

Mobile/Commercial Generator Set

Engine Features

- Heavy-duty construction
- Certified by the Environmental Protection Agency (EPA) to conform to Tier 3 emissions regulations
- Water-cooled design
- Diesel fueled
- Four cylinders, turbocharged design
- Four cycle
- Frequency regulation of $\pm 0.5\%$
- Electric fuel lift pump

Generator Features

- CSA certified, file #LR 955
- Remote start 12-pin connector
- Class H insulation
- Voltage regulation of $\pm 1.5\%$
- Radio suppression
- Outstanding motor-starting capability
- Sustained short-circuit capability
- Four-point mounting with vibration isolators
- Prototype-tested, factory-built, and production-tested design

Generator Weights and Dimensions

| | Remote Radiator | Inline Radiator |
|-----------------------|-----------------|-----------------|
| Weight—dry, kg (lbs.) | 535.2 (1180) | 571.5 (1260) |
| Length, mm (in.) | 1228 (48.4) | 1478 (58.2) |
| Width, mm (in.) | 610 (24.0) | 650 (25.6) |
| Height, mm (in.) | 876 (34.5) | 922 (36.3) |

See the drawings on the last page for detailed dimensions.

Generator Ratings

| Model Series | Voltage | Hz | 25°C (77°F) Amps | 25°C (77°F) kW/kVA | Ph |
|------------------------|---------|----|---------------------|-----------------------|----|
| 40EORZDB (4 lead) | 120/240 | 60 | 166.7 | 40/40 | 1 |
| | 110/220 | 50 | 150.0 | 33/33 | 1 |
| 33EFORZDB (4 lead) | 115/230 | 50 | 143.5 | 33/33 | 1 |
| | 220 | 50 | 150.0 | 33/33 | 1 |
| | 240 | 50 | 137.5 | 33/33 | 1 |
| 40EORZDB (12 lead) | 120/208 | 60 | 138.8 | 40/50 | 3 |
| | 120/240 | 60 | 162.5 | 39/39 | 1 |
| | 120/240 | 60 | 120.3 | 40/50 | 3 |
| | 127/220 | 60 | 131.2 | 40/50 | 3 |
| | 139/240 | 60 | 120.3 | 40/50 | 3 |
| | 220/380 | 60 | 76.0 | 40/50 | 3 |
| | 277/480 | 60 | 60.1 | 40/50 | 3 |
| 33EFORZDB (12 lead) | 110/190 | 50 | 125.3 | 33/41.3 | 3 |
| | 110/220 | 50 | 150.0 | 33/33 | 1 |
| | 110/220 | 50 | 108.3 | 33/41.3 | 3 |
| | 220/380 | 50 | 62.7 | 33/41.3 | 3 |
| | 230/400 | 50 | 59.5 | 33/41.3 | 3 |
| | 240/416 | 50 | 57.2 | 33/41.3 | 3 |

ADC 2100 Advanced Digital Control Features

- Designed for today's most sophisticated electronics
- Easy to read alpha-numeric display
- Compact, integrally mounted control
- Potted boards/sealed connectors for maximum corrosion protection
- SAE J1939 CANbus output
- Remote monitoring of up to 13 fault conditions
- Membrane keypad for configuration and adjustment
- Programmed crank cycle

RATINGS: All single-phase units are rated at 1.0 power factor. All three-phase units are rated at 0.8 power factor. Mobile continuous ratings per ISO 3046 and ISO 8528-1. Obtain technical information bulletin (TIB-101) on ratings guidelines for complete ratings definitions. GENERAL GUIDELINES FOR DERATING: ALTITUDE: Derate 0.8% per 100 m (328 ft.) elevation above 200 m (656 ft.). TEMPERATURE: Derate 6.0% per 10°C (18°F) temperature above 25°C (77°F).

Availability is subject to change without notice. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler® generator set distributor for availability.

