



Prepared for:

**Cummins Project Manager:** 

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## Serving Cummins Customers

Cummins power solutions are supported by the largest and best-trained worldwide-certified distributor/dealer network in the industry. This network of knowledgeable Cummins distributor/dealers will help you select and install the critical power solution to meet the requirements of your specific application. This same network provides experts with advanced technology to make your life easier while providing a seamless support experience.

**IMPORTANT:** The critical power solution information and specifications included in this pdf can be used by the site installation engineer to assist with planning for and accomplishing the overall power solution installation. Please forward this pdf to the appropriate personnel, as necessary.

It is the obligation of the electrical contractor and reviewing engineer to determine that the item quantities and accuracy of this submittal is correct as required for the job. Any inaccuracies or deviations must be addressed with Cummins Inc. before release to manufacturing. Any releases of material to manufacturing by the above parties constitute an acceptance of the accuracy of the submittal. Any changes after release will be viewed as a change order, subject to pricing changes. Please take the time to review this package for accuracy to prevent any after-shipment problems that could cause delay in energization.

*Cummins* certifies that these drawings, material lists, specification and datasheets have been checked prior to submittal and they accurately depict:

- accurately depict the proposed equipment
- provide current information to the date of the submittal and
- present true and accurate equipment information.

This Approval Drawing Package is submitted as our interpretation of the project requirements and/or the specifications for this job. Please note that issuance of these submittals shall not be deemed or interpreted as performance nor acceptance of your purchase order terms and conditions.

For questions or comments regarding this submittal, please contact the Cummins Project Manager listed on the title page.



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# SECTION 1 PROJECT INFORMATION





#### March 14, 2025

#### Prepared by

Cameron Ploch (813) 205-7806 sq335@cummins.com

We are pleased to provide you this quotation based on your inquiry.

ltem	Description	Qty
1	C70N6, 70kW, 60Hz, Standby, Natural Gas/Propane Genset	1
	U.S. EPA, Stationary Emergency Application	
	C70N6, 70kW, 60Hz, Standby, Natural Gas/Propane Genset	
	Duty Rating - Standby Power (ESP)	
	Emissions Certification - SI, EPA, Emergency, Stationary, 40CFR60	
	Listing - UL 2200	
	NFPA 110 Type 10 Level 1 Capable	
	Exciter/Regulator - Permanent Magnet Generator, 3 Phase Sensor	
	Voltage - 120/240, 3 Phase, Delta, 4 Wire	
	Alternator - 60Hz, 12L, 240/120V, 105C, 40C Ambient, Increased Motor Starting (IMS)	
	Alternator Heater, 120 Volt AC	
	Aluminum Sound Attenuated Level 1 Enclosure, with Exhaust System	
	Enclosure Color - Green, Aluminum	
	Enclosure - Wind Load 180 MPH, ASCE7-10	
	Battery Rack	
	Skidbase - Housing Ready	
	Control Mounting - Left Facing	
	PowerCommand 2.3 Controller	
	Gauge - Oil Pressure	
	AmpSentryTM UL Listed Protective Relay	
	Stop Switch - Emergency	
	Relays - Auxiliary, Qty 2, 25A - 15V DC/10A - 30V DC	
	Signals - Auxiliary, 8 Inputs/8 Outputs	
	Control Display Language - English	
	Load Connection - Single	
	Circuit Breaker, Location A, 70A - 250A, 3P, LSI, 600 Volts AC, 100%, UL	
	Circuit Breaker or Terminal Box (Position B) - None	
	Circuit Breaker or Terminal Box (Position C) - None	



		1
	Engine Governor - Electronic, Isochronous	
	Single Gas Fuel - NG or LP Vapor	
	Engine Starter - 12 Volt DC Motor	
	Engine Air Cleaner - Normal Duty	
	Battery Charging Alternator	
	Battery Charger - 6 Amp, Regulated	
	Engine Cooling - Radiator, High Ambient Air Temperature, Ship Fitted	
	Shutdown - Low Coolant Level	
	Extension - Coolant Drain	
	Engine Coolant - 50% Antifreeze, 50% Water Mixture	
	Coolant Heater,Cold Ambient	
	Engine Oil Heater - 120 Volts AC, Single Phase	
	Engine Oil	
	Genset Warranty - 2 Years Base	
	Literature - English	
	Packing - Skid, Poly Bag	
	Extension - Oil Drain	
2	Service - start up and testing	1
3	C45N6, 45kW, 60Hz, Standby, Natural Gas/Propane Genset	1
	U.S. EPA, Stationary Emergency Application	
	C45N6, 45kW, 60Hz, Standby, Natural Gas/Propane Genset	
	Duty Rating - Standby Power (ESP)	
	Emissions Certification - SI, EPA, Emergency, Stationary, 40CFR60	
	Listing - UL 2200	
	NFPA 110 Type 10 Level 1 Capable	
	Exciter/Regulator - Permanent Magnet Generator, 3 Phase Sensor	
	Voltage - 120/240, 3 Phase, Delta, 4 Wire	
	Alternator - 60Hz, 12L, 240/120V, 105C, 40C Ambient, Increased Motor Starting (IMS)	
	Alternator Heater, 120 Volt AC	
	Aluminum Sound Attenuated Level 1 Enclosure, with Exhaust System	
	Enclosure Color - Green, Aluminum	
	Enclosure - Wind Load 180 MPH, ASCE7-10	
	Battery Rack	
		1
	Skidbase - Housing Ready	
	Skidbase - Housing Ready Control Mounting - Left Facing	



	PowerCommand 2.3 Controller	
	Gauge - Oil Pressure	
	AmpSentryTM UL Listed Protective Relay	
	Stop Switch - Emergency	
	Relays - Auxiliary, Qty 2, 25A - 15V DC/10A - 30V DC	
	Control Display Language - English	
	Load Connection - Single	
	Circuit Breaker, Location A, 70A - 250A, 3P, LSI, 600 Volts AC, 100%, UL	
	Circuit Breaker or Terminal Box (Position B) - None	
	Circuit Breaker or Terminal Box (Position C) - None	
	Engine Governor - Electronic, Isochronous	
	Single Gas Fuel - NG or LP Vapor	
	Engine Starter - 12 Volt DC Motor	
	Engine Air Cleaner - Normal Duty	
	Battery Charging Alternator	
	Battery Charger - 6 Amp, Regulated	
	Engine Cooling - Radiator, High Ambient Air Temperature, Ship Fitted	
	Shutdown - Low Coolant Level	
	Extension - Coolant Drain	
	Engine Coolant - 50% Antifreeze, 50% Water Mixture	
	Coolant Heater,Cold Ambient	
	Engine Oil Heater - 120 Volts AC, Single Phase	
	Engine Oil	
	Genset Warranty - 2 Years Base	
	Literature - English	
	Packing - Skid, Poly Bag	
	Extension - Oil Drain	
9	ervice - start up and testing	1

# SECTION 2 GENERATOR SPECIFICATIONS





#### Recommended Generator Report - C45 N6

Project - City of Edgewater Lift Station 1

Comments - Created for Steven Treesh @ EDA by M. Rojas on 04/17/24.

#### (2) 10HP Pumps (FVNR) + 5kVA Misc. Load. (2) Steps.

		Project R	equirements	
			equilemento	
Frequency, Hz		: 60.0	Generators Running in Paral	liei : 1
Duty : Standby		: Standby	Site Altitude, ft(m)	: 1000(305)
Voltage		120/240, Series Delta	Site Temperature, °C	: 32
Phase		: 3	Max. Altr Temp Rise, °C	: 125
Fuel		NaturalGas	Project Voltage Distortion Li	mit, % :
Emissions		EPA, stationary emergency		
		application		
	Calcula	ated Individual Generator Set	Load Running and Peak Requ	irements
Running kW	: 21.3	Max. Step kW	: 39.5 In Step 1 Cum	ulative Step kW : 48.2
Running kVA	: 24.9	Max. Step kVA	: 72.0 In Step 1 Cum	ulative Step kVA : 82.0
Running PF	: 0.86	Peak kW	: None Cum	ulative Peak kW : None
Running NLL kVA	: 0.0	Peak kVA	: None Cum	ulative Peak kVA : None
Alternator kW	: 21.34		Pct F	Rated Capacity : 46.7
		Generator Se	et Configuration	
Alternator		UC2E	Engine	: QSJ5.9G-G1
BCode	:	BB88	Fuel	: NaturalGas
Excitation	(	PMG	Displacement, cu in. (Litre)	: 359.0(5.9)
Voltage Range	:	208/416-240/480	Cylinders	: 6
Number of Leads	:	12	Altitude Knee, ft(m)	: 2200(671)
Reconnectable	:	Yes	Altitude Slope, % per 1000ft(	<b>304.8m)</b> : 4
Full Single Phase Output	:	Yes	Temperature Knee, °F(°C)	: 104(40)
Increased Motor Starting	:	Yes	Temperature Slope, % per 18	<b>°F(10.0°C)</b> : 2
Extended Stack	:	No	Emissions	: EPA NSPS Part 60
			Cooling Package	:
S	et Performar	nce	Lo	ad Requirements
Running At	(	: 46.7% Rated Capacity		
Max. Step Voltage Dip, %	(	: 17	Max. Allowed Step Voltage D	Dip : 25 In Step 1
Max. Step Frequency Dip, %	(	: 6	Max. Allowed Step Frequenc	y Dip : 10 In Step 1
Peak Voltage Dip, %		:	Peak Voltage Dip Limit %	: 25.0
Peak Frequency Dip, %		:	Peak Frequency Dip Limit %	: 10
Site Rated Standby kW/kVA		: 45 / 56	Running kW	: 21.3
			Running kVA	: 24.9
Site Rated Max. SkW		: 53	Effective Step kW	: 39.0
Max. SkVA		: 221	Effective Step kVA	: 82.0

Voltage Distortion Site Rated Max Step kW Limit

Temp Rise at Full Load, °C

\*Note: Higher temperature rise at full rated load.

