

Cat® D400 GC

Diesel Generator Sets



Standby : 60 Hz



Image shown may not reflect actual configuration.

| | |
|-----------------------|-------------------------------------|
| Engine Model | Cat® C13 In-line 6, 4-cycle diesel |
| Bore x Stroke | 130 mm x 157 mm (5.1 in x 6.2 in) |
| Displacement | 12.5 L (763 in³) |
| Compression Ratio | 16.3:1 |
| Aspiration | Turbocharged Air-to-Air Aftercooled |
| Fuel Injection System | MEUI |
| Governor | Electronic ADEM™ A4 |

| Model | Standby | Emission Strategy |
|---------|------------------|--|
| D400 GC | 400 ekW, 500 kVA | EPA Certified for Stationary Emergency Application |

PACKAGE PERFORMANCE

| Performance | Standby |
|---|---------------|
| Frequency | 60 Hz |
| Genset Power Rating | 500 kVA |
| Genset power rating with fan @ 0.8 power factor | 400 ekW |
| Emissions | EPA TIER 3 |
| Performance Number | EM1694 |
| Fuel Consumption | |
| 100% load with fan, L/hr (gal/hr) | 105.8 (27.9) |
| 75% load with fan, L/hr (gal/hr) | 90.7 (24.0) |
| 50% load with fan, L/hr (gal/hr) | 66.2 (17.5) |
| 25% load with fan, L/hr (gal/hr) | 37.7 (10.0) |
| Cooling System ¹ | |
| Radiator air flow restriction (system), kPa (in water) | 0.12 (0.48) |
| Radiator air flow, m³/min (cfm) | 398 (14055) |
| Engine coolant capacity, L (gal) | 66.2 (17.5) |
| Radiator coolant capacity, L (gal) | 37.7 (10) |
| Total coolant capacity, L (gal) | 104 (27.5) |
| Inlet Air | |
| Combustion air inlet flow rate m³/min (cfm) | 24.4 (862) |
| Max. Allowable Combustion Air Inlet Temp, °C (°F) | 47 (116) |
| Exhaust System | |
| Exhaust stack gas temperature, °C (°F) | 567 (1053) |
| Exhaust gas flow rate, m³/min (cfm) | 82 (2896) |
| Exhaust system backpressure (maximum allowable) kPa (in. water) | 10 (40) |
| Heat Rejection | |
| Heat rejection to jacket water, kW (BTU/min) | 156 (8871) |
| Heat rejection to exhaust (total), kW (BTU/min) | 398 (22634) |
| Heat rejection to aftercooler, kW (BTU/min) | 71 (4037) |
| Heat rejection to atmosphere from engine, kW (BTU/min) | 52 (2957) |
| Heat rejection from alternator, kW (BTU/min) | 29 (1649) |
| Emissions (Nominal) ² | |
| NOx, mg/Nm³ (g/hp-hr) | 2274.7 (4.58) |
| CO, mg/Nm³ (g/hp-hr) | 666.9 (1.35) |
| HC, mg/Nm³ (g/hp-hr) | 6.2 (0.01) |
| PM, mg/Nm³ (g/hp-hr) | 39.4 (0.10) |

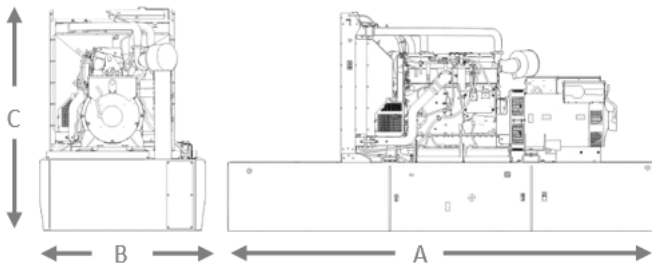
D400 GC Diesel Generator Sets

Electric Power



| Alternator ³ | | |
|---|---------|---------|
| Voltages | 480V | 600V |
| Motor starting capability @ 30% Voltage Dip, skVA | 871 | 731 |
| Current Amps | 601.4 | 481.1 |
| Frame Size | M3134L4 | M3115L4 |
| Excitation | S.E | AREP |
| Temperature Rise, °C | 105 | 130 |

WEIGHTS & DIMENSIONS – OPEN SET



FUEL TANK CAPACITY

| Tank Design | Total Capacity L (gal) | Useable Capacity L (gal) |
|-------------|---------------------------|-----------------------------|
| Integral | 2820 (744.9) | 2553 (674.4) |

| Base | Length "A" mm (in) | Width "B" mm (in) | Height "C" mm (in) | Generator Set Weight kg (lb) |
|--------------------|-----------------------|----------------------|-----------------------|---------------------------------|
| Skid (Wide Base) | 4625 (182.8) | 1630 (64.2) | 2039 (80.3) | 3325 (7330.4) |
| Integral Tank Base | 4625 (182.8) | 1630 (64.2) | 2456 (96.7) | 4107 (9054.4) |

Note: General configuration not to be used for installation. See general dimension drawings for detail.

APPLICABLE CODES AND STANDARDS:

AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/EC.

Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

STANDBY: Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

RATINGS: Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

FUEL RATES: Based on fuel oil of 35° API [16° C (60° F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/litre (7.001 lbs/U.S. gal.). Additional ratings may be available for specific customer requirements, contact your Caterpillar representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

DEFINITIONS AND CONDITIONS

¹ For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

² Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77° F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 BTU/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

³ UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40° C ambient per NEMA MG1-32.

