

MODEL HDI-1600 T6U



60Hz STANDBY POWER RATINGS

1600kW/60Hz//1800RPM



VOLTAGE VAC	277/480V	347/600V**
RATING	Standby	Standby
PHASE	3	3
PF	0.8	0.8
HZ	60	60
KW	1600	1600
KVA	2000	2000
AMPS	2405	1924

Description

HIPOWER[®] Heavy Duty Industrial generators are an efficient, reliable and versatile source of back-up electrical power. Designed to operate in the most extreme working conditions. All HIPOWER[®] HD-Industrial generators combine an innovative design and the use of high quality materials that provide the user with the most dependable power that you can rely on for non-stop power with easy to operate controls.

Powered by a radiator-cooled, industrial Mitsubishi Diesel engine, which meets current Environmental Protection Agency (EPA) TIER 2 exhaust emission regulations, driving a single bearing, four-pole, three-phase alternator, with IP23 protection. The Emergency Power kVA rating for generator set is given with a 125 degree °C alternator winding temperature rise.

HIPOWER[®] Features and Benefits

Mitsubishi Diesel Engine: Long-life, heavy-duty, 4-cycle, direct injection engine for economy of operation and maximum reliability and durability. Capable of full rated load acceptance in one step.

Cooling: Radiator with belt driven pusher fan.

Air Filter: Heavy-duty replaceable element air-cleaners.

Alternator: Single bearing, rotating field, self-excited, self-ventilated, 6-wire re-connectable, 60Hz brushless alternator with permanent magnetic generator (PMG), with Class H insulation. Automatic voltage regulator (AVR) providing close voltage regulation and skVA starting capability for electric motor loads.

HIPOWER[®] Features and Benefits

Enclosure: Fully sound attenuated enclosure, fabricated using 7-gauge steel and thicker for the base, 12-gauge steel for the doors and 14-gauge for the enclosure, powder coated with finish that exceeds 1400-hr salt spray test. Ample layer of durable foam sound insulating material placed all around the inside of the container, doors and ducting with metal retaining frames. It can be cleaned with high-pressure water and is oil and fire resistant. Vertical air discharge for quiet operation. Wide steel lockable access doors with rubber seals, easy access for maintenance and service activities, lift off Die Cast Zinc hinges textured black powder coat, corrosion resistant hardware and fasteners.

Exhaust: Low noise, steel exhaust silencer with rain cap.

Controls: Digital control panel with manual and automatic start and stop features. Many programmable automatic functions for local and remote controls with LED lights, tamper proof engine hour recorder.

Certification: Generator set is UL 2200 Listed and CSA certified and meets ISO 8528-5.

HIMOINSA POWER SYSTEMS, INC.

16600 South Theden Street, Olathe, KS 66062

Tel: 913 495 5557 | Fax: 913 495 5575 | www.hipowersystems.com

Codes and Standards Compliances used where applicable



APPLICATION DATA

ENGINE SPECIFICATION		LUBRICATION SYSTEM	
Manufacturer	MITSUBISHI	Oil pan capacity - gal (L)	53 (200)
Model	S16R-Y2PTAW-1	Oil pan capacity with filter - gal (L)	60.8 (230)
EPA certified	Tier 2	Oil cooler	Liquid
Crankshaft speed	1,800 rpm	Recommended lubricating oil grade	SAE 15W-40 (refer to owners manual)
Type	Diesel, 4-stroke	Oil consumption at full load	< 0.1% of fuel consumption
Injection	Direct	Oil pressure – psi (kPA)	71~93 (489~641)
Aspiration	Turbocharged, Inter-Cooled	ENGINE ELECTRICAL SYSTEM	
Number of Cylinders	16	Starting motor voltage	24 volt
Cylinder arrangement	Vee	Cold Cranking Amps - minimum	400 Ah
Displacement CID (liters)	3989 (65.37)	Battery capacity	1400CCA 1720CA 430RC GROUP SIZE 8D
Bore and Stroke ins (mm)	6.69 x 7.09 (170 x 180)		
Nominal power	2346 hp		
Cooling	Liquid		
Governor	Electronic		
Governor Regulation Class	ISO 8528 Part 1 Class G3		
Frequency Regulation	Isochronous		
Starting motor & alternator	24 Volt		
Compression ratio	14.5:1		
Air cleaner type	Heavy duty		
ALTERNATOR SPECIFICATION			
Manufacturer	STAMFORD		
Model 277/480V Three phase	S7L1D-D		
Model 347/600V Three phase	S7L1D-D		
Alternator Type	Four pole, rotating field		
Excitation System	Brushless. PMG-excited		
Power factor	0.8		
Number of leads	6 leads, reconnectable		
Stator Pitch	2/3		
Insulation	Class H		
Windings – Temperature Rise	Class H (125/40° C)		
Enclosure (IEC-34-S)	IP23		
Bearing	Single, sealed		
Coupling	Flexible disc		
Amortisseur windings	Full		
Voltage regulation – no load to full load with MX341 AVR	± 1%		
TIF	<50		
Radio Frequency Emissions compliance	Meets requirements of most industrial and commercial applications		
Line harmonics	5% maximum		