\*Note: All generator set power derates are based on open generator sets.

: 120

:

:

Note: GenSize output for lean burn natural gas generator sets is based on tests using natural gas with LHV of 33.44 mJ/Nm3 (905 BTU/ft3). and coolant return temperatures within the stated data sheet limits. For operation on gas with lower heating values or with MI lower than stated Data Sheet limit or coolant return temperatures greater than Data Sheet limits, consult application engineering.

Percent Non-Linear Load

**Voltage Distortion Limit** 

Max Step kW

: 0.0

:

:



#### Recommended Generator Report - C70 N6

Project - City of Edgewater Lift Station 2

Comments - Created for Steven Treesh @ EDA by M. Rojas on 04/18/24.

#### (2) 25HP Pumps (FVNR) + 5kVA Misc. Load. (2) Steps.

				Project Re	equirements				
Frequency, Hz			:	60.0	Generators Running in	Parallel	: 1		
Duty			:	Standby	Site Altitude, ft(m)		: 1	000(305)	
Voltage			•	120/240. Series Delta	Site Temperature, °C		: 3	2	
Phase				3	Max. Altr Temp Rise. °C	2	: 1	25	
Fuel				NaturalGas	Project Voltage Distort	ion Limit %		20	
Emissions				EPA stationary emergency	Toject Voltage Distortion Linit, 7		•		
Linissions			•	application					
		Calcu	ulat	ed Individual Generator Set	Load Running and Peak	Requirements			
Running kW	:	46.4		Max. Step kW	: 42.9 In Step 1	Cumulative Step	kW	: 64	.1
Running kVA	:	52.6		Max. Step kVA	: 152.5 In Step 1	Cumulative Step	kV/	<b>A</b> :17	6.3
Running PF	:	0.88		Peak kW	: None	Cumulative Peal	< kW	! : No	one
Running NLL kVA	:	0.0		Peak kVA	: None	Cumulative Peal	κ kV/	A : No	one
Alternator kW	:	46.38				Pct Rated Capac	ity	: 65	.7
				Generator Se	t Configuration				
Alternator			:	UC2G	Engine		:	QSJ5.9G-G3	
BCode			:	B986	Fuel		:	NaturalGas	
Excitation			:	PMG	Displacement, cu in. (Litre)		:	359.0(5.9)	
Voltage Range			:	220/440-240/480	Cylinders : 6		6		
Number of Leads			:	6	Altitude Knee, ft(m)		:	8500(2591)	
Reconnectable			:	Yes	Altitude Slope, % per 1000ft(304.8m)		:	4	
Full Single Phase Output			÷	No	Temperature Knee, °F(°C)		:	104(40)	
Extended Stack			÷	No	Temperature Slope, % per 18 F(10.0°C)				art 60
			•		Cooling Package		:		
S	et F	Perform	an	ce	5	Load Requiren	nent	S	
Running At			:	65.7% Rated Capacity					
Max. Step Voltage Dip, %			:	23	Max. Allowed Step Volt	age Dip	: 2	5 In Step 1	
Max. Step Frequency Dip, %			:	8	Max. Allowed Step Free	quency Dip	: 1	0 In Step 1	
Peak Voltage Dip, %			:		Peak Voltage Dip Limit	%	: 2	.5.0	
Peak Frequency Dip, %			:		Peak Frequency Dip Lip	mit %	: 1	0	
Site Rated Standby kW/kVA			:	70 / 88	Running kW		: 4	6.4	
-					- Running kVA		: 5	2.6	

Max. SkVA	: 306
Temp Rise at Full Load, °C	: 120
Voltage Distortion	:
Site Rated Max Step kW Limit	:

: 103

*Note: Higher temperature rise at full rated load.
*Note: All generator set power derates are based on open generator sets.

Site Rated Max. SkW

Note: GenSize output for lean burn natural gas generator sets is based on tests using natural gas with LHV of 33.44 mJ/Nm3 (905 BTU/ft3). and coolant return temperatures within the stated data sheet limits. For operation on gas with lower heating values or with MI lower than stated Data Sheet limit or coolant return temperatures greater than Data Sheet limits, consult application engineering.

Effective Step kW

Effective Step kVA

Max Step kW

Percent Non-Linear Load

Voltage Distortion Limit

: 60.4

: 169.9

: 0.0

:

:

#### **Specification sheet**



# Spark-ignited generator set

45–100 kW Standby EPA emissions

#### **Description**

Cummins<sup>®</sup> generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary Standby applications.

#### **Features**

**Gas engine** - Rugged 4-cycle Cummins QSJ5.9G spark-ignited engine delivers reliable power. The electronic air/fuel ratio control provides optimum engine performance and fast response to load changes.

**Alternator** - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

**Control system** - The PowerCommand<sup>®</sup> 1.1 electronic control is standard equipment and provides total generator set system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance. The PowerCommand 2.3 control is also optional and is UL 508 Listed and provides AmpSentry<sup>™</sup> protection.



**Cooling system** - Standard cooling package provides reliable running at up to 50  $^{\circ}$ C (122  $^{\circ}$ F) ambient temperature.

**Enclosures** - The aesthetically appealing enclosure incorporates special designs that deliver one of the quietest generators of its kind. Aluminium material plus durable powder coat paint provides the best anti-corrosion performance. The generator set enclosure has been evaluated to withstand 180 MPH wind loads in accordance with ASCE7 -10. The design has hinged doors to provide easy access for service and maintenance.

**NFPA** - The generator set accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

**Warranty and service** - Backed by a comprehensive warranty and worldwide distributor network.

	Natur	al gas	Prop	oane	
	Standby		Standby		
Model	kW	kVA	kW	kVA	Data sheets
C45 N6	<mark>45</mark>	56	45	56	NAD-6093-EN
C50 N6	50	63	50	63	NAD-6094-EN
C60 N6	60	75	60	75	NAD-6095-EN
C70 N6	<mark>70</mark>	88	70	88	NAD-6096-EN
C80 N6	80	100	80	100	NAD-6097-EN
C100 N6	100	125	100	125	NAD-6098-EN

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#### **Generator set specifications**

Governor regulation class	ISO8528 Part 1 Class G3
Voltage regulation, no load to full load	± 1.0%
Random voltage variation	± 1.0%
Frequency regulation	Isochronous
Random frequency variation	± 0.25% @ 60 Hz
Radio frequency emissions compliance	Meets requirements of most industrial and commercial applications

#### **Engine specifications**

Design	Naturally aspirated or turbocharged (varies by generator set model)
Bore	102.1 mm (4.02 in.)
Stroke	119.9 mm (4.72 in.)
Displacement	5.9 liters (359 in <sup>3</sup> )
Cylinder block	Cast iron, in-line 6 cylinder
Battery capacity	850 amps at ambient temperature of 0 °F to 32 °F (-18 °C to 0 °C)
Battery charging alternator	52 amps
Starting voltage	12 volt, negative ground
Lube oil filter type(s)	Spin-on with relief valve
Standard cooling system	50 °C (122 °F) ambient cooling system
Rated speed	1800 rpm

#### **Alternator specifications**

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Direct coupled, flexible disc
Insulation system	Class H per NEMA MG1-1.65
Standard temperature rise	120 °C (248 °F) Standby
Exciter type	Torque match (shunt) with PMG as option
Alternator cooling	Direct drive centrifugal blower
AC waveform Total Harmonic Distortion (THDV)	< 5% no load to full linear load, < 3% for any single harmonic
Telephone Influence Factor (TIF)	< 50 per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	< 3%

#### **Available voltages**

1-phase	3-phase							
• 120/240	• 120/208	• 120/240	• 277/480	• 347/600	• 127/220			

#### **Generator set options**

#### Fuel system

- Single fuel natural gas or propane vapor, field selectable
- Dual fuel natural gas and propane vapor auto changeover
- Low fuel gas pressure warning

#### Engine

- Engine air cleaner
- Shut down low oil pressure
- Extension oil drain
- Engine oil heater

#### Alternator

- 120 °C temperature rise alternator
- 105 °C temperature rise alternator
- PMG
- Alternator heater, 120 V
- Reconnectable full 1 phase output alternator

#### Control

- AC output analog meters
- Stop switch emergency
- Auxiliary output relays (2)
- Auxiliary configurable signal inputs (8) and relay outputs (8)

#### Electrical

- One, two or three circuit breaker configurations
- 80% rated circuit breakers
- 100% rated LSI circuit breakers
- Battery charger

#### Enclosure

- Sound Level 1 or Level 2 enclosure, sandstone or green color
- Weather protective enclosure with muffler installed, green color
- Winter protective enclosure, green color

#### Cooling system

- Shutdown low coolant level
- Warning low coolant level
- Extension coolant drain
- Coolant heater options: - <4  $^{\circ}$ C (40  $^{\circ}$ F) – cold weather - <-17  $^{\circ}$ C (0  $^{\circ}$ F) – extreme cold

#### Exhaust system

- Exhaust connector NPT
- Exhaust muffler mounted

#### Generator set application

- Base barrier elevated genset
- Battery rack, standard battery
- Battery rack, larger battery
- Radiator outlet duct adapter

#### Warranty

- Base warranty 2 year/1000 hours, Standby
- 3 year Standby warranty options
- 5 year Standby warranty options

#### **Generator set accessories**

- Coolant heaters 1000 W/1500 W
- Battery rack, standard/larger battery
- Battery heater kit
- Engine oil heater
- Remote control displays
- Auxiliary output relays (2)
  Auxiliary configurable signal
- inputs (8) and relay outputs (8) • Annunciator – RS485

#### **Control system PowerCommand 1.1**



**PowerCommand control** is an integrated generator set control system providing voltage regulation, engine protection, operator interface and isochronous governing (optional). Major features include:

- Battery monitoring and testing features and smart starting control system.
- Standard PCCNet interface to devices such as remote annunciator for NFPA 110 applications.
- Control boards potted for environmental protection.
- Control suitable for operation in ambient temperatures from -40 °C to +70 °C (-40 °F to +158 °F) and altitudes to 5000 meters (13,000 feet).
- Prototype tested; UL, CSA, and CE compliant.
- InPower™ PC-based service tool available for detailed diagnostics.