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D250 GC – D600 GC Sound Attenuated Enclosures

60 Hz

Image shown may not reflect actual configuration.

Features

Robust/Highly Corrosion Resistant Construction

- Safeguards genset against environmental and weather conditions
- Factory installed on skid base or tanks base
- Environmentally friendly, polyester powder baked paint
- Enclosure constructed with 18-gauge steel
- Interior zinc plated fasteners
- Internally mounted exhaust silencing system
- Comply with ASCE /SEI 7 for Wind loads up to 100 mph
- Designed and tested to comply with UL 2200 Listed generator set package

Excellent Access

- Large cable entry area for installation ease
- Accommodates side mounted single or multiple breakers
- Two doors on both sides
- Vertically hinged allow 180° opening rotation
- Radiator fill cover

Security and Safety

- Lockable access doors which give full access to control panel and breaker
- Cooling fan and battery charging alternator fully guarded
- Fuel fill, oil fill and battery can only be reached via lockable access
- Externally mounted emergency stop button (Optional)
- Designed for spreader bar lifting to ensure safety
- Stub-up area is rodent proof

Sound Attenuated Level 2

- Caterpillar white paint
- UL Listed integral fuel tank with 24 hours running time capacity (Optional)
- DC lighting package (Optional)

Enclosure Package Operating Characteristics

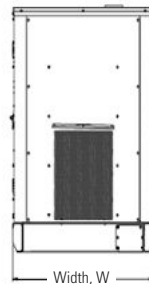
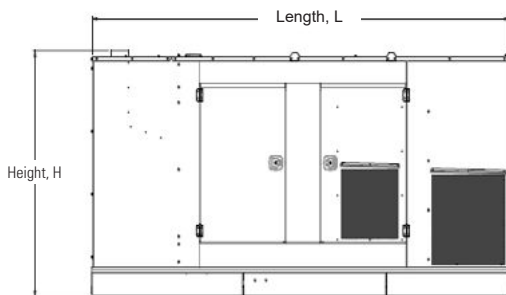
| Enclosure Type | Standby | Cooling Air Flow Rate | | Ambient Capability* | | Sound Pressure Levels (dBA) at 7m (23 ft) |
|---|---------|-----------------------|-------|---------------------|-----|---|
| | ekW | m ³ /s | cfm | °C | °F | 100% Load |
| Level 2 Sound Attenuated Enclosure (Steel) | 250 | 6.4 | 13561 | 57 | 135 | 74 |
| | 300 | 6.4 | 13561 | 51 | 125 | 74 |
| | 350 | 7.4 | 15680 | 57 | 134 | 71 |
| | 400 | 7.4 | 15680 | 53 | 127 | 71 |
| | 450 | 8.4 | 17692 | 54 | 130 | 73 |
| | 500 | 8.4 | 17692 | 50 | 122 | 73 |
| | 550 | 11.2 | 23731 | 56 | 133 | 73 |
| | 600 | 11.2 | 23731 | 53 | 127 | 73 |

*Cooling system performance at sea level. Consult your Cat[®] dealer for site specific ambient and altitude capabilities.

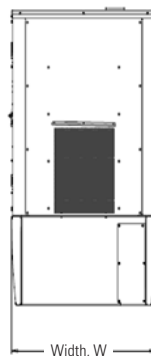
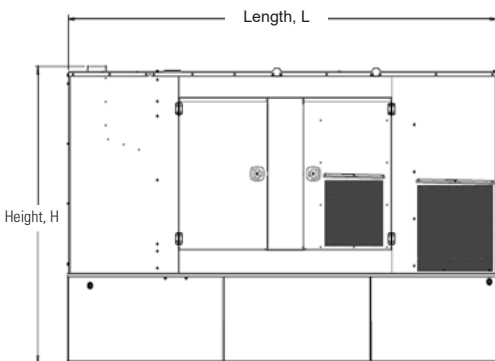
Note: Sound level measurements are subject to instrumentation, installation and manufacturing variability, as well as ambient site conditions

