PowerCommand® X-Series Transfer Switch

PowerCommand® 80 Control
Automatic (Open/Closed Transition)
Non-Automatic

1000 A - 3000 A

Description

The X-Series transfer switches are designed for operation and switching of electrical loads between primary and alternate power sources. They can be used in utility-generator set, utility-utility, generator set-generator set, or three-source system (dual standby) application types.

The X-Series transfer switches are suitable for use in emergency, legally required and optional standby applications. The transfer switch monitors both power sources, signals the generator set to start and automatically transfers the load to the alternate power source. When the preferred power source returns and has stabilized, the load is automatically transferred back.

The X-Series transfer switches are available in closed transition operations. By briefly paralleling the two sources (for 100 ms or less), the transfer from the alternate source back to the normal source occurs without power interruption to the loads.

Features

Withstand and Closing Ratings (WCR) – The X-Series transfer switches have the highest UL1008 0.05 s (3 cycle) Time Duration and 0.5 s (30 cycle) Short-Time ratings in the industry. The high ratings provide the freedom to use any upstream overcurrent protective device to protect the transfer switch which vastly simplies the task of power system selective coordination.

PowerCommand® 80 control – A sophisticated, fully featured microprocessor-based control with LED backlit colored LCD display and tactile-feel soft-switches for easy operation and screen navigation.

3- Position mechanism – The 3-position mechanism allows for independent source actuation (i.e. source transfer is not dependent on the position of the opposing source). The transfer switch is either closed on Source 1, closed on Source 2 or in a center off, neutral position (not closed on either source). Thus, provides safe transfer operation for large stored energy loads by allowing the residual voltage to decay to a safe level before transfer.

Advanced transfer switch mechanism – Patented Blow-On design allows for high survivability in extreme fault current conditions. Actuator designed for high strength locking capability, ensuring electrical contacts remain closed when needed to be closed.

Main contacts – Heavy-duty silver alloy contacts used with multi-leaf arc chutes are rated for motor loads or total system load transfer.

Ease of service and access – Built-in plug-and-play control with minimized point-to-point connections and compatible terminal markings simplify servicing. Access space is ample. Door-mounted controls are field-programmable; no special tools are required.

Complete product line – Cummins is a single source supplier with full scope of systems offering, integration and capability.

Warranty and service - Products are backed by a comprehensive warranty and a worldwide network of distributors with factory-trained service technicians.

Model naming structure

Configuration Type
X = Transfer Switch

Rated Amperage
1000 A – 3000 A

Control
8 = PowerCommand® 80

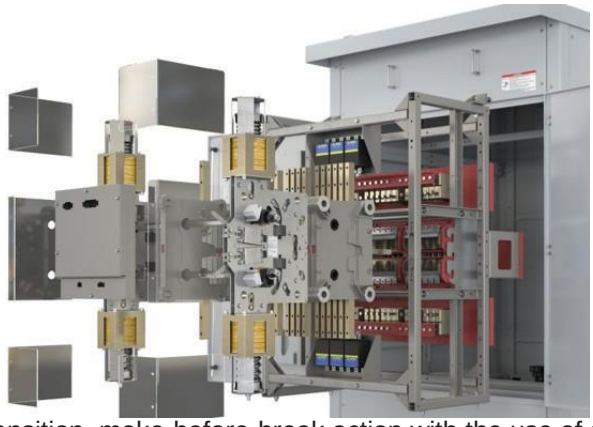
C X R 3000 H 8

Cummins

Frame
E – H

Mechanism
R = High Endurance Mechanism (E, F, G, H Frames)