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STANDARD FEATURES

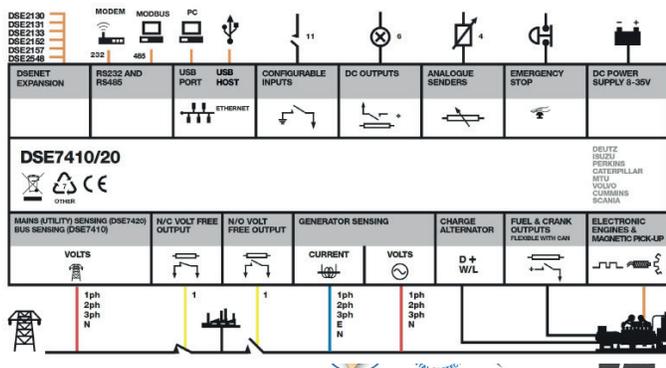
Enclosure (If selected)	Engine System	Fuel System
Rust-Proof Fastener with Nylon Washers Protect Finish	Oil Drain Extension	Primary Fuel Filter
High Performance Sound-Absorbing Material (L1)	Air Cleaner	Flexible fuel lines
Gasketed Doors	Fan Guard	Generator set
Air Discharge Hoods for Radiators-Upwards Pointing	Factory Filled Oil	2 Year/2000 hours Limited Warranty
Lift Off Door Hinges	Battery Charging Alternator	Separation of Circuits – Multiple Breakers (load center)
Stainless Steel Lockable Handles	Alternator Systems	Separation of Circuits – High / Low Voltage
Textured Polyester Powder Coat	6 Leads (3-Phase)	Internal Genset Vibration Isolation
Cooling System	Class H Insulation Material	Wrapped Exhaust Piping
Factory-Installed Radiator	Vented Rotor	Standard Factory Testing
Radiator Drain Extension	2/3 Pitch	Emergency Stop
50/50 Ethylene Glycol Antifreeze	Full Load Capacity Alternator	Silencer Mounted in the Discharged Hood (Enclosed Only)
Electrical Systems	Protective Thermal Switch	
Battery Cables and Battery Tray	Permanent Magnet Excitation	
Batteries	Skewed Stator	
	PMG with MX341	

CONTROL SYSTEM



- Charge alternator failure alarm
- 4-Line back-lit LCD text display
- Front panel editing with PIN protection
- Customisable status screens
- Power save mode
- 11 configurable inputs
- 8 configurable outputs
- Flexible sensor inputs
- Configurable timers and alarms
- 3 configurable maintenance alarms
- Multiple date and time scheduler
- Configurable event log (250)

- “Protections disabled” feature
- kW protection
- Reverse power (kW) protection
- LED and LCD alarm indication
- Power monitoring (kWh, kVAr, kVAh, kVArh)
- Load switching (load shedding and dummy load outputs)
- Independent Earth Fault trip
- Fuel usage monitor and low fuel alarms
- Configurable display languages
- User selectable simultaneous RS232, RS485 & Ethernet communications
- MODBUS RTU & TCP support
- Configurable MODBUS pages
- Fully configurable via DSE Configuration Suite PC software
- Data logging to assist with fault finding
- PLC editor allows user configurable functions to meet specific application requirements
- License-free PC software
- Multiple date and time scheduler
- DSENet® expansion compatible