#### Operator/display panel

- · Manual off switch
- Alpha-numeric display with pushbutton access for viewing engine and alternator data and providing setup, controls and adjustments (English or international symbols)
- LED lamps indicating generator set running, not in auto, common warning, common shutdown, manual run mode and remote start
- Suitable for operation in ambient temperatures from -40  $^\circ\!C$  to +70  $^\circ\!C$
- Bargraph display (optional)

#### **AC** protection

- Over current warning and shutdown
- Over and under voltage shutdown
- Over and under frequency shutdown
- Over excitation (loss of sensing) fault
- · Field overload

#### **Engine protection**

- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- · Low coolant level warning or shutdown

- Remote monitoring device PowerCommand 500/550
- Battery charger stand-alone, 12 V
- Circuit breakers
- Enclosure Sound Level 1 to Sound Level 2 upgrade kit
- Base barrier elevated generator set
- Mufflers industrial, residential or critical
  - Low coolant temperature warning
  - · High, low and weak battery voltage warning
  - Fail to start (overcrank) shutdown
  - · Fail to crank shutdown
  - Redundant start disconnect
  - Cranking lockout
  - Sensor failure indication
  - Low fuel level warning or shutdown

#### Alternator data

- Line-to-Line and Line-to-neutral AC volts
- 3-phase AC current
- Frequency
- Total kVa

#### Engine data

- DC voltage
- Lube oil pressure
- Coolant temperature
- Engine speed

#### Other data

- Generator set model data
- Start attempts, starts, running hours
- Fault history
- RS485 Modbus® interface
- Data logging and fault simulation (requires InPower service tool)

#### **Digital governing (optional)**

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

#### **Digital voltage regulation**

- Integrated digital electronic voltage regulator
- 2-phase Line-to-Line sensing
- Configurable torgue matching

#### **Control functions**

- Time delay start and cooldown
- Cycle cranking
- PCCNet interface
- (2) Configurable inputs
- (2) Configurable outputs
- Remote emergency stop
- Automatic Transfer Switch (ATS) control
- Generator set exercise, field adjustable

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#### Alternator PMG

Alternator heater

#### Options

- Auxiliary output relays (2)
- Remote annunciator with (3) configurable inputs and (4) configurable outputs
- PMG alternator excitation
- PowerCommand 500/550 for remote monitoring and alarm notification (accessory)
- Auxiliary, configurable signal inputs (8) and configurable relay outputs (8)

#### **Ratings definitions**

#### **Emergency Standby Power (ESP):**

Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

#### Limited-Time Running Power (LTP):

Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

#### Prime Power (PRP):

Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

#### Base Load (Continuous) Power (COP):

Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

- Digital governing
- AC output analog meters (bargraph)
  - Color-coded graphical display of:
    - 3-phase AC voltage
    - 3-phase current
    - Frequency
    - kVa
- Remote operator panel
- PowerCommand 2.3 control with AmpSentry protection



This outline drawing is for reference only. See respective model data sheet for specific model outline drawing number.

#### Do not use for installation design

Model	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Set weight*wet kg (lbs.)				
Open set								
C45 N6	2489 (98)	1016 (40)	1473 (58)	989 (2180)				
C50 N6	2489 (98)	1016 (40)	1473 (58)	989 (2180)				
C60 N6	2489 (98)	1016 (40)	1473 (58)	1103 (2431)				
C70 N6	2489 (98)	1016 (40)	1473 (58)	1111 (2449)				
C80 N6	2489 (98)	1016 (40)	1473 (58)	1173 (2587)				
C100 N6	2489 (98)	1016 (40)	1473 (58)	1233 (2719)				
	We	eather protective enclos	ure					
C45 N6	2489 (98)	1016 (40)	1473 (58)	1070 (2359)				
C50 N6	2489 (98)	1016 (40)	1473 (58)	1070 (2359)				
C60 N6	2489 (98)	1016 (40)	1473 (58)	1184 (2610)				
C70 N6	2489 (98)	1016 (40)	1473 (58)	1192 (2628)				
C80 N6	2489 (98)	1016 (40)	1473 (58)	1255 (2766)				
C100 N6	2489 (98)	1016 (40)	1473 (58)	1315 (2898)				
	Sound	attenuated enclosure	Level 1					
C45 N6	<u>3023 (119)</u>	1016 (40)	<mark>1473 (58)</mark>	<mark>1114 (2455)</mark>				
C50 N6	3023 (119)	1016 (40)	1473 (58)	1114 (2455)				
C60 N6	3023 (119)	1016 (40)	1473 (58)	1227 (2706)				
C70 N6	<mark>3023 (119)</mark>	<mark>1016 (40)</mark>	<mark>1473 (58)</mark>	<mark>1236 (2724)</mark>				
C80 N6	3023 (119)	1016 (40)	1473 (58)	1298 (2862)				
C100 N6	3023 (119)	1016 (40)	1473 (58)	1358 (2994)				
	Sound	attenuated enclosure	Level 2	1				
C45 N6	3454 (136)	1016 (40)	1473 (58)	1127 (2485)				
C50 N6	3454 (136)	1016 (40)	1473 (58)	1127 (2485)				
C60 N6	3454 (136)	1016 (40)	1473 (58)	1241 (2736)				
C70 N6	3454 (136)	1016 (40)	1473 (58)	1249 (2754)				
C80 N6	3454 (136)	1016 (40)	1473 (58)	1312 (2892)				
C100 N6	3454 (136)	1016 (40)	1473 (58)	1372 (3024)				
	W	inter protective enclosu	ıre					
C45 N6	3701 (146)	1016 (40)	1473 (58)	1152 (2535)				
C50 N6	3701 (146)	1016 (40)	1473 (58)	1152 (2535)				
C60 N6	3701 (146)	1016 (40)	1473 (58)	1266 (2786)				
C70 N6	3701 (146)	1016 (40)	1473 (58)	1275 (2804)				
C80 N6	3701 (146)	1016 (40)	1473 (58)	1337 (2942)				
C100 N6	3701 (146)	1016 (40)	1473 (58)	1397 (3074)				

\* Weights above are average. Actual weight varies with product configuration.

#### **Codes and standards**

Codes or standards compliance may not be available with all model configurations - consult factory for availability.

P	The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.		The generator set is available Listed to UL 2200, Stationary Engine Generator Assemblies.
International Building Code	The generator set is certified to International Building Code (IBC) 2012.	SP.	All low voltage models are CSA certified to product class 4215-01.
ISO 9001	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.	U.S. EPA	Engine certified to U.S. EPA SI Stationary Emission Regulation 40 CFR, Part 60.

**Warning:** Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

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#### **Generator set data sheet**



Model:	C45 N6
Frequency:	60 Hz
Fuel type:	Natural gas/propane
kW rating:	45 natural gas Standby 45 propane Standby
Emissions level:	EPA Emissions

	Natural gas Standby				Propane Standby			
<b>Fuel consumption</b>	kW (kVA)				kW (kVA)			
Ratings	45 (56)				45 (56)			
Load	1/4 1/2 3/4 <b>Full</b>			Full	1/4	1/2	3/4	Full
scfh	326.1	449.9	583.6	711.2	137.5	187.8	233.1	289.6
m³/hr	9.2	12.7	16.5	20.1	3.9	5.3	6.6	8.2

Engine	Natural gas Standby rating	Propane Standby rating		
Engine model	QSJ5.9G-G1			
Configuration	Cast iron, in-line 6 cylinder			
Aspiration	Naturally aspirated			
Gross engine power output, kWm (bhp)	hp) 63.2 (84.7)			
Bore, mm (in.)	re, mm (in.) 102.1 (4.02)			
Stroke, mm (in.)	119.9 (4.72)			
Rated speed, rpm	1800			
Compression ratio	8.5:1			
Lube oil capacity, L (qt)	14.2 (15)			
Overspeed limit, rpm	2250			

#### **Fuel supply pressure**

Minimum operating pressure, kPa (in H <sub>2</sub> O)	<b>1.5 (6.0)</b>
Maximum operating pressure, kPa (in H <sub>2</sub> O)	<b>3.2 (13.0)</b>

Air	Natural gas Standby rating	Propane Standby rating
Combustion air, m <sup>3</sup> /min (scfm)	3.3 (115.3)	3.0 (107.3)
Maximum normal duty air cleaner restriction, kPa (in $H_2O$ )	0.4 (1.5)	
Maximum heavy duty air cleaner restriction, kPa (in $H_2O$ )	3.7 (15)	

Exhaust	Natural gas Standby rating	Propane Standby rating
Exhaust flow at rated load, m <sup>3</sup> /min (cfm)	11.1 (391.2)	10.6 (375.2)
Exhaust temperature, °C (°F)	735.3 (1355.6)	746.7 (1376.1)
Exhaust maximum back pressure, kPa (in H <sub>2</sub> O)	4 (16.1)	4 (16.1)

#### Standard set-mounted radiator cooling<sup>1</sup>

Ambient design, °C (°F)	50 (122)
Fan load, kW (HP)	5.2 (7)
Coolant capacity (with radiator), L (US gal)	16 (4.2)
Cooling system air flow, m <sup>3</sup> /min (scfm)	158.6 (5600)
Maximum cooling air flow static restriction, kPa (in H <sub>2</sub> O)	0.12 (0.5)

#### Weights<sup>2</sup>

Treights	
Unit dry weight kgs (lbs)	1031 (2273)
Unit wet weight kgs (lbs)	1070 (2359)

#### Notes:

<sup>1</sup> For non-standard remote installations contact your local Cummins representative.