Application Data

Engine

| Engine Specifications | 60 Hz | 50 Hz |
|--------------------------------|------------------------|-------|
| Manufacturer | Yanmar | |
| Model | 4TNV98T | |
| Type | 4 cycle, turbocharged | |
| Cylinder arrangement | 4, inline | |
| Bore and stroke, mm (in.) | 98 (3.86) x 110 (4.33) | |
| Displacement, L (cu. in.) | 3.319 (202.5) | |
| Compression ratio | 18.5:1 | |
| Combustion system | Direct injection | |
| Main bearings | Replaceable sleeve | |
| Rated rpm | 1800 | 1500 |
| Rated HP, continuous | 61.0 | 50.0 |
| Cylinder block material | Cast iron | |
| Cylinder head material | Cast iron | |
| Crankshaft | Horizontal | |
| Connecting rod material | Forged carbon steel | |
| Governor, type | Isochronous electronic | |
| Injection pump | Yanmar YPES | |
| Frequency regulation | | |
| No-load to full-load | ±0.5% | |
| Steady state | ±0.33% | |

Lubrication

| Lubricating System | 60 Hz | 50 Hz |
|---------------------------------------|----------------------|-------|
| Type | Pressure | |
| Oil pan capacity with filter, L (qt.) | 10.2 (10.8) | |
| Oil filter | Full flow, cartridge | |

Operation Requirements

| Air Requirements | 60 Hz | 50 Hz |
|--|-------------|-------------|
| Engine combustion air requirements, m ³ /min. (cfm) | 3.9 (137) | 3.2 (114) |
| Alternator min. cooling air requirements, m ³ /min. (cfm) | 15.6 (550) | 13.0 (460) |
| Radiator min. cooling air requirements, m ³ /min. (cfm) | 87.8 (3100) | 82.1 (2900) |
| Exhaust flow requirements, m ³ /min. (cfm) | 13.3 (470) | 11.1 (392) |

| Fuel Consumption | 60 Hz | 50 Hz |
|------------------------------|------------|------------|
| Diesel, Lph (gph), at % load | | |
| 100% | 13.6 (3.6) | 10.7 (2.8) |
| 75% | 10.3 (2.7) | 8.1 (2.1) |
| 50% | 7.6 (2.0) | 5.8 (1.5) |
| 25% | 4.9 (1.3) | 3.8 (1.0) |

Engine Electrical

| Engine Electrical System | 60 Hz | 50 Hz |
|--------------------------------------|-------------------------------------|-------|
| Ignition | | |
| Battery voltage | 12 | |
| Battery recommendation, min. | 800 cold cranking amps, 100 amp/hr. | |
| Starter motor | 2.3 kW | |

Engine Features

- One-side serviceability—air filter, fuel filter, lube oil filter, oil fill, oil drain, oil check
- Special alloys minimize noise and vibration
- Air intake heater, cold starting aid (option)
- Battery charging alternator (70 amp)
- Heavy-duty, dry-type air cleaner
- Low oil pressure shutdown
- High engine temperature shutdown
- Belt guard
- Disposable oil filter
- Oil drain valve and hose
- Water-cooled turbocharger

Cooling

| Cooling System | 60 Hz | 50 Hz |
|--|-------------|-------------|
| Type | Liquid | |
| Capacity, engine only, L (qt.) | 4.2 (4.4) | |
| Capacity with unit-mounted radiator, L (qt.) | 15.8 (16.7) | |
| Heat rejected to cooling water at rated kW, Btu/min. | 35.1 (2000) | 30.9 (1760) |

Generator Features

- Rotor and stator are vacuum impregnated and coated with high-bond epoxy varnish. Varnish helps prevent corrosion in high-humidity areas.
- Rotors are dynamically balanced to minimize vibration.
- Copper windings ensure minimal heat buildup. Insulation meets NEMA standards for class H insulation.
- Direct connected to the engine, the generator has sealed precision ball bearings with a precision-machined steel sleeve in the end bracket to prevent shaft misalignment and extend bearing life.