Weights and Dimensions

| Enclosure Type | Standby Ratings | Length, L | | Width, W | | Height, H | | Package Weights | |
|--|-----------------|-----------|-------|----------|------|-----------|-------|-----------------|---------|
| | ekW | mm | in | mm | in | mm | in | kg | lb |
| Sound Attenuated Enclosure on Skid Base | 250 | 3958 | 155.8 | 1440 | 56.7 | 1991 | 78.4 | 2857 | 6298.6 |
| | 300 | | | | | | | 2945 | 6492.6 |
| | 350 | 4633 | 182.4 | 1630 | 64.2 | 2227 | 87.7 | 3983 | 8781.0 |
| | 400 | | | | | | | 4017 | 8856.0 |
| | 450 | 4823 | 189.8 | 1630 | 64.2 | 2227 | 87.7 | 4408 | 9718.0 |
| | 500 | | | | | | | 4457 | 9826.0 |
| | 550 | 4980 | 196.1 | 1865 | 73.4 | 2172 | 85.5 | 4754 | 10480.8 |
| | 600 | | | | | | | 4837 | 10663.8 |
| Sound Attenuated Enclosure on UL Listed Integral Fuel Tank Base | 250 | 3958 | 155.8 | 1440 | 56.7 | 2487 | 97.9 | 3497 | 7709.6 |
| | 300 | | | | | | | 3585 | 7903.6 |
| | 350 | 4633 | 182.4 | 1630 | 64.2 | 2644 | 104.1 | 4765 | 10505.0 |
| | 400 | | | | | | | 4799 | 10580.0 |
| | 450 | 4823 | 189.8 | 1630 | 64.2 | 2777 | 109.3 | 5345 | 11783.7 |
| | 500 | | | | | | | 5394 | 11891.7 |
| | 550 | 4980 | 196.1 | 1865 | 73.4 | 2723 | 107.2 | 5973 | 13168.2 |
| | 600 | | | | | | | 6056 | 13351.2 |
| Sound Attenuated Enclosure on UL Listed Extended Integral Fuel Tank Base | 250 | 4608 | 181.4 | 1430 | 56.3 | 2379 | 93.7 | 3590 | 7914.6 |
| | 300 | | | | | | | 3678 | 8108.6 |
| | 350 | 5251 | 203.7 | 1620 | 63.8 | 2561 | 100.8 | 4876 | 10749.7 |
| | 400 | | | | | | | 4910 | 10824.7 |
| | 450 | 5909 | 232.6 | 1620 | 63.8 | 2612 | 102.8 | 5497 | 12118.8 |
| | 500 | | | | | | | 5546 | 12226.8 |
| | 550 | 6759 | 266.1 | 1865 | 73.4 | 2487 | 97.9 | 6237 | 13750.2 |
| | 600 | | | | | | | 6320 | 13933.2 |



Sound Attenuated Enclosure on Skid Base



Sound Attenuated Enclosure on a UL Listed Integral Fuel Tank Base

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100 Amp Load Center



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100 Amp Load Center

| Specifications | |
|-----------------------------------|---------------------------------------|
| Number of Spaces | 6 |
| System Voltage | 120 / 240VAC |
| Number of Tandem Circuit Breakers | 6 |
| Phase | 1 Ph |
| NEMA Degree of Protection | NEMA 3R Outdoor |
| Electrical Connection | Lugs |
| Wiring Configuration | 3-Wire |
| Material | Tin Plated Aluminum Busbar |
| Enclosure Material | Welded Galvanized Steel Gray |
| Cover Finish | Baked Enamel |
| Product Certifications | UL E-6294 |
| Gauge | AWG 8...AWG 1 (Aluminium / Copper) |

| Dimensions and Specifications | |
|-------------------------------|--------------------------|
| Height / Width / Depth | 321 mm / 226 mm / 127 mm |
| GFCI | 20A (120V) |
| Battery Charger | 6A (120V) |
| Jacket Water Heater | 11.25A (240V) |
| Alternator Heater | 1.04A (240V) |
| Total Load | 38.29A Max |

| L1 | |
|---------------------|---------------|
| GFCI | 20A (120V) |
| Jacket Water Heater | 11.25A (240V) |
| Alternator Heater | 1.04A (240V) |
| Total Load | 32.29A Max |

| L2 | |
|---------------------|---------------|
| Battery Charger | 6A (120V) |
| Jacket Water Heater | 11.25A (240V) |
| Alternator Heater | 1.04A (240V) |
| Total Load | 18.29A Max |

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Jacket Water Heater (WHHH01/WHHH03)

Appropriate when the generator set is to be sited in a low ambient environment, the heater maintains the engine coolant at a temperature [typically 38°C (100°F)] which facilitates rapid starting and load acceptance. The heater assembly uses UL compliant components (to UL1030) and has CSA certification which is to both CSA and UL Standards.

The heater itself is powered by a 240V for 60 Hz AC auxiliary supply. A thermostatic controller is included to regulate the output temperature to within safe limits. When the generator set is not running the heater is automatically connected to the AC supply through a power relay mounted in the control panel.

Upon receiving a start signal the AC supply is automatically disconnected by the power relay and automatically reconnected when the start signal is removed, and the engine has stopped.

Features

- Uniform heat distribution
- Reduces wear from cold spots
- Improves startability
- Thermostatically controlled and protected
- 6' (1.8m) cord length (577-1758)
- 16.4' (5.0m) cord length (578-9355).
- Ensures generator is at optimal starting temperature and ready to accept load
- Durable pump with non-magnetic impeller that does not attract metal debris
- Robust die cast aluminum housing improves sealing of the hoses, eliminates leaking and breakage
- Corrosion resistant steel brackets for superior strength and durability
- Reduces thermal stress on coolant hoses
- Element designed for long life with maximum heat transfer
- IP44 Ingress Protection Rating
- No evaporation of coolant from hoses
- Reduces low coolant level alarms because coolant does not boil

| Part No | Outlet Location | Watts | Volts | Amps | Regulating Thermostat | Safety Thermostat |
|-------------------|-----------------|-------|-------|-------|------------------------------------|-------------------|
| 577-1758/578-9355 | Right | 2700 | 240 | 11.25 | On 90°F (32°C) Off 115°F (46°C) | 210°F (98°C) |

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20A Tamper-Resistant, Weather-Resistant GFCI Receptacles

Features and Benefits

- Automatically tests the GFCI every time the reset button is pushed in. The GFCI will not reset if the GFCI circuit is not functioning properly.
- By blocking reset of the GFCI if protection has been compromised, SmartLockPRO reduces the possibility of end-users incorrectly assuming that a reset GFCI outlet is providing ground fault protection when it actually is not.
- A line-load reversal diagnostic feature is provided which prevents the GFCI from being reset and stops power from being fed to the GFCI receptacle face or through to downstream devices. A green LED indicator on the GFCI's face also illuminates to alert the installer to the line-load wiring reversal.