<sup>2</sup> Weights represent a set with standard features. See outline drawing for weights of other configurations.

#### **Alternator data**

Standard alterr	nators	Natural gas/propane single phase table		Full single phase output, reconnectable				
Maximum temperature rise above 40 °C ambient		120 °C	120 °C	120 °C	120 °C	120 °C	120 °C	120 °C
Feature code		BB90-2	B986-2	B946-2	B943-2	B952-2	BB86-2	BB88-2
Alternator data sheet number		ADS-203	ADS-202	ADS-202	ADS-202	ADS-202	ADS-202	ADS-203
Voltage ranges		120/240	120/240	120/208	277/480	347/600	127/220	120 - 480
Voltage feature code		R104-2	R106-2	R098-2	R002-2	R114-2	R020-2	Varies by voltage
Surge kW		49.5	51.3	51.3	51.9	51.9	51.5	Varies by voltage
Motor starting	Shunt	188	163	163	163	163	163	188
kVA (at 90% sustained voltage)	PMG	191	191	191	191	191	221	272
Full load current at Standby ratin	t amps g	188	135	156	68	54	148	Varies by voltage

#### Alternator data (continued)

Optional altern for improved si capability	ators tarting	Natural gas/propane single phase table	Natural gas/propane three phase table					Full single phase output, reconnectable
Maximum temperature rise above 40 °C ambient		105 °C	105 °C	105 °C	105 °C	105 °C	105 °C	105 °C
Feature code		BB91-2	BB94-2	BB93-2	BB95-2	BB92-2	BB85-2	BB87-2
Alternator data sheet number		ADS-203	ADS-203	ADS-203	ADS-202	ADS-202	ADS-203	ADS-204
Voltage ranges		120/240	120/240	120/208	277/480	347/600	127/220	120 - 480
Voltage feature code		R104-2	R106-2	R098-2	R002-2	R114-2	R020-2	Varies by voltage
Surge kW		49.5	52.0	52.0	51.9	51.9	52.3	Varies by voltage
Motor starting	Shunt	181	188	188	163	163	163	231
kVA (at 90% sustained voltage)	PMG	221	221	221	191	191	221	272
Full load current amps at Standby rating		188	135	156	68	54	148	Varies by voltage

#### **Derating factors**

Natural gas/propane

	Engine power available up to 670 m (2200 ft) at ambient temperatures up to 40 °C (104 °F).
Standby	Above these elevations derate at 4% per 305 m (1000 ft) and 2% per 10 °C above 40 °C
	(104 °F).

#### **Ratings definitions**

Emergency Standby	Limited-Time Running	Prime Power (PRP):	Base Load (Continuous)
Power (ESP):	Power (LTP):		Power (COP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.	Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

#### Formulas for calculating full load currents:

#### Three phase output

Single phase output

kW x 1000

kW x SinglePhaseFactor x 1000

Voltage x 1.73 x 0.8

Voltage

**Warning**: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

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#### Generator set data sheet



Model:	C70 N6
Frequency:	60 Hz
Fuel type:	Natural gas/propane
kW rating:	70 natural gas Standby 70 propane Standby
Emissions level:	EPA Emissions

	<mark>Natural gas</mark> Standby				Propane Standby			
Fuel consumption	kW (kVA)				kW (kVA)			
Ratings	70 (88)				70 (88)			
Load	1/4 1/2 3/4 <b>Full</b>				1/4	1/2	3/4	Full
scfh	406.4	596.7	796.0	970.0	168.8	245.7	311.1	390.0
m³/hr	11.51	16.9	22.54	27.47	4.78	6.98	8.81	11.04

Engine	Natural gas Standby rating	Propane Standby rating		
Engine model	QSJ5.9G-G3			
Configuration	Cast iron, in-line 6 cylinder			
Aspiration	Turbocharged and after-cooled			
Gross engine power output, kWm (bhp)	121.3 (162.7)			
Bore, mm (in.)	102.1 (4.02)			
Stroke, mm (in.)	119.9 (4.72)			
Rated speed, rpm	1800			
Compression ratio	8.5:1			
Lube oil capacity, L (qt.)	14.2 (15)			
Overspeed limit, rpm	2250			

#### Fuel supply pressure

Minimum operating pressure, kPa (in H <sub>2</sub> O)	<b>1.5 (6.0)</b>
Maximum operating pressure, kPa (in H <sub>2</sub> O)	<b>3.2 (13.0)</b>

Air	Natural gas Standby rating	Propane Standby rating
Combustion air, m <sup>3</sup> /min (scfm)	6.9 (244.6)	6.9 (245.3)
Maximum normal duty air cleaner restriction, kPa (in H <sub>2</sub> O)	0.4 (1.5)	0.4 (1.5)
Maximum heavy duty air cleaner restriction, kPa (in H <sub>2</sub> O)	3.7 (15)	3.7 (15)

Exhaust	Natural gas Standby rating	Propane Standby rating
Exhaust flow at rated load, m3/min (cfm)	21.2 (749.9)	19.6 (690.8)
Exhaust temperature, °C (°F)	635.2 (1175.3)	645.6 (1194.1)
Exhaust maximum back pressure, kPa (in H <sub>2</sub> O)	7 (28.1)	7 (28.1)

#### Standard set-mounted radiator cooling<sup>1</sup>

Ambient design, ℃ ( ℉)	50 (122)
Fan load, kW (HP)	9 (12)
Coolant capacity (with radiator), L (US gal)	16 (4.2)
Cooling system air flow, m <sup>3</sup> /min (scfm)	218.0 (7700)
Maximum cooling air flow static restriction, kPa (in H <sub>2</sub> O)	0.12 (0.5)

#### Weights<sup>2</sup>

Weights	
Unit dry weight kgs (lbs)	1153 (2542)
Unit wet weight kgs (lbs)	1192 (2628)

#### Notes:

<sup>1</sup> For non-standard remote installations contact your local Cummins representative.

<sup>2</sup> Weights represent a set with standard features. See outline drawing for weights of other configurations.

#### **Alternator data**

Standard alterr	nators	Natural gas/propane single phase table	Natural gas/p	Natural gas/propane three phase table					
Maximum temperature rise above 40 ℃ ambient		120 ℃	120 ℃	120 ℃	120 ℃	120 ℃	120 ℃	120 ℃	
Feature code		BB90-2	B986-2	B946-2	B943-2	B952-2	BB86-2	BB88-2	
Alternator data sheet number		ADS-205	ADS-205	ADS-205	ADS-204	ADS-204	ADS-204	ADS-207	
Voltage ranges		120/240	120/240	120/208	277/480	347/600	127/220	120 - 480	
Voltage feature code		R104-2	R106-2	R098-2	R002-2	R114-2	R020-2	Varies by voltage	
Surge kW		99.5	102.8	102.8	102.8	102.8	102.2	Varies by voltage	
Motor starting	Shunt	260	260	260	231	231	231	360	
kVA (at 90% sustained voltage)	PMG	306	306	306	272	272	272	423	
Full load current at Standby ratin	t amps g	292	211	243	105	84	230	Varies by voltage	

#### Alternator data (continued)

Optional altern for improved s capability	ators tarting	Natural gas/propane single phase table		Natural gas/propane three phase table				
Maximum temperature rise above 40 ℃ ambient		105 ℃	105 ℃	105 ℃	105 ℃	105 ℃	105 ℃	105 ℃
Feature code		BB91-2	BB94-2	BB93-2	BB95-2	BB92-2	BB85-2	BB87-2
Alternator data sheet number		ADS-206	ADS-205	ADS-205	ADS-205	ADS-205	ADS-205	ADS-207
Voltage ranges		120/240	120/240	120/208	277/480	347/600	127/220	120 - 480
Voltage feature code		R104-2	R106-2	R098-2	R002-2	R114-2	R020-2	Varies by voltage
Surge kW		97.7	102.8	102.8	103.6	103.6	103.6	Varies by voltage
Motor starting	Shunt	313	260	260	260	260	260	360
kVA (at 90% sustained voltage)	PMG	368	306	306	306	306	306	423
Full load current at Standby ratin	t amps g	292	211	243	105	84	230	Varies by voltage

#### **Derating factors**

#### Natural gas/propane

Standby	Engine power available up to 2591 m (8500 ft.) at ambient temperatures up to 40 °C (104 °F). Above these elevations derate at 4% per 305 m (1000 ft.) and 2% per 10 °C above 40 °C (104 °F).