CONFIGURABLE OPTIONS

ENCLOSURE	ENGINE SYSTEM	ELECTRICAL SYSTEM
Open Skid	Oil Pan heater	Battery Warmer
Level 1 Sound attenuated	240V-1ph Water Jacket Heater (with Isolation Valves)	10A Battery Charger
Level 2 Sound attenuated	208V-3ph Water Jacket Heater (with Isolation Valves)	5A Battery Charger
	CIRCUIT BREAKER OPTIONS	Remote ESTOP with N3R break glass
ALTERNATOR SYSTEM	Thermal-Magnetic trip 80% and 100% rated	120V GFCI receptacle
Tropical coating	LS/I Electronic trip 80% and 100% rated	10A Relay common alarm
Anti-condensation heater	LSI Electronic trip 80% and 100% rated	10A Run Relay
Alternator upsizing	LSIG Electronic trip 80% and 100% rated	8 LED Remote Annunciator on Surface mounted Box
Rheostat	Shunt trip	16 LED Remote Annunciator on Surface mounted Box
MX321 AVR	Auxiliary Contacts for Main and Secondary Breaker	24 LED Remote Annunciator on Surface mounted Box
	Second Main Line Circuit Breaker Mechanical Lugs	Parallel controller with motorized breaker
		GENERATOR SET
		Extended Factory Load Testing
		Extended Warranty
		Spring Isolator Mounts

ENGINEERED OPTIONS

ENCLOSURE	ENGINE SYSTEM	ELECTRICAL SYSTEM
Snow Hood (only with L2)	Fluid Containment Pan	AC/DC Enclosure Lighting Kit with Timer
Air Outlet Gravity dampers	Critical Grade Silencer	Enclosure Heater
Air Inlet motorized dampers (only with L2)	Hospital Grade Silencer	240V Twist lock receptacle
CIRCUIT BREAKER OPTIONS	CONTROL SYSTEM	GENERATOR SET
3rd Breaker system	Spare inputs (x4) / output (x4)	Special Load Bank Testing
Shunt Trip on 3rd Breaker	DSE8610 - Parallel controller with motorized CB	
Auxiliary contact on 3rd Breaker	DSE2130 - DSENet Input Expansion Module	
FUEL TANK	DSE2157 - DSENet Output Expansion Module	
12, 24, 48 HR Fuel Tanks	DSE2520 - Remote Display Module	
Custom tank to meet state spec.		
Vent Extensions		
Overfill Protection Valve		



OPERATING DATA

FUEL SYSTEM	
Recommended fuel	# 2 - ULSD
Fuel supply line, min. ID mm (in.)	-
Fuel return line, min. ID, mm (in.)	-
Max. lift, fuel pump, type, m (ft)	TBD
Fuel filter	Secondary 5 Microns @ 98% Efficiency

FUEL CONSUMPTION		(Standby Power Rating)
100% load	US gal/hr (L/hr)	124.5 (471)
75% load	US gal/hr (L/hr)	93 (353)
50% load	US gal/hr (L/hr)	64 (353)
25% load	US gal/hr (L/hr)	34 (130)

COOLING SYSTEM		
Engine cooling air flow	cfm (m³/min)	75,009 (2,124)
Alternator cooling flow	cfm (m³/min)	5,594 (159)
Combustion air flow	cfm (m³/min)	5,932 (168)
Total cooling air flow (engine+alternator+combustion)	cfm (m³/min)	86,535 (2451)
Total cooling capacity	US gallons (liters)	175 (663)
Max. Operating Temperature	°F (°C)	113 (45)

EXHAUST		
Exhaust gas flow	cfm (m³/min)	15,642 (443)
Max. Exhaust temp at full load degrees	°F (°C)	948 (503)
Max. permissible back pressure	in H2O (kPA)	23.6 (5.87)

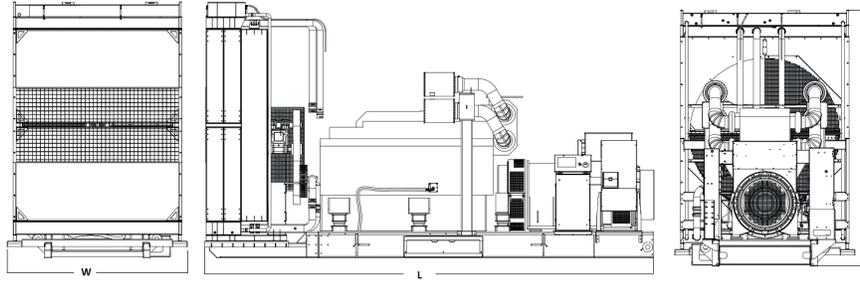
Starting Capabilities (sKVA)