Weather-Resistant GFCIs

- Meet UL 498 requirements for weather-resistant receptacles.

Tamper-Resistant GFCIs

- Shutter mechanism inside the receptacle blocks access to the contacts unless a two-prong plug is inserted, helping ensure foreign objects will be locked out.

Product Features

- Grounding: GFCI ground fault
- Feature: Weather and tamper-resistant
- Amperage: 20 Amp
- Voltage: 125 Volt
- NEMA: 5-20R
- Trip Level: Class A, 5mA plus or minus 1mA
- Pole: 2
- Wire: 3
- Color: White

Standards and Certifications

- NEMA: WD-6
- ANSI: C-73
- UL498: File E13399
- CSA C22.2 No. 42: File LR-57811
- NOM: 057
- UL 943: File E48380

Receptacles contained in a weather resistant box and in-use cover.



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LED Lights



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Features

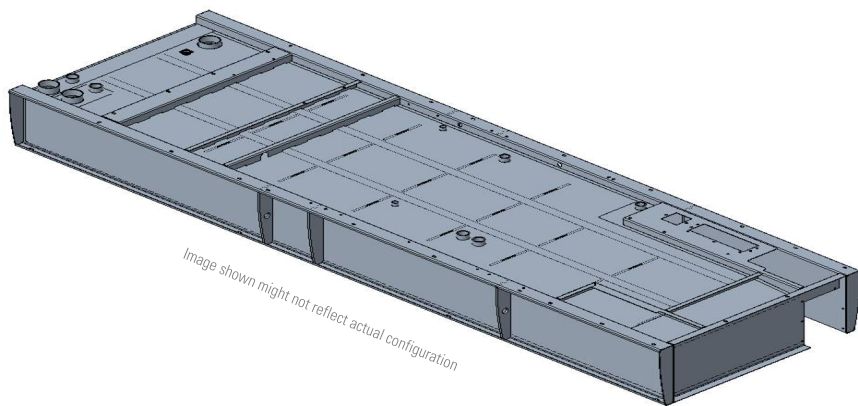
AC/DC Lighting Kit

- Capable of AC and DC operation with provided selector switch
- DC operation has a 60-minute timer switch to limit battery drain
- AC operation is enabled by transformer
- Low voltage, low energy circuit and operation
- Installation includes one single LED light.

| Technical Data | |
|---------------------------|--|
| Theoretical Lumens Output | 1600 lm |
| Operational Lumens Output | 1000 lm |
| Color Temperature | 5700 K |
| Lens | PC |
| Body | Aluminum |
| Weight | 0.6 kg |
| IP Rating | IP68, IP6K9K |
| EMC | CISPR 25 Class 3, EN 12895, ISO 13766, ISO 14982, ISO 7637-2 |
| Operating Temperatures | -40°C to +85°C (Overheat protected) |

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EXTENDED FUEL TANKS D250 GC – D600 GC