#### **Ratings definitions**

Emergency Standby Power (ESP):	Limited-Time Running Power (LTP):	Prime Power (PRP):	Base Load (Continuous) Power (COP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.	Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

#### Formulas for calculating full load currents:

#### Three phase output

#### Single phase output

kW x 1000 Voltage x 1.73 x 0.8

kW x Single Phase Factor x 1000 Voltage

**Warning**: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

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# **SECTION 3** GENERATOR DRAWINGS AND INTERCONNECTS









#### Table 11: Circuit Breakers

																							<del></del>
Circuit Breaker		150	) A	H-Fra	ame		25	A C	J-Fi	rame	•	40	0 A	L-Fr	ame		60	AC	L-Fr	rame	)	1200 A	L-Frame
Circuit Breaker Type		HD	HG	HJ	HL	HR	JD	JG	JJ	JL	JR	LD	LG	LJ	LL	LR	LD	LG	LJ	LL	LR	LG	LL
Number of poles <sup>1</sup>		2, 3				3	2, 3	3			3	3, 4	1				3, 4	ŀ				4	
Amperage Range (A)		15-1	150				70-	250				70-	400				200	-600	)			700-120	0
UL 489 Circuit Breaker	Ratings																						
Breaking Canacity	240 Vac	25	65	100	125	200	25	65	100	125	200	25	65	100	125	200	25	65	100	125	200	—	—
(AIR)	480 Vac	18	35	65	100	200	18	35	65	100	200	18	35	65	100	200	18	35	65	100	200	—	—
	600 Vac	14	18	25	50	100	14	18	25	50	100	14	18	25	50	100	14	18	25	50	100	—	—
(kA rms)	250 Vdc <sup>2</sup>	20	20	20	20	—	20	20	20	20	—	—	-	—	—	—	—	—	—	—	—	—	—
	500 Vdc <sup>2, 3</sup>	-	20	-	50	_	-	20	—	-	50	-	20	—	—	50	—	20	-	20	—	20	50
IEC 947-2 Circuit Break	ker Ratings	_	_								_			_	-	-	_	_	_			_	
	220/240 Vac	25	65	100	125	150	25	65	100	125	150	25	65	100	125	150	25	65	100	125	150	—	-
	380/415 Vac	18	35	65	100	125	18	35	65	100	125	18	35	65	100	125	18	35	65	100	125	—	—
Ultimate breaking	440/480 Vac	18	35	65	100	125	18	35	65	100	125	18	35	65	100	125	18	35	65	100	125	—	—
capacity (Icu)	500/525 Vac	14	18	25	50	75	14	18	25	50	75	14	18	25	50	75	14	18	25	50	754	—	—
(kA rms)	690 Vac	—	—	—	—	20	-	—	—	—	20	—	—	—	—	20	—	—	—	—	20	—	—
	250 Vdc <sup>2</sup>	—	—	—	—	—	20	20	20	20	—	—	—	—	—	—	—	—	—	—	—	—	—
	500 Vdc <sup>2, 3</sup>	—	—	—	—	—	20	20	20	20	—	—	—	—	—	—	—	—	—	—	—	—	—
Service breaking capacity (Ics)	% Icu	100	%				100	)%				100	)%		-		100	)%				—	-
Insulation Voltage	Vi	750	Vac	;			750	) Va	с			750	) Va	2			750	) Va	2			-	—
Impulse Withstand Voltage	V <sub>imp</sub>	8 k\	/ac				8 k'	Vac				8 k	Vac				8 k'	Vac				_	-
Operational Voltage	Ve	690	Vac	;			690	) Va	с			690	) Va	2			690	Vad	2			-	-
Sensor Rating	In	150	Α				250	) A (				400	) A				600	A				—	-
Utilization Category		A		A					A					A					-	_			
Operations (Open-Clos	e Cvcles)																					ļ	
Without Current	, , , , , , , , , , , , , , , , , , ,	400	0				500	00				500	00				500	0				-	
With Current		400	0				100	00				100	00				100	00				<b> _</b>	
Protection and Measure	ements	ļ					1																
Short-circuit protection	Magnetic only	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	_
·	Thermal-magnetic	X	Х	X	Х	Х	X	Х	X	X	X	-	1—	-	—	—	-	—	—	—	—	Х	X
	Electronic	X	Х	X	Х	Х	X	Х	X	X	X	X	X	X	Х	Х	X	X	X	X	X	—	-
Overload/short-circuit	with neutral protection (Off-0.5-1-OSN) <sup>5</sup>	х	х	x	х	х	x	х	х	х	х	x	x	x	х	х	x	х	х	х	х	_	_
protection	with ground fault protection	х	х	x	х	х	x	х	х	х	x	x	x	x	х	х	x	х	х	х	х	_	_
	with zone selective interlocking (ZSI) <sup>6</sup>	х	х	х	х	х	х	х	х	х	х	x	х	x	х	х	x	х	х	х	х	_	-
Display / I, V, f, P, E, TH	D measurements /	х	х	x	х	х	x	х	х	х	х	x	x	x	х	х	x	x	х	х	х	_	-
	Front display module (FDM121)	х	х	x	х	х	x	х	х	х	х	x	x	x	х	х	х	x	х	х	х	_	-
	Operating assistance	Х	Х	Х	Х	Х	X	Х	X	X	Х	X	X	X	Х	Х	X	X	Х	Х	X	—	_
Options	Counters	Х	X	X	Х	Х	X	Х	Х	X	Х	X	X	X	Х	Х	X	X	X	X	X	—	_
- 1	Histories and alarms	x	Х	X	X	Х	X	Х	X	X	X	X	X	X	Х	Х	X	x	x	X	X	—	_
	Metering Com	x	Х	X	x	X	X	Х	x	X	X	X	X	X	Х	Х	X	x	x	X	X	_	_
	Device status/control com	x	Х	X	X	х	x	Х	x	x	x	X	x	x	х	х	X	x	x	x	x	_	<u> </u>
Dimensions / Weight / 0	Connections			<u> </u>	I		1			1	1		1					1		1	1	1	
Dimensions	Height	6.4	(163	3)			7.5	(19	1)			13.	38 (;	340)			13.	38 (3	340)			13.38 (3	40)
(Three-Pole Unit	Width	4.1	(104	)			4.1	(10)	4)			5.5	1 (14	10)			5.5	1 (14	10)			5.51 (14	0)
Mount) in. (mm)	Depth	3.4	(86)	/			3.4	(86)	)			4.3	3 (1	10)			4.3	3 (11	10)			4.33 (11	0)
Weight - Ib. (Kg)		4.8	(2.2)	)			5.3	(2.4	, .)			13.	2 (6.	0)			13.	7 (6.	2)			13.7 (6.2	2)
	Unit Mount	X	、— <b>-</b> – ,				X	· ·	/			X	- (51	.,			X	,••	-,			X	,
	I-Line	X					X					X					x			<u> </u>			
Connections /	Bear Connection	x					X					X					X			X7			
Terminations	Plug-In	x					X					X					x					_	
	Drawout	x					X					X					X					<u> _</u>	
	Optional Lugs	X					X					X					X					-	

<sup>1</sup> H and J-frame breakers with Micrologic trip units available only with three poles. The HJ, HL and the J-Frame two pole circuit breakers are three pole modules.

<sup>2</sup> DC not available with PowerPact H, J or L-frame circuit breakers with Micrologic trip units.

<sup>3</sup> 500 Vdc specific catalog numbers, ungrounded UPS systems only.

 $^4$   $\,$  I\_{\rm CS} for 600 A L-frame circuit breaker at 525 V is 19 kA.

<sup>5</sup> OSN: Over Sized Neutral protection for neutrals carrying high currents (e.g. 3rd harmonics).

<sup>6</sup> ZSI using restraint wires.

<sup>7</sup> Rear connection is not available for 700–1200 A four pole L-frame circuit breakers.

#### PowerPact<sup>™</sup> H-, J-, and L-Frame Circuit Breakers Circuit Breakers

#### Table 16: H-Frame 150 A and J-Frame 250 A Electronic Trip UL Rated Circuit Breakers (600 Vac, 50/60 Hz) With Factory Sealed Trip Unit Suitable for Reverse Connection