Fuel

| Fuel System | 60 Hz | 50 Hz |
|-----------------------|-------------------------------|-------|
| Fuel pump | Electric | |
| Maximum lift, m (in.) | 1 (39) | |
| Fuel type | Diesel fuel ASTM D975 No. 2-D | |

Application Data

ADC 2100 Control Features



- LED display:
 - Runtime hours
 - Crank cycle status
 - Diagnostics/fault codes/data
- Keypad:
 - Secure access, password protected
 - Voltage, gain, and speed adjustment
 - Controller configuration (system voltage, phase, and frequency settings, battery voltage, and generator set model)
- Master control switch: run/off-reset/auto (engine start)
- Remote two-wire start/stop capability
- Potted electronics and sealed connections
- Voltage regulation $\pm 1.5\%$
- Cyclic cranking: 15 seconds on, 15 seconds off (3 cycles)
- Faults with shutdown:
 - High engine temperature
 - Low oil pressure
 - Loss of coolant
 - Overcrank safety
 - Overspeed
 - Over/under voltage
 - Over/under frequency
 - Auxiliary fault
- Faults with warning:
 - Low battery voltage
 - High battery voltage
- Power requirements:
 - 12 VDC with fuse protection
 - 200 mA @ 12 VDC

Generator Features

| Specifications | 4Q7 (1-phase) | 4P7 (3-phase) |
|-------------------------------|------------------|---------------------|
| Manufacturer | | Kohler |
| Generator type | | Rotating field |
| Voltage regulator | | Solid State |
| Insulation—NEMA MG1-1.66 | | |
| Material | | Class H |
| Temperature rise* | | 130°C |
| Bearing, number, type | | 1 |
| Coupling | | Flexible disc |
| Amortisseur windings | | Full |
| Voltage regulation | | |
| no load to full load - % | | $\pm 1.5\%$ maximum |
| One step load acceptance | | |
| % of rating per NFPA-110 | | 100 |
| Peak motor starting kVa 60 Hz | | N/A |
| Peak motor starting kVa 50 Hz | | N/A |

- Designed and built within NEMA, IEEE and ANSI standards for temperature rise.
- Skewed rotor for smooth voltage waveform.
- EORZDB/EFORZDB: brushless generator.
- Vacuum impregnated epoxy varnish—fungus resistant per MIL-I-24092.
- Sustains short circuit current at 300% of rated current up to 10 seconds.