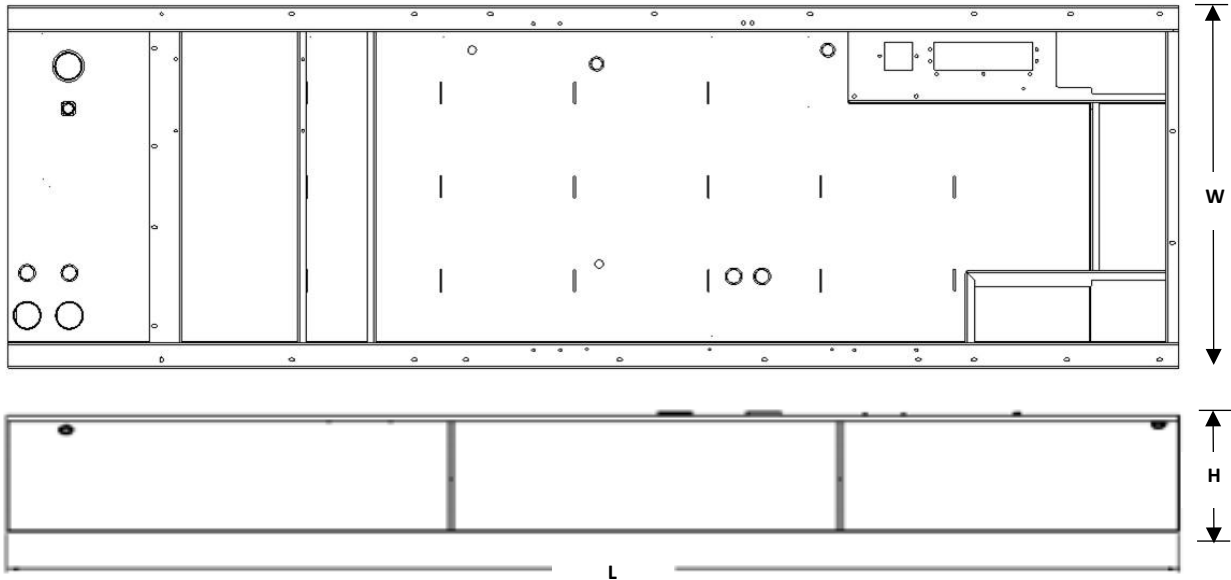
FEATURES

- UL Listed for United States (UL 142) and Canada (CAN/ULC S601)
- Facilitates compliance with NFPA 30 code, NFPA 37 and 110 standards and CSA C282 code
- Dual wall
- Low fuel level warning standard, customer configurable warning or shutdown
- Primary tank leak detection switch in containment basin
- Tank design provides capacity for thermal expansion of fuel
- Fuel supply dip tube is positioned so as not to pick up fuel sediment
- Fuel return and supply dip tube is separated by an internal baffle to prevent immediate re-supply of heated return fuel
- Pressure washed with an iron phosphate solution
- Interior tank surfaces coated with a solvent-based thin-film rust preventative
- Heavy gauge steel gussets with internal lifting rings
- Primary and secondary tanks are leak tested at 20.7 kPa (3 psi) minimum
- Compatible with open packages and enclosures
- Gloss black polyester alkyd enamel exterior paint
- Welded steel containment basin (minimum of 110% of primary tank capacity)
- Direct reading fuel gauge with variable electrical output
- Emergency vents on primary and secondary tanks are sized in accordance with NFPA 30.

OPTIONS

- Audio/visual fuel level alarm panel
- ULC / CSA Accessory Kit
- 5gal (18.9 L) spill containment
- Overfill prevention Valve
- Fuel tank fill pipe & lockable cap

Fuel Tank Base Useable Capacities with Fuel Tank Dimensions & Weights



The heights listed above do not include lumber used during manufacturing and shipping

A. Open Set & Sound Attenuated Enclosure

| Tank Design | Feature Code | Total Capacity | | Useable Capacity | | Tank Only | | | | | | | | Overall Package Height with Tank | | | |
|---------------|--------------|----------------|--------|------------------|--------|------------|------|------------|------|------------|-------|-----------|------|----------------------------------|------|-----------|-------|
| | | | | | | Dry Weight | | Height 'H' | | Length 'L' | | Width 'W' | | Open | | Enclosure | |
| | | Litre | Gallon | Litre | Gallon | kg | lb | mm | in | mm | in | mm | in | mm | in | mm | in |
| Extended Tank | FTDW039 | 2341 | 618.4 | 2060 | 538.9 | 1075 | 2370 | 639 | 25.1 | 4608 | 181.4 | 1430 | 56.3 | 2095 | 82.4 | 2385 | 93.9 |
| | FTDW040 | 2862 | 756 | 2540 | 671 | 1294 | 2852 | 586 | 23 | 5252 | 206.7 | 1620 | 63.8 | 2503 | 98.5 | 2563 | 100.9 |
| | FTDW041 | 3633 | 959.7 | 3286 | 868.1 | 1506 | 3302 | 635 | 25 | 5910 | 228.7 | 1620 | 63.8 | 2291 | 90.1 | 2479 | 97.6 |
| | FTDW042 | 4271 | 1128.2 | 3878 | 1024 | 1944 | 4285 | 585 | 23 | 6759 | 266.1 | 1865 | 73.4 | 2345 | 92.3 | 1957 | 77.0 |

B. Estimated Run Time (Hours)

| Tank Design | Feature Code | Standby Ratings (kVA) | | | | | | |
|-------------|--------------|-----------------------|------|-------|------|-------|------|------|
| | | ekW | 100% | | 75% | | 50% | |
| | | | Hrs | L/hr | Hrs | L/hr | Hrs | L/hr |
| Tank | FTDW039 | 250 | 28.1 | 73.3 | 35 | 35.0 | 47 | 47.0 |
| | | 300 | 24 | 86 | 30.8 | 30.8 | 40 | 40.0 |
| | FTDW040 | 350 | 26.9 | 94.3 | 31.2 | 81.9 | 42.4 | 60.2 |
| | | 400 | 24.0 | 105.8 | 28.1 | 90.7 | 38.6 | 66.2 |
| | FTDW041 | 450 | 25.0 | 131.7 | 31.3 | 106.1 | 42.0 | 79.1 |
| | | 500 | 24.0 | 137 | 30.1 | 110.5 | 46.6 | 71.3 |
| | FTDW042 | 550 | 25.7 | 151.1 | 32.9 | 118.1 | 45.2 | 86.1 |
| | | 600 | 24.1 | 161.6 | 30.0 | 129.6 | 42.4 | 91.7 |

Tanks with full electrical stub-up area include removable end channel. Tanks with RH stub-up include stubup area directly below the circuit breaker or power terminal strips.

Fuel tanks and applicable options facilitate compliance with the following United States NFPA Code and Standards:

NFPA 30: Flammable and Combustible Liquids Code

NFPA 37: Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines

NFPA 110: Standard for Emergency and Standby Power Systems

Fuel tanks and applicable options facilitate compliance with the following Canadian Standard and Code:

CSA C282 – Emergency Electrical Power Supply for Buildings

CSA B139-09 – Installation Code for Oil-Burning Equipment

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Image shown may not reflect actual configuration

GCCP 1.2 - Control Panel

GCCP 1.2 is an Auto Start Control Module suitable for a wide variety of diesel gen-set applications. Monitoring an extensive number of engine parameters, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LEDs and remote PC.