Electronic Trip Unit			Sensor	Interrupting Ratin	g				
Туре	Function	Trip Unit	Rating	D	G	J1	L <sup>2</sup>	R <sup>2</sup>	
Standard (	80%) Rated C	Circuit Break	ers, 3P		•	:	•		
			60 A <sup>3</sup>	HDL36060U31X	HGL36060U31X	HJL36060U31X	HLL36060U31X	HRL36060U31X	
Otenaland		0.02	100 A <sup>3</sup>	HDL36100U31X	HGL36100U31X	HJL36100U31X	HLL36100U31X	HRL36100U31X	
Standard		3.24	150 A <sup>3</sup>	HDL36150U31X	HGL36150U31X	HJL36150U31X	HLL36150U31X	HRL36150U31X	
			250 A <sup>4</sup>	JDL36250U31X	JGL36250U31X	JJL36250U31X	JLL36250U31X	JRL36250U31X	
			60 A <sup>3</sup>	HDL36060U33X	HGL36060U33X	HJL36060U33X	HLL36060U33X	HRL36060U33X	
Chandord		2.002	100 A <sup>3</sup>	HDL36100U33X	HGL36100U33X	HJL36100U33X	HLL36100U33X	HRL36100U33X	
Standard	LSI	3.254	150 A <sup>3</sup>	HDL36150U33X	HGL36150U33X	HJL36150U33X	HLL36150U33X	HRL36150U33X	
			250 A <sup>4</sup>	JDL36250U33X	JGL36250U33X	JJL36250U33X	JLL36250U33X	JRL36250U33X	
			60 A <sup>3</sup>	HDL36060U43X	HGL36060U43X	HJL36060U43X	HLL36060U43X	HRL36060U43X	
		5.04	100 A <sup>3</sup>	HDL36100U43X	HGL36100U43X	HJL36100U43X	HLL36100U43X	HRL36100U43X	
Ammeter	LSI	5.2A	150 A <sup>3</sup>	HDL36150U43X	HGL36150U43X	HJL36150U43X	HLL36150U43X	HRL36150U43X	
			250 A <sup>4</sup>	JDL36250U43X	JGL36250U43X	JJL36250U43X	JLL36250U43X	JRL36250U43X	
			60 A <sup>3</sup>	HDL36060U53X	HGL36060U53X	HJL36060U53X	HLL36060U53X	HRL36060U53X	
<b>F</b>		5.05	100 A <sup>3</sup>	HDL36100U53X	HGL36100U53X	HJL36100U53X	HLL36100U53X	HRL36100U53X	
Energy	LSI		5.2E	150 A <sup>3</sup>	HDL36150U53X	HGL36150U53X	HJL36150U53X	HLL36150U53X	HRL36150U53X
			250 A <sup>4</sup>	JDL36250U53X	JGL36250U53X	JJL36250U53X	JLL36250U53X	JRL36250U53X	
			60 A <sup>3</sup>	HDL36060U44X	HGL36060U44X	HJL36060U44X	HLL36060U44X	HRL36060U44X	
A	1.010		100 A <sup>3</sup>	HDL36100U44X	HGL36100U44X	HJL36100U44X	HLL36100U44X	HRL36100U44X	
Ammeter	LSIG	6.2A	150 A <sup>3</sup>	HDL36150U44X	HGL36150U44X	HJL36150U44X	HLL36150U44X	HRL36150U44X	
			250 A <sup>4</sup>	JDL36250U44X	JGL36250U44X	JJL36250U44X	JLL36250U44X	JRL36250U44X	
			60 A <sup>3</sup>	HDL36060U54X	HGL36060U54X	HJL36060U54X	HLL36060U54X	HRL36060U54X	
_		0.05	100 A <sup>3</sup>	HDL36100U54X	HGL36100U54X	HJL36100U54X	HLL36100U54X	HRL36100U54X	
Energy	LSIG	6.2E	150 A <sup>3</sup>	HDL36150U54X	HGL36150U54X	HJL36150U54X	HLL36150U54X	HRL36150U54X	
			250 A <sup>4</sup>	JDL36250U54X	JGL36250U54X	JJL36250U54X	JLL36250U54X	JRL36250U54X	
100% Rate	d Circuit Bre	akers, 3P <sup>5</sup>			•		÷		
			60 A <sup>3</sup>	HDL36060CU31X	HGL36060CU31X	HJL36060CU31X	HLL36060CU31X	HRL36060CU31X	
Otom double		2.02	100 A <sup>3</sup>	HDL36100CU31X	HGL36100CU31X	HJL36100CU31X	HLL36100CU31X	HRL36100CU31X	
Standard		3.24	150 A <sup>3</sup>	HDL36150CU31X	HGL36150CU31X	HJL36150CU31X	HLL36150CU31X	HRL36150CU31X	
			250 A <sup>4</sup>	JDL36250CU31X	JGL36250CU31X	JJL36250CU31X	JLL36250CU31X	JRL36250CU31X	
			60 A <sup>3</sup>	HDL36060CU33X	HGL36060CU33X	HJL36060CU33X	HLL36060CU33X	HRL36060CU33X	
Oto a doubl		0.002	100 A <sup>3</sup>	HDL36100CU33X	HGL36100CU33X	HJL36100CU33X	HLL36100CU33X	HRL36100CU33X	
Standard	LSI	3.252	150 A <sup>3</sup>	HDL36150CU33X	HGL36150CU33X	HJL36150CU33X	HLL36150CU33X	HRL36150CU33X	
			250 A <sup>4</sup>	JDL36250CU33X	JGL36250CU33X	JJL36250CU33X	JLL36250CU33X	JRL36250CU33X	
			60 A <sup>3</sup>	HDL36060CU43X	HGL36060CU43X	HJL36060CU43X	HLL36060CU43X	HRL36060CU43X	
		5.04	100 A <sup>3</sup>	HDL36100CU43X	HGL36100CU43X	HJL36100CU43X	HLL36100CU43X	HRL36100CU43X	
Ammeter	151	J.ZA	150 A <sup>3</sup>	HDL36150CU43X	HGL36150CU43X	HJL36150CU43X	HLL36150CU43X	HRL36150CU43X	
			250 A <sup>4</sup>	JDL36250CU43X	JGL36250CU43X	JJL36250CU43X	JLL36250CU43X	JRL36250CU43X	
			60 A <sup>3</sup>	HDL36060CU53X	HGL36060CU53X	HJL36060CU53X	HLL36060CU53X	HRL36060CU53X	
		EOE	100 A <sup>3</sup>	HDL36100CU53X	HGL36100CU53X	HJL36100CU53X	HLL36100CU53X	HRL36100CU53X	
∟nergy	LOI	D.ZE	150 A <sup>3</sup>	HDL36150CU53X	HGL36150CU53X	HJL36150CU53X	HLL36150CU53X	HRL36150CU53X	
			250 A <sup>4</sup>	JDL36250CU53X	JGL36250CU53X	JJL36250CU53X	JLL36250CU53X	JRL36250CU53X	

<sup>1</sup> UL Listed/CSA Certified as current limiting circuit breakers.

 $^2$   $\,$  3P circuit breakers with this trip unit can be used for 2P applications.

<sup>3</sup> Standard Lug Kit: AL150HD Terminal Wire Range: 14–3/0 AWG AI or Cu

<sup>4</sup> Standard Lug Kit: AL250JD Terminal Wire Range: 3/0 AWG–350 kcmil Al or Cu

For smaller wire range (4–4/0 AWG AI or Cu), replace the lug's wire binding screws with the larger binding screws provided.

<sup>5</sup> 100% rated circuit breakers have copper lugs and can be used with copper wire only.

I SQUARE D

Table 17:	J-Frame 250 A Mission Critical Electronic Trip UL Rated Circuit Breakers
	(3P, 480Y/277 Vac, 50/60 Hz) With Factory Sealed Trip Unit Suitable for Reverse Connection

Ele	ctronic Trip	Unit	Sensor	Sensor Interrupting Rating <sup>1</sup>				
Туре	Function	Trip Unit	Rating	D	G	J	L	
Standard (80	%) Rated Circu	uit Breakers, 3	P					
Standard	LI	3.2-W	250 A	JDL34250WU31X	JGL34250WU31X	JJL34250WU31X	JLL34250WU31X	
Standard	LSI	3.2S-W	250 A	JDL34250WU33X	JGL34250WU33X	JJL34250WU33X	JLL34250WU33X	
Ammeter	LSI	5.2A-W	250 A	JDL34250WU43X	JGL34250WU43X	JJL34250WU43X	JLL34250WU43X	
Energy	LSI	5.2E-W	250 A	JDL34250WU53X	JGL34250WU53X	JJL34250WU53X	JLL34250WU53X	
Ammeter	LSIG	6.2A-W	250 A	JDL34250WU44X	JGL34250WU44X	JJL34250WU44X	JLL34250WU44X	
Energy	LSIG	6.2E-W	250 A	JDL34250WU54X	JGL34250WU54X	JJL34250WU54X	JLL34250WU54X	

<sup>1</sup> Standard Lug Kit: AL250JD Terminal Wire Range: 3/0 AWG–350 kcmil Al or Cu

For smaller wire range (4-4/0 AWG AI or Cu), replace the lug's wire binding screws with the larger binding screws provided.



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Use this page only on H & J frame breakers if going thru engineering for LI, LSI., etc trip units. H & J breakers from factory are thermal magnetic. See next page.

#### PowerPact H-, J-, and L-frame Circuit Breaker Trip Units

	Micrologic	Trip Unit (X =	= Standard F	eature, O = A	vailable Op	tion
Features	Star	ndard	Amn	neter	Ene	ergy
	3.2/3.3	3.2S/3.3S	5.2A/5.3A	6.2A/6.3A	5.2E/5.3E	6.2E/6.3E
LI	Х					
LSI <sup>1</sup>		X	Х		Х	
LSIG/Ground Fault Trip <sup>2</sup>				Х		Х
Ground-Fault Alarm Trip				Х		Х
Current Settings Directly in Amperes	Х	X	Х	Х	Х	Х
True RMS Sensing	Х	X	Х	Х	Х	Х
UL Listed	Х	X	Х	Х	Х	Х
Thermal Imaging	Х	X	Х	Х	Х	Х
LED for Long-Time Pickup	Х	X	Х	Х	Х	х
LED for Long-Time Alarm	Х	X	Х	Х	Х	х
LED Green "Ready" Indicator	X	X	Х	X	Х	x
Up to 12 Alarms Used Together			Х	Х	Х	Х
Digital Ammeter			Х	Х	Х	х
Zone-Selective Interlocking <sup>3</sup>			Х	Х	Х	х
Communications	0	0	0	0	0	0
LCD Display			Х	Х	Х	х
Front Display Module FDM121			0	0	0	0
Advanced User Interface			Х	Х	Х	х
Neutral Protection			Х	Х	Х	х
Contact Wear Indication <sup>4</sup>			Х	Х	Х	х
Incremental Fine Tuning of Settings			Х	Х	Х	х
Load Profile <sup>4</sup> , <sup>5</sup>			Х	Х	Х	Х
Power Measurement					Х	Х
Power Quality Measurements					Х	Х

#### Table 12: Micrologic Trip Unit Features

<sup>1</sup> The LSI with 3.2S/3.3S trip units have fixed short time and long time delays.