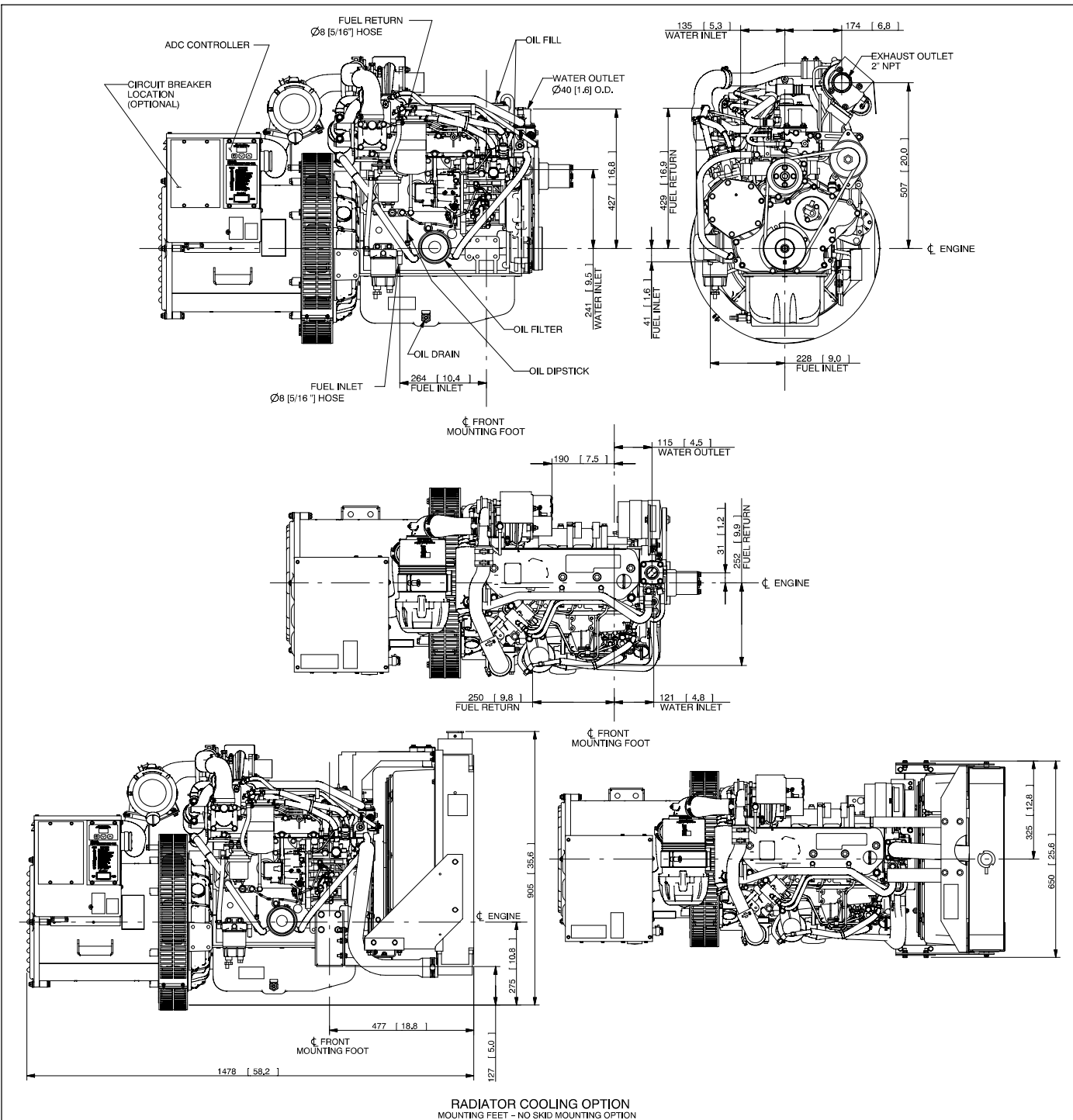
* In 25°C Ambient

Accessories

- Remote Start Kit:
 - Remote digital gauge
 - Oil pressure sender (required to make digital gauge functional)
- Remote Cooling Systems:
 - Radiator with 12-volt DC fan
- Remote Panel Harnesses:
 - Remote harness (pigtail), 305 mm (12 in.)
 - Harness, 4.6 m (15 ft.)
 - Harness, 7.6 m (25 ft.)
- Exhaust Systems:
 - Silencer
 - Flex. stainless steel exhaust connector, 305 mm (12 in.)
 - Blanket, exhaust manifold and turbo
- Cooling Systems:
 - Block heater
- Engine and Generator:
 - Line circuit breakers
 - Airbag mounts
 - Preheat kit
- Isochronous Electronic Governor:
 - $\pm 0.25\%$ steady state frequency regulation

KOHLER[®] POWER SYSTEMS

KOHLER CO., Kohler, Wisconsin 53044 USA
 Phone 920-565-3381, Fax 920-459-1646
 For the nearest sales and service outlet in the
 US and Canada, phone 1-800-544-2444
 KohlerPower.com



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NOTE: Dimensions are shown in mm [in.].

NOTE: This drawing is provided for reference only and is not intended for installation planning. Contact a local distributor for more detailed information.

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