Description

The controller is compatible with electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engines and offer an extensive number of flexible inputs, outputs and extensive engine protections so the system can be easily adapted to meet the most demanding industry requirements.

The extensive list of features includes enhanced event and performance monitoring, remote communications & PLC functionality. The modules can be easily configured using a configuration suite PC software.

Full Range of Attachments

- Wide range of system expansion attachments, designed specifically to work with the GCCP controller
- Flexible packaging options for easy and cost effective installation

Benefits

- Hours counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button layout for ease of use
- Multiple parameters are monitored & displayed simultaneously for full visibility
- The module can be configured to suit a wide range of applications for user flexibility
- PLC editor allows user configurable functions to meet user specific application requirements.
- RS485 Communication port can be used for the Remote Monitoring Communication (Compatible with Cat PLG)

World Wide Product Support

- Cat dealers provide extensive pre and post sale support
- Cat dealers have over 1,600 dealer branch stores operating in 200 countries

Features

- 4-line back-lit LCD text display
- Multiple display languages
- Five-key menu navigation
- LCD alarm indication
- Customisable power-up text and images
- Data logging facility
- Internal PLC editor
- Protections disable feature
- Fully configurable via PC using USB & RS485 communication
- Front panel configuration with PIN protection
- Power save mode
- 3-phase generator sensing and protection
- Generator current and power monitoring (kW, kvar, kVA, pf)
- kW and kvar overload and reverse power alarms
- Over current protection
- Unbalanced load protection
- Breaker control via fascia buttons
- Fuel and start outputs configurable when using CAN Support for 0 V to 10 V & 4 mA to 20 mA sensors
- 8 configurable digital inputs (3 available for Customer use)
- 8 configurable digital outputs (5 available for Customer use)
- 4 configurable analogue inputs (3 available for Customer Use)
- CAN, MPU and alternator frequency speed sensing in one variant
- Real time clock
- Engine pre-heat and post-heat functions
- Engine run-time scheduler
- Engine idle control for starting & stopping
- Fuel usage monitor and low fuel level alarms
- 3 configurable maintenance alarms

SPECIFICATIONS

DC SUPPLY

CONTINUOUS VOLTAGE RATING

8 V to 35 V continuous
5V for upto 1 minute

CRANKING DROPOUTS

Able to survive 0 V for 100 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries.
LEDs and backlight will not be maintained during cranking

MAXIMUM OPERATING CURRENT

260 mA at 12 V, 150 mA at 24 V

MAXIMUM STANDBY CURRENT

145 mA at 12 V, 85 mA at 24 V

CHARGE FAIL/EXCITATION RANGE

0 V to 35 V

GENERATOR & MAINS (UTILITY) VOLTAGE RANGE

15V to 415 V AC (Ph to N)
26 V to 719 V AC (Ph to Ph)

MAGNETIC PICK-UP VOLTAGE RANGE

+/- 0.5 V to 70 V

FREQUENCY RANGE

10,000 Hz (max)

INPUTS

DIGITAL INPUTS A TO H

Negative switching

ANALOGUE INPUTS A TO D

Configurable as:
Negative switching digital input 0-10V sensor 4 mA to 20mA Resistive Sensor

ANALOGUE INPUTS A TO C

Configurable as:
Negative switching digital input Resistive Sensor

OUTPUTS

OUTPUT A and B (FUEL & START)

15 A DC at supply voltage

AUXILIARY OUTPUTS C, D, E, F, G, H, I & J 2

A DC at supply voltage

DIMENSIONS

OVERALL

216 mm x 158 mm x 43 mm
8.5" x 6.2" x 1.5"

PANEL CUTOUT

184 mm x 137 mm
7.2" x 5.3"

MAXIMUM PANEL THICKNESS

8 mm
0.3"

OPERATING TEMPERATURE

-30 Deg C to +70 Deg C
-22 Deg F to +158 Deg F

STORAGE TEMPERATURE RANGE

-40 Deg C to +85 Deg C
-40 Deg F to +185 Deg F

STANDARDS

UL, cUL Listed

NFPA 70[#]

Electro-Magnetic Compatibility BS EN 61000-6-2/6-4

Electrical Safety: BS EN 60950

Temperature: BS EN 60068-2-1, BS EN 60068-2-2

Vibration: BS EN 60068-2-6

Humidity: BS EN 60068-2-30, BS EN 60068-2-78

Shock: BS EN 60068-2-27

Degrees of protection provided by enclosures: BS EN 60529 Ingress Protection: IP65 - Front of module when installed into the control panel with the optional sealing gasket.

[#] Applicable codes and standards facilitate compliance to NFPA 70

OPTIONAL MODULES

Remote annunciator



The Remote annunciator with an integral sounder is an output LED expansion module designed to display a maximum of eight individual LED indications up to a maximum distance of 1km (0.6 miles). The Annunciator will consist of two modules to provide a 16 Channel Fault annunciation. The Panels are fitted with removable label cards which can be used to identify the standard NFPA alarms.

Key Features:

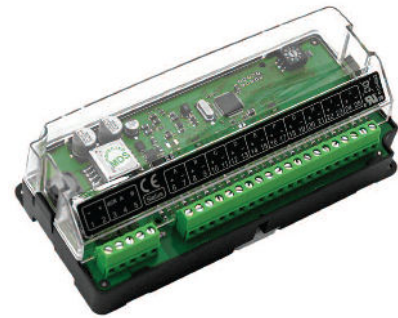
- Panel mount.
- Vertical design.
- In-built alarm.
- Alarm mute button.
- Max of 80 configurable LED's.