Alternator	480V					600V				
	10%	15%	20%	25%	30%	10%	15%	20%	25%	30%
Standard	1050	1500	2400	3100	4100	1000	1600	2250	3000	3850
Upsized	1100	1800	2500	3400	4350	1100	1800	2500	3350	4300

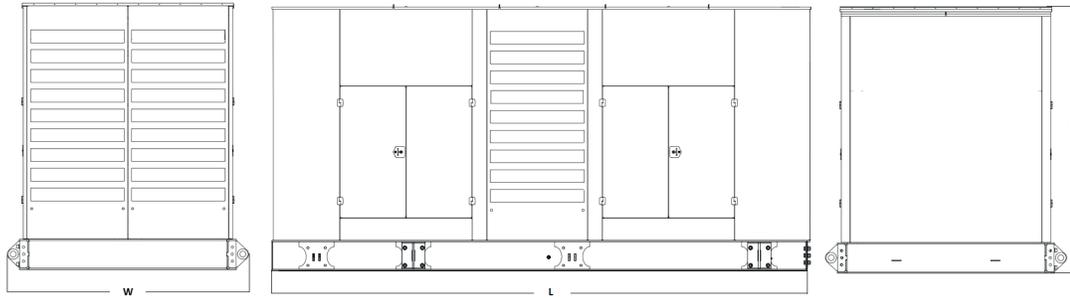
Circuit Breaker

	277/480V	347/600V
Make and model	ABB T8VQE3HC000000XX	ABB T8VBD3GC000000XX
Amps	2500 A	2000 A

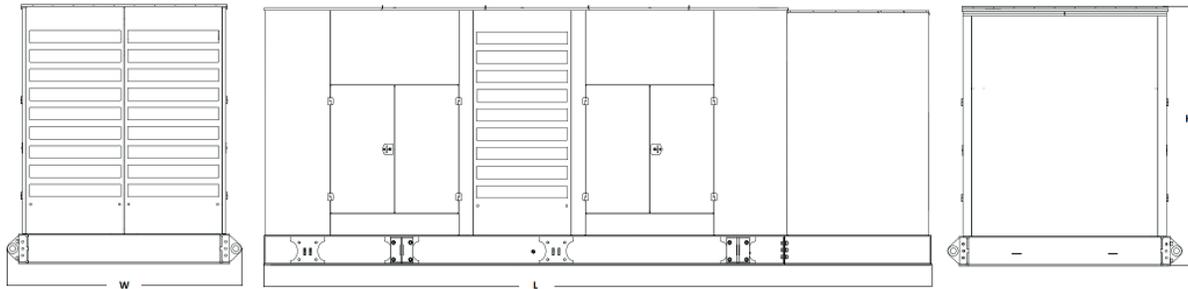
DIMENSIONS, WEIGHTS & SOUND LEVELS



CONFIGURATION	RUN TIME (HOURS)	USABLE CAPACITY (Gal.)	L = Length	W = Width	H = Height	Weight lbs	dBA
OPEN SET	No Tank	-	244"	89"	121"	34,450	N/A
	12	1925	306"	110"	20"	9,500	
	24	3850	306"	110"	36"	12,000	
	48	7700	TBD	TBD	TBD	TBD	



CONFIGURATION	RUN TIME (HOURS)	USABLE CAPACITY (Gal.)	L = Length	W = Width	H = Height	Weight lbs	dBA
LEVEL 1 ENCLOSURE	No Tank	-	282"	110"	145"	40,050	85
	12	1925	306"	110"	20"	9,500	
	24	3850	306"	110"	36"	12,000	
	48	7700	TBD	TBD	TBD	TBD	



CONFIGURATION	RUN TIME (HOURS)	USABLE CAPACITY (Gal.)	L = Length	W = Width	H = Height	Weight lbs	dBA
LEVEL 2 ENCLOSURE	No Tank	-	378"	110"	145"	42,475	81
	12	1925	402"	110"	20"	9,500	
	24	3850	402"	110"	36"	12,000	
	48	7700	TBD	TBD	TBD	TBD	

* All measurements are approximate and for estimation purposes only. Weights are without fuel tank. Sound levels measured at 23ft (7m) and does not account for ambient site conditions.

**HIPOWER reserves the right to change specifications without any prior notice



Conforms to UL STD 2200
 Certified to CSA STD C22.2#100
 Certified to CSA STD C22.2#14

REV01

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