<sup>2</sup> Requires neutral current transformer on three-phase four-wire loads.

<sup>3</sup> ZSI for H/J-frame devices is only OUT. ZSI for L-frame devices is IN and OUT.

<sup>4</sup> Indication available using the communication system only.

 $^5~$  % of hours in 4 current ranges: 0–49%, 50–79%, 80–89%, and >90%  $\rm I_n.$ 

#### **Thermal-Magnetic or Electronic Trip Unit?**

Thermal-magnetic trip units (available on H- and J-frame circuit breakers only) protect against overcurrents and short-circuits using tried and true techniques. For applications requiring installation optimization and energy efficiency, electronic trip units offering more advanced protection functions combined with measurements.

Trip units using digital electronics are faster as well as more accurate. Wide setting ranges make installation upgrades easier. Designed with processing capabilities, Micrologic trip units can provide measurement information and device operating assistance. With this information, users can avoid or deal more effectively with disturbances and can play a more active role in system operation. They can manage the installation, anticipate events and plan any necessary servicing.

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Trip Unit Type	Trip Unit	H-, J-Frame	Trip Unit	L-Frame Trip Unit
Distribution Protection Thermal-Magnetic	T-M	250A   200   1	N/A	
Distribution Protection	Micrologic 3.2 and 3.2-W		Micrologic 3.3 and 3.3-W	هُوَ الْوَقَ مَعْنَ         Merologic 1.3           المعالية المعاليمعالية المعاليلمعالية المعالية المعالية المعاليمعاليمعالية المعال
Distribution Protection LSI Fixed ST and LT delays	Micrologic 3.2S and 3.2S-W		Micrologic 3.3S and 3.3S-W	3,35 Mordogic
Distribution Protection LSI + Ammeter	Micrologic 5.2 A and 5.2 A-W		Micrologic 5.3 A and 5.3 A-W	5.3 A Micologic
Distribution Protection LSI + Energy Monitoring	Micrologic 5.2 E and 5.2 E-W		Micrologic 5.3 E and 5.3 E-W	
Distribution Protection LSIG + Ammeter	Micrologic 6.2 A and 6.2 A-W		Micrologic 6.3 A and 6.3 A-W	
Distribution Protection LSIG + Energy Monitoring	Micrologic 6.2 E and 6.2 E-W		Micrologic 6.3 E and 6.3 E-W	
Motor Circuit Protection Magnetic Only	М	TA Barrison March Tage Strategy of Mathieum	N/A	
Motor Protection Micrologic 1 M	N/A		Micrologic 1.3M	1.3 M Mordagie
Motor Protection Micrologic 2 M	Micrologic 2.2 M	Image: Specific specif	Micrologic 2.3 M	Image: Street of the street

#### Table 62: Trip Unit Availability

NOTE: W = mission critical trip unit.



#### Figure 110: Micrologic 3.2S and 3.2S-W Electronic Trip Unit Long Time / Short Time Trip Curve



#### MICROLOGIC™ ELECTRONIC TRIP UNITS Micrologic™ 3.2S and 3.2S-W Long Time/Short Time Trip Curve 250A J-Frame

The time-current curve information is to be used for application and coordination purposes only.

- Notes:
- There is a thermal-imaging effect that can act to shorten the long-time delay. The thermal imaging effect comes into play if a current above the long-time delay pickup value exists for a time and then is cleared by the tripping of a downstream device or the circuit breaker itself. A subsequent overload will cause the circuit breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately 20 minutes is required between overloads to completely reset thermal-imaging.
- Total clearing times shown include the response times of the trip unit, the circuit breaker opening, and the extinction of the current.
- Curves apply from -35°C to +70°C (-31°F to +158°F) ambient temperature.



#### **PowerPact H-, J-, and L-Frame Circuit Breakers** Trip Curves

Figure 111: Micrologic 3.2, 3.2-W, 3.2S, 3.2S-W, 5.2A, 5.2A-W, 5.2E, 5.2E-W, 6.2A, 6.2A-W, 6.2E, and 6.2E-W Electronic Trip Curve Instantaneous Trip Curve



#### MICROLOGIC<sup>™</sup> ELECTRONIC TRIP UNITS Micrologic<sup>™</sup> 3.2, 3.2-W, 3.2S, 3.2S-W, 5.2A, 5.2A-W, 5.2E, 5.2E-W, 6.2A, 6.2A-W, 6.2E, and 6.2E-W Instantaneous Trip Curve 250A J-Frame

The time-current curve information is to be used for application and coordination purposes only.

Notes:

- 1. There is a thermal-imaging effect that can act to shorten the long-time delay. The thermal imaging effect comes into play if a current above the long-time delay pickup value exists for a time and then is cleared by the tripping of a downstream device or the circuit breaker itself. A subsequent overload will cause the circuit breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately 20 minutes is required between overloads to completely reset thermal-imaging.
- Total clearing times shown include the response times of the trip unit, the circuit breaker opening, and the extinction of the current.
- 3. In = Maximum dial setting of Ir. 250A J-Frame: In = 250A = Max Ir setting
- Curves apply from -35°C to +70°C (-31°F to +158°F) ambient temperature.



# **START-UP AND WARRANTY**



#### Cummins Sales and Service Customer / Contractor Pre Commissioning Inspection Form

The intent of this form is for the contractor to prepare for equipment to be commissioned by a certified Cummins Field Service Power Generation Technician. Filling out this form is required and will minimize delays due to equipment failing to meet requirements. Completing this checklist in its entirety should minimize the need for additional billing beyond the previously provided commissioning quote.

The items listed are the responsibility of the contractor and not Cummins Sales and Service.

Project Name/End User:					
Contractor:					
Address:	Contact:				
Dusiness Dhones					
Business Phone:					
Email:					
ON SITE INFORMATION					
On-Site Contact Information:					
Address:		_			
Time Requested Onsite:					
Sub location of Generator (ie. Ro	oof, basement, floor):				
Does the facility have the following:	Loading Dock Elevator				
Access (from truck and load bank parking to generator in feet):					
Parking: Is parking available on-si	te for service truck: Yes No				
Permits: Have all necessary air quality and local permits been secured: Yes No N/A					
Fuel Tank Testing: Is fuel tank testing required: Yes No					
If yes when is the inspecto	r scheduled for:				



#### **ON SITE INFORMATION CONTINUED**



Is the facility occupied and is customer aware there will be power outages after generator is started?

Will there be any site safety training needed for technician prior to beginning? On site contact for training: \_\_\_\_\_

Will customer representative be on site for operator training?

On site contact for operator training: \_

#### MECHANICAL LOCATION AND PLACEMENT OF THE GENERATOR SET



Generator is properly secured to pad or vibration isolators

Generator Enclosure and/or Room is free of all debris

No airflow obstructions to the engine or generator are present for cooling combustion

(See Cummins T-030 or Installation manual of generator set)

Room is designed for adequate inlet and outlet airflow

#### GASEOUS FUEL Natural Gas/LP Vapor/LP Liquid



Natural gas and/or LPG fuel supply is connected.

Fuel pressure after service regulator is: \_\_\_\_\_\_inches of H2O

I have read and fully understand the fuel requirements for this equipment, I am verifying that the piping and fuel supply meets or exceeds those requirements. I also understand failure to meet the requirements will result in additional charges.

Contractor "requestor" Signature

Date



#### **DIESEL FUELED GENERATORS**



Flexible fuel connections, (supply and return) are connected to generator and piping.

Day tank installed, wired and plumbed (lines free of obstruction) to genset and main fuel tank if applicable. Only black iron pipe for fuel lines, never use copper or galvanized pipe.

All tanks filled with enough fuel to perform startup and testing.

A return line from engine to day tank and day tank to main tank should be in place

# EXHAUST SYSTEM YES NA NO Image: Second system in the system is second system is second

#### **GENERATOR ELECTRICAL CONNECTIONS**





#### **GENERATOR ELECTRICAL CONNECTIONS CONTINUED**



Where is annunciator located?

Are there additional ancillary devices/equipment that need to be integrated into the system? If yes, please define\_\_\_\_\_

Battery charger mounted (free of vibration, weather, accessible for an operator to observe easily) and connected to the appropriate AC and DC wiring to operate the charger.

#### TRANSFER SWITCH ELECTRICAL CONNECTIONS



Conductors connected for Utility, Load and Emergency

Remote start interconnection **<u>stranded</u>** wiring is installed between the generator set and the automatic transfer switch(s).

Four Pole Transfer Switch: Is generator neutral grounded?

#### DAY OF STARTUP

YES	NA	NO

Training of facility personnel will be done on the same day as start up. Additional trips for operational training will be an additional charge. Can transfer switch be tested at time of generator startup? (There will be a power interruption) **Note:** *After hours testing could result in additional charges.* If the associated switchgear and/or ATS(s) are not provided by Cummins, will the manufacturer's representative be on site?

Exercise with or without load? \_\_\_\_\_

If known, Transfer Time delay set recommendations Generator Set to exercise Day:\_\_\_\_\_

Contractor "requestor" Signature

Printed Name

Time:

Date: \_\_\_\_\_

Please complete this form and return to schedule start up, if not returned within 5 business days prior to scheduled startup it may be delayed. I understand that the start-up date may have to be rescheduled at my expense if the above items have not been completed properly.