Input Expansion Module

The Input Expansion module is used in conjunction with supported GCCP controllers to provide additional, flexible, input functionality. The module's ID switch is configurable from the module and the 10 inputs can be configured from within the 'host controller'. The inputs can be configured in a number of ways to connect to digital switches, resistive sensors, 0-10 V DC signals or 4-20 mA signals.

Key Features:

- DIN rail & chassis mount.
- Power on/link lost LED.
- 1.2km (0.75 Mile) working range.
- Connect maximum of 4 x Input Modules to a single host controller.
- Max of 40 configurable inputs.



Output Expansion Module

The output relay expansion module for use with compatible GCCP control modules has been designed to extend a host module's output capabilities. A maximum of 10 relays can be connected to an individual module at any one time. All outputs are configurable via the host controller.

Key Features:

- Power On/Link Lost LED ID SWITCH
- 10 expansion modules can be connected to 1 host controller at a time
- 8 configurable relay contacts with LED indicators:
 - 4 Normally Open (N/O)
 - 4 Change Over (C/O)
- Terminal strip connection for quick and easy set-up





Image shown might not reflect actual configuration.

BATTERY CHARGER

The intelligent battery charger has been developed with safety, usability, optimised battery performance and maximum battery lifetimes in mind.

A comprehensive range of input and output protections ensures a continued safe charging environment also enabling the use of the charger as a power supply.

FEATURES

- Intelligent two, three and four stage charging profiles
- Configurable to suit most battery types (12V/24V)
- Adjustable current limit
- Can be used as a battery charger, power supply or both at the same time
- Automatic or Manual boost and storage charge functions to help maintain battery condition
- Digital Microprocessor Technology
- Temperature compensation for battery charging
- Low Output Ripple and superb line regulation
- Three LED Indicators
- AC input Under voltage
- AC input Over voltage
- Battery charger output Over voltage
- Battery charger output Over current
- Optional battery temperature compensation with over temperature protection
- Output short circuit and Inversion polarity with auto recovery
- Configurable charge termination
- UL1236 /UL1564 Compliant

Automatic Boost Mode

- Boosts and equalises cell charge improving battery performance and life

Power Save Mode

- Once the battery is fully charged the chargers switch to Eco-Power to save energy

Communication

- Can be integrated into external systems through MODBUS RTU using RS485
- Fully configurable via PC Software

BENEFITS

- Fully flexible to maximise the life of the battery
- Suitable for a wide range of battery types
- Switched mode design
- Minimum 86% efficiency throughout full operating range
- No external intervention for boost mode
- Multiple chargers can be linked together to provide larger current output
- Can be permanently connected to battery and mains (utility) supply. No need to disconnect through high load conditions.

SPECIFICATION

AC SUPPLY

VOLTAGE RANGE 90 V to 305 V (L-N)

FREQUENCY RANGE

48 Hz to 64 Hz (L-N)

DC OUTPUT RATING

10 A DC at 24 V DC

RIPPLE AND NOISE

<1%

EFFICIENCY

>86%

REGULATION LINE

<0.5%

LOAD

2%

TEMPERATURE SENSOR INPUT

PT1000

PROTECTIONS

Short Circuit
DC Over Voltage
DC Over Current
Reverse Polarity
Over Temperature
AC Under & Over Voltage

CHARGE FAILURE RELAY

3 A at 30 V DC volt free relay

DIMENSIONS OVERALL

70 mm x200 mm x 130 mm
2.7" x 7.9" x 5.1"

WEIGHT

0.75 kg

OPERATING TEMPERATURE RANGE

-30 °C to +80 °C
-22 °F to +176 °F

STORAGE TEMPERATURE RANGE

-30 °C to +80 °C
-22 °F to +176 °F

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Circuit Breakers [C9, C13, C15, C18]

D250 GC, D300 GC, D350 GC, D400 GC, D450 GC, D500 GC, D550 GC, D600 GC

Manually Operated Circuit Breakers

| Current (A) | Frame | Number of Poles | Interrupting Ratings (kA ms) | | | Trip Unit | (Lugs) Cable Size Range / Phase | Auxilliary Options |
|-------------|-------|-----------------|------------------------------|------|------|------------------------|---------------------------------|---|
| | | | 240V | 480V | 600V | | | |
| 100 | XT2 | 3 | 65 | 25 | 18 | Electronic LS/I or LSI | 14-1/0 AWG | 1 Form C + 1 Bell Alarm Shunt Trip 24VDC |
| 250 | XT4 | 3 | 65 | 25 | 18 | Electronic LS/I or LSI | 14-1/0 AWG | 1 Form C + 1 Bell Alarm Shunt Trip 24VDC |
| 400 | XT5 | 3 | 65 | 35 | 18 | Electronic LS/I or LSI | 4/0 AWG | 1 Form C + 1 Bell Alarm Shunt Trip 24VDC |
| 600 | XT6 | 3 | 65 | 35 | 20 | | (3) 2/0 – 400 kcmil | |
| 800 | XT6 | 3 | 65 | 35 | 20 | | (3) 2/0 – 400 kcmil | |
| 1200 | XT7 | 3 | 65 | 50 | 25 | | (4) 4/0 – 500 kcmil | 1 Form C + 1 Bell Alarm Shunt Trip 24VAC/VDC |