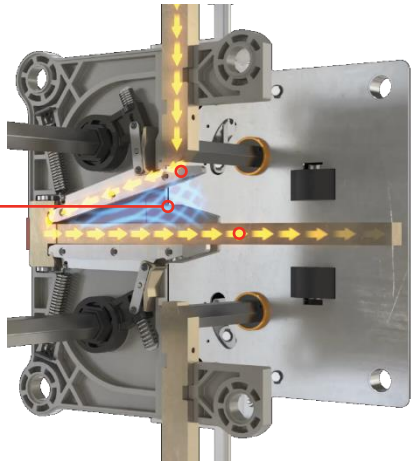
Transfer switch mechanism



- Transfer switch mechanism is electrically operated and mechanically held in the Source 1 and Source 2 positions. The transfer switch incorporates electrical and mechanical interlocks for open and programmed transition only to prevent inadvertent interconnection of the sources.
- Independent break-before-make action is used for both 3-pole and 4-pole / simultaneously switched neutral. This design allows use of sync check operation when required, or control of the operating speed of the transfer switch for proper transfer of motor and rectifier-based loads (programmed transition feature). For closed transition, transition, make-before-break action with the use of sync check allows for uninterrupted power when transferring between available sources.
- True 4-pole switching allows for proper ground (earth) fault sensing and consistent, reliable operation for the life of the transfer switch. The neutral poles of the transfer switch have the same ratings as the phase poles and are operated by a common crossbar mechanism, eliminating the possibility of incorrect neutral operation at any point in the operating cycle, or due to failure of a neutral operator.
- High pressure silver alloy contacts resist burning and pitting. Separate arcing surfaces further protect the main contacts. Contact wear is reduced by multiple leaf arc chutes that cool and quench the arcs. Barriers separate the phases to prevent interphase flashover. A transparent protective cover allows visual inspection while inhibiting inadvertent contact with energized components.
- Switch mechanism, including contact assemblies, is UL 1008 certified to verify suitability for applications requiring high endurance switching capability for the life of the transfer switch. Withstand and closing ratings are validated using the same set of contacts, further demonstrating the robust nature of the design.

