - RS232 Std

Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)

- Low Fuel Pressure Std
- Oil Pressure (Pre-programmed Low Pressure Shutdown) Std
- Coolant Temperature (Pre-programmed High Temp Shutdown) Std
- Coolant Level (Pre-programmed Low Level Shutdown) Std
- Engine Speed (Pre-programmed Overspeed Shutdown) Std
- Voltage (Pre-programmed Overvoltage Shutdown) Std
- Battery Voltage Std

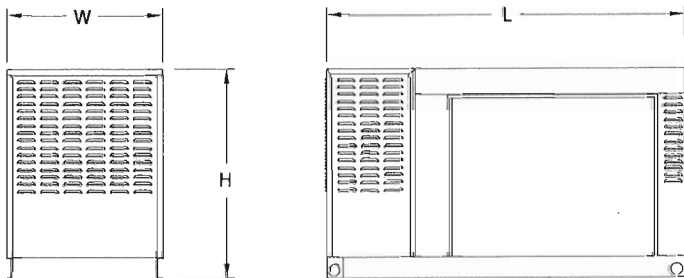
QT025A | **2.4L** | **25 kW**
INDUSTRIAL SPARK-IGNITED GENERATOR SET
 EPA Certified Stationary Emergency

DIMENSIONS AND WEIGHTS*



OPEN SET (Includes Exhaust Flex)

L x W x H in (mm)	77 (1956) x 34 (864) x 43 (1092)
Weight (lbs)	1163
dBA*	83



LEVEL 1 ACOUSTIC ENCLOSURE

L x W x H in (mm)	77 (1956) x 34 (864) x 46 (1168)
Weight (lbs)	1414
dBA*	60

*All measurements are approximate and for estimation purposes only. Sound levels measured at 23ft (7m) under normal operation and do not account for ambient site conditions.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.