# Warranty Statement

# **Global Commercial Warranty Statement**

**Generator Set** 



#### **Limited Warranty**

#### **Commercial Generating Set**

This limited warranty applies to all Cummins Power Generation® branded commercial generating sets and associated accessories (hereinafter referred to as "Product").

This warranty covers any failures of the Product, under normal use and service, which result from a defect in material or factory workmanship.

#### Warranty Period:

The warranty start date<sup>†</sup> is the date of initial start up, first rental, demonstration or 18 months after factory ship date, whichever is sooner. See table for details.

**Continuous Power (COP)** is defined as being the maximum power which the generating set is capable of delivering continuously whilst supplying a constant electrical load when operated for an unlimited number of hours per year. No overload capability is available for this rating.

**Prime Power (PRP)** is defined as being the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year. The permissible average power output over 24 hours of operation shall not exceed 70% of the PRP. For applications requiring permissible average output higher than stated, a COP rating should be used.

**Limited-Time Running Power (LTP)** is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500 hours of operation per year.

**Emergency Standby Power (ESP)** is defined as the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 500 hours of operation per year. The permissible average power output over 24 hours of operation shall not exceed 70% of the ESP.

Environmental Protection Agency – Stationary Emergency (EPA-SE) is defined as being the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generator set is capable of delivering in the event of a utility power outage or under test conditions and used in strict accordance with the EPA NSPS for stationary engines, 40 CFR part 60, subparts IIII and JJJJ, where a reliable utility must be present. The permissible average power output over 24 hours of operation shall not exceed 70% of the EPA-SE.

**Data Center Continuous (DCC)** is defined as the maximum power which the generator is capable of delivering continuously to a constant or varying electrical load for unlimited hours in a data center application.

		uis misij	
Rating	Months	Max. Hours	
COP	12	Unlimited	
PRP	12	Unlimited	
LTP	12	500 hrs	
ESP	24	1000 hrs	
EPA-SE	24	Unlimited	
DCC	24	Unlimited	

#### Base Warranty Coverage Duration (Whichever occurs first)

<sup>†</sup> Warranty start date for designated rental and oil and gas model Products is determined to be date of receipt of Product by the end customer.

## Cummins Power Generation® Responsibilities:

In the event of a failure of the Product during the warranty period due to defects in material or workmanship, Cummins Power Generation® will only be responsible for the following costs:

- All parts and labor required to repair the Product.
- Reasonable travel expenses to and from the Product site location.
- Maintenance items that are contaminated or damaged by a warrantable failure.

#### **Owner Responsibilities:**

The owner will be responsible for the following:

- Notifying Cummins Power Generation® distributor or dealer within 30 days of the discovery of failure.
- Installing, operating, commissioning and maintaining the Product in accordance with Cummins Power Generation®'s published policies and guidelines.
- Providing evidence for date of commissioning.
- Providing sufficient access to and reasonable ability to remove the Product from the installation in the event of a warrantable failure.
- Incremental costs and expenses associated with Product removal and reinstallation resulting from non-standard installations.
- Costs associated with rental of generating sets used to replace the Product being repaired.
- Costs associated with labor overtime and premium shipping requested by the owner.
- All downtime expenses, fines, all applicable taxes, and other losses resulting from a warrantable failure.

#### Limitations:

This limited warranty does not cover Product failures resulting from:

- Inappropriate use relative to designated power rating.
- Inappropriate use relative to application guidelines.
- Inappropriate use of an EPA-SE application generator set relative to EPA's standards.
- Normal wear and tear.
- Improper and/or unauthorized installation.
- Negligence, accidents or misuse.
- Lack of maintenance or unauthorized repair.
- Noncompliance with any Cummins Power Generation® published guideline or policy.
- Use of improper or contaminated fuels, coolants or lubricants.
- Improper storage before and after commissioning.
- Owner's delay in making Product available after notification of potential Product problem.
- Replacement parts and accessories not authorized by Cummins Power Generation®.
- Use of Battle Short Mode.
- Owner or operator abuse or neglect such as: operation without adequate coolant or lubricants; overfueling; overspeeding; lack of maintenance to lubricating, cooling or air intake systems; late servicing and maintenance; improper storage, starting, warm-up, run-in or shutdown practices, or for progressive damage resulting from a defective shutdown or warning device.

 Damage to parts, fixtures, housings, attachments and accessory items that are not part of the generating set.

This limited warranty does not cover costs resulting from:

- Difficulty in gaining access to the Product.
- Damage to customer property.

A "Data center" is defined as a dedicated facility that house computers and associated equipment for data storage and data handling.

Reliable utility is defined as utility power without routine or regularly scheduled black-outs.

Please contact your local Cummins Power Generation® Distributor for clarification concerning these limitations.

## CUMMINS POWER GENERATION® RIGHT TO FAILED COMPONENTS:

Failed components claimed under warranty remain the property of Cummins Power Generation®. Cummins Power Generation® has the right to reclaim any failed component that has been replaced under warranty.

#### **Extended Warranty:**

Cummins Power Generation® offers several levels of Extended Warranty Coverage. Please contact your local Cummins Power Generation ® Distributor for details.

www.power.cummins.com

THE WARRANTIES SET FORTH HEREIN ARE THE SOLE WARRANTIES MADE BY CUMMINS POWER GENERATION ® IN REGARD TO THE PRODUCT. CUMMINS POWER GENERATION® MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

#### IN NO EVENT IS CUMMINS POWER GENERATION® LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

This limited warranty shall be enforced to the maximum extent permitted by applicable law. This limited warranty gives the owner specific rights that may vary from state to state or from jurisdiction to jurisdiction.

Product Model Number:	
Product Serial Number:	
Date in Service:	



# **Warranty Statement**

## **Transfer Switch Extended Warranty**

## Limited 2 Year Comprehensive Extended Warranty – G004

#### **Transfer Switch and Paralleling Systems**

When purchased, this limited extended warranty applies to all Cummins Power Generation® branded Transfer Switches, Paralleling Systems and associated accessories (hereinafter referred to as "Product").

This warranty covers any failures of the Product, under normal use and service, which result from a defect in material or factory workmanship.

#### Warranty Period:

The warranty start date is the date of initial start up, first rental, demonstration or 18 months after factory ship date, whichever is sooner. The coverage duration is 2 years from warranty start date.

## Cummins Power Generation® Responsibilities:

In the event of a failure of the Product during the extended warranty period due to defects in material or workmanship, Cummins Power Generation® will only be responsible for the following costs:

- All parts and labor required to repair the Product.
- Reasonable travel expenses to and from the Product site location.
- Maintenance items that are contaminated or damaged by a warrantable failure.

#### **Owner Responsibilities:**

The owner will be responsible for the following:

- Notifying Cummins Power Generation® distributor or dealer within 30 days of the discovery of failure.
- Installing, operating, commissioning and maintaining the Product in accordance with Cummins Power Generation®'s published policies and guidelines.
- Providing evidence for date of commissioning.
- Providing sufficient access to and reasonable ability to remove the Product from the installation in the event of a warrantable failure.

In addition, the owner will be responsible for:

- Incremental costs and expenses associated with Product removal and reinstallation resulting from non-standard installations.
- Costs associated with rental of generating sets used to replace the Product being repaired.
- Costs associated with labor overtime and premium shipping requested by the owner.
- All downtime expenses, fines, all applicable taxes, and other losses resulting from a warrantable failure.

#### Limitations:

This limited extended warranty does not cover Product failures resulting from:

- Inappropriate use relative to designated power rating.
- Inappropriate use relative to application guidelines.
- Failures due to normal wear, corrosion, varnished fuel system parts, lack of reasonable and necessary maintenance, unauthorized modifications and/or repair, and use of add-on or modified parts.
- Improper and/or unauthorized installation.
- Owner's or operator's negligence, accidents or misuse.
- Noncompliance with any Cummins Power Generation® published guideline or policy.
- Improper storage before and after commissioning.
- Owner's delay in making Product available after notification of potential Product problem.
   Limitations Continued:
  - Replacement parts and accessories not authorized by Cummins Power Generation®.
  - Use of Battle Short Mode
  - Owner or operator abuse or neglect such as: operation without adequate coolant or

lubricants; overfueling; overspeeding; lack of maintenance to lubricating, cooling or air intake systems; late servicing and maintenance; improper storage, starting, warm-up, run-in or shutdown practices, or for progressive damage resulting from a defective shutdown or warning device.

 Damage to parts, fixtures, housings, attachments and accessory items that are not part of the generating set.

This limited extended warranty does not cover costs resulting from:

- Difficulty in gaining access to the Product.
- Damage to customer property.
- Repair of cosmetic damage to enclosures.

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## CUMMINS POWER GENERATION® RIGHT TO FAILED COMPONENTS:

Failed components claimed under warranty remain the property of Cummins Power Generation®. Cummins Power Generation® has the right to reclaim any failed component that has been replaced under warranty.

THE WARRANTIES SET FORTH HEREIN ARE THE SOLE WARRANTIES MADE BY CUMMINS POWER GENERATION ® IN REGARD TO THE PRODUCT. CUMMINS POWER GENERATION® MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

#### IN NO EVENT IS CUMMINS POWER GENERATION® LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

This limited extended warranty shall be enforced to the maximum extent permitted by applicable law. This limited extended warranty gives the owner specific rights that may vary from state to state or from jurisdiction to jurisdiction.

Product Model Number:\_\_\_\_\_

Product Serial Number:\_\_\_\_\_

Date in Service:\_\_\_\_\_