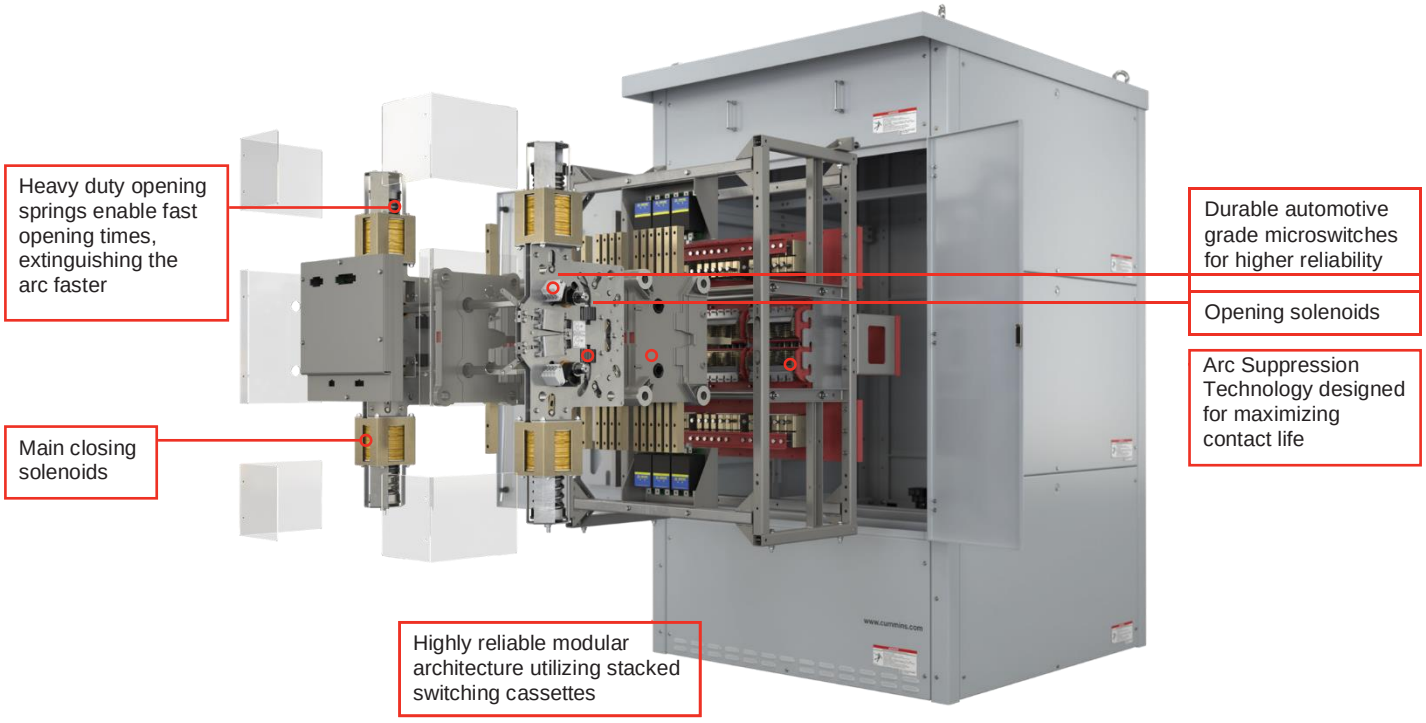
High Endurance Mechanism power cassette

- Cassette design ensures that all phases and neutral are switched at the same speed, providing true four pole operation.
- Encapsulated contactor design increases phase to phase isolation and reduces possibility of arcing between phases.
- New design eliminates a common failure point in many transfer switches by not using electrical connections made of braided metal in the mechanism's current path.
- Simple design with fewer parts minimizes failure modes and maximizes product reliabilty.



The innovative design of the High Endurance Mechanism

The High Endurance Mechanism (HEM) is designed to minimize the contact damage during a fault condition thus retaining its capability to carry up to 100 % of its rated load. Electromagnetic forces developed during a fault cause a conventional transfer switch's contacts to blow open, producing destructive arcing that often results in extensive internal damage to the switch. Typically, after a conventional switch experiences a fault, its contacts, arc chutes and in some cases its control needs to be replaced. On the other hand, the blow-on technology utilized by the HEM, uses that same electromagnetic energy to hold the contacts closed during a fault, practically eliminating arcing, contact damage, and performance degradation. With the high short-time ratings of this innovative blow-on technology, costly repairs or inconvenient downtime can be minimized after a fault.



One control for complete simplicity

- The revolutionary PowerCommand® 80 transfer switch control delivers unrivaled adaptability, connectivity and intelligence.
- Highly advanced and customizable control designed to work in a wide variety of applications.
- Intuitive, easy to navigate HMI with color display.
- Integrated advanced high-accuracy metering with harmonic analysis capability provides a simplified but highly accurate way to monitor and detect power quality problems and also capture energy usage data.
- Integrated automatic load management capability provides the ability to easily set up downstream load management schemes without the need for additional hardware or complicated setup.
- Fully integrated networking solutions (Modbus® RS485 and TCP/IP communications).
    - Remote monitoring via PowerCommand Cloud™ with the use of an external gateway.
- Integrated control dc power supply provides the capability to connect up to three independent dc sources.
- Detailed event logging with enhanced fault codes, alert lists, power event history, and source statistics enhances diagnostic capability during service events and provides the ability to meet any reporting requirements.
- Please see the PowerCommand® 80 control specification sheet for the full description, benefits and features.

Specifications

Voltage rating	Up to 600 Vac, 50 or 60 Hz
Arc interruption	Multiple leaf arc chutes provide dependable arc interruption.
Neutral bar	A full current-rated solid neutral bar with lugs is optional on enclosed 3-pole transfer switches.
Auxiliary contacts	Two isolated contacts (one for each source) indicating switch position are provided for customer use. Contacts are normally open, and close to indicate connection to the source. Wired to terminal block for easy access. Rated at 10 A continuous and 250 Vac maximum. An additional two contacts are available with the premium Customer I/O option. UL recognized, and CSA-certified.
Operating temperature	-40 ˚F (-40 ˚C) to 140 ˚F (60 ˚C)
Storage temperature	-40 ˚F (-40 ˚C) to 140 ˚F (60 ˚C)
Humidity	Up to 95 % relative, non-condensing
Altitude	Up to 10,000 ft (3,048 m) without derating
Surge withstand ratings	Voltage surge performance and testing in compliance with the requirements of IEEE C62.41 (Category B3) and IEEE C62.45.
Total transfer time (source-to-source)	Will not exceed 6 cycles at 60 Hz with normal voltage applied to the actuator and without programmed transition enabled.
Manual operation*	Transfer switch mechanisms are equipped with means to manually transfer. All sources must be de-energized before manual operation is attempted.