1st Breaker Options (400 – 1200A)

| Model | Current (A) | Operation |
|-------------------|-------------|-------------------|
| C9, C13, C15 | 400 | Manually Operated |
| C9, C13, C15, C18 | 600 | Manually Operated |
| C9, C13, C15, C18 | 800 | Manually Operated |
| C9, C18 | 1200 | Manually Operated |

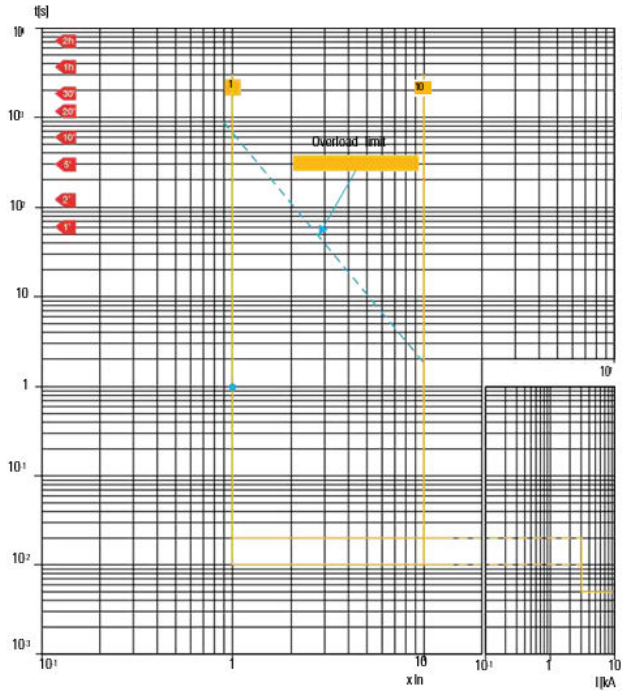
1st Breaker FLC Capacity or one frame less than FLC capacity except when 1st breaker is 400 A.

2nd Breaker Options

| Model | Current (A) | Operation |
|-------------------|-------------|-------------------|
| C9, C13, C15, C18 | 100 / 250 | Manually Operated |

2nd Breaker either 100A or 250A.

XT4 Ekip LS/I I Functions



XT4 Ekip L-S-I Functions

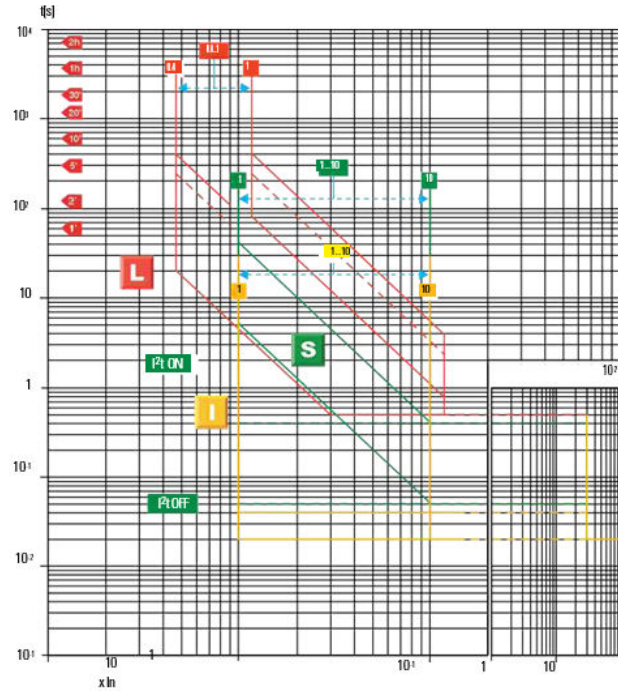


Figure 3

XT6 Ekip Dip LSI L-S-I Functions

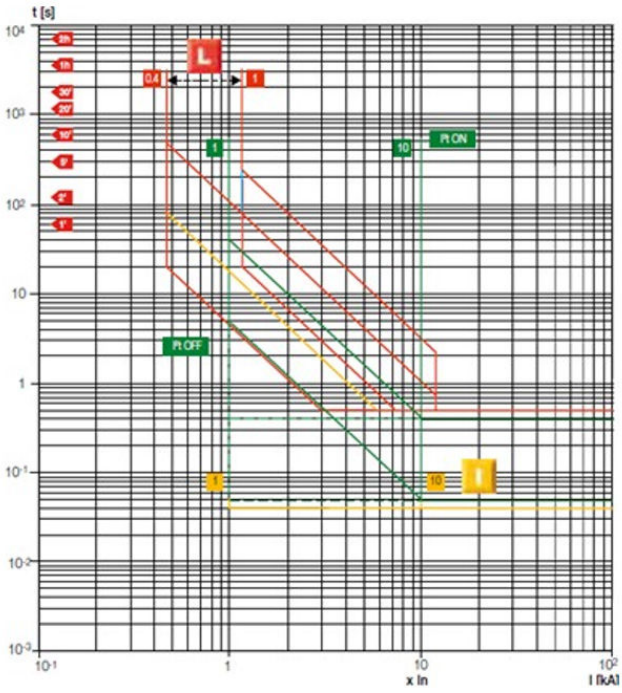


Figure 5