* See Operator Manual for further details.

UL 1008 short-circuit withstand/closing (WCR) and short-time current ratings

Amperage Rating (A)	E Frame		F Frame		G Frame		H Frame	
	0.05 s [3-cycle] (kA)	0.5 s [30-cycle] (kA)	0.05 s [3-cycle] (kA)	0.5 s [30-cycle] (kA)	0.05 s [3-cycle] (kA)	0.5 s [30-cycle] (kA)	0.05 s [3-cycle] (kA)	0.5 s [30-cycle] (kA)
	All WCR values are at 600 Vac and below							
1000	85	65						
1200	85	65	100	85				
1600			100	85	125	100		
2000					125	100		
2600							150	125
3000							150	125

All 0.05 seconds (3-cycle) ratings are the short-circuit WCR and all 0.5 seconds (30-cycle) ratings are short-time current ratings.

Mechanical cable lug capacity

Frame	Amperage Rating (A)	Maximum Cables Per Phase	Size	Part Number
E	1000-1200	4	1/0 - 750 MCM	0332-3036
F	1200-1600	6		A059T589
G	1600-2000	8		A058P583
H	2600-3000			A054S076, A054S078

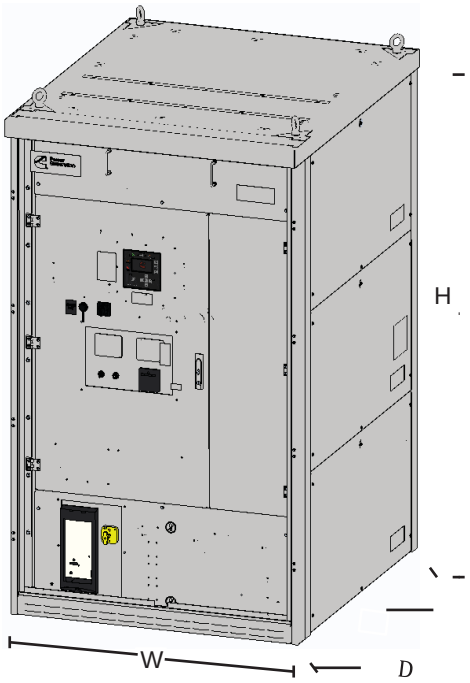
All lugs are 90 °C rated and accept copper or aluminium wire unless indicated otherwise.
Refer to the latest NFPA 70 Article 310 - Conductors for general wiring for the ampacity calculations.

Compression cable lug capacity

Size (MCM)	Maximum Cables per Phase				Part Number	Manufacturer/ Model Number
	E Frame	F Frame	G Frame	H Frame		
750	4	5	6	8	A058X606**	BURNDY/ YA39A5

* Configurable option
Additional hardware is required for compression lug installation. Refer to lug installation drawing for more details. All lugs are 90 °C rated and accept copper or aluminium wire unless indicated otherwise.
Refer to the latest NFPA 70 Article 310 - Conductors for general wiring for the ampacity calculations.

Enclosure dimensions



Frame	Amperage Rating (A)	Measurements		NEMA Rated Enclosures for Indoor		NEMA Rated Enclosures for Indoor & Outdoor		
				Type 1	Type 12	Type 3R	Type 4	Type 4X
E	1000-1200	Dimension (mm/in)	W	1006.0/39.6	992.0/39.1	1006.0/39.6	992.0/39.1	
			D	1242.0**/48.9**	1221.0/48.1	1242.0**/48.9**	1221.0/48.1	
			H	2359.0*/92.9*	2370.0*/93.3*	2359.0*/92.9*	2370.0*/93.3*	
		Approximate Weight$_{max}$ (kg/lb)		816.5/1800.0	725.8/1600.0	816.5/1800.0	725.8/1600.0	
F	1200-1600	Dimension (mm/in)	W	1193.0/47.0	1179.0/46.4	1193.0/47.0	1179.0/46.4	
			D	1462.0**/57.6**	1406.0/55.4	1462.0**/57.6**	1406.0/55.4	
			H	2359.0*/92.9*	2370.0*/93.3*	2359.0*/92.9*	2370.0*/93.3*	
		Approximate Weight$_{max}$ (kg/lb)		1088.6/2400.0	997.9/2200.0	1088.6/2400.0	997.9/2200.0	
G	1600-2000	Dimension (mm/in)	W	1177.0/46.4	1179.0/46.4	1177.0/46.4	1179.0/46.4	
			D	1462.0**/57.6**	1406.0/55.4	1462.0**/57.6**	1406.0/55.4	
			H	2359.0*/92.9*	2370.0*/93.3*	2359.0*/92.9*	2370.0*/93.3*	
		Approximate Weight$_{max}$ (kg/lb)		1134.0/2500.0	1043.3/2300.0	1134.0/2500.0	1043.3/2300.0	
H	2600-3000	Dimension (mm/in)	W	1402.0/55.2	ETO***	1402.0/55.2	ETO***	
			D	1650.0**/65.0**		1650.0**/65.0**		
			H	2357.0*/92.8*		2357.0*/92.8*		
		Approximate Weight$_{max}$ (kg/lb)		1351.7/2980.0		1351.7/2980.0		

* Dimension includes additional height for lifting hooks provided with the enclosure.
** Dimension considers additional depths for a roof that overhangs from the front wall of the enclosure.
*** ETO stands for engineer-to-order. For this special order, please consult your local distributor/dealer.
Type 12/3R/4/4X enclosures are secure front designed for greater protection from the elements and vandals.

Enclosure access for cable installation and maintenance

Frame	Amperage Rating (A)	Access				
		Type 1	Type 3R	Type 4	Type 4X	Type 12
E	1000-1200	Front				
F	1200-1600	Rear or Both Sides		Rear		
G	1600-2000					
H	2600-3000			ETO*		

* ETO stands for engineer-to-order. For this special order, please consult your local distributor/dealer.
Ensure minimum working space clearance is maintained in front of the transfer switch per NEC.
Additional front clearance is needed to remove the mechanism. Refer to the outline drawing.
All frames allow for top and bottom cable entry.

X-Series drawing part numbers

Frame	Amperage Rating (A)	Outline Drawing		WCR Label		Wiring Diagram			
		Type 1 & 3R	Type 4,12 & 4X	0.05 s [3-cycle]	0.5 s [30-cycle]	Open/ Delayed Transition	Closed Transition	Interconnect U-G* & U-U**	Interconnect G-G****
E	1000-1200	A062H318	A063V894	A063N539	A063N538	A054H094	A060Z676	A062F795***	A062F805
F	1200-1600	A063V893	A063V895	A063N541	A063N540				
G	1600-2000	A062H320	A063V896	A063N543	A063N542				
H	2600-3000	A062A563	N/A	A061V902	A060N611				

* U-G stands for Utility-Generator Set
** U-U stands for Utility-Utility
*** Drawing contains wiring for NEC Start Integrity
**** G-G stands for Generator Set-Generator Set

Product codes for E-Frame submittal detail

Model
- ❒CXRE_CXR1000 1000 A, E frame
- ❒CXRE_CXR1200 1200 A, E frame

Transfer modes
- ❒CXRE_A077-7 Open transition/in-phase [STANDARD]
- ❒CXRE_A078-7 Open transition/time delayed (programmed)
- ❒CXRE_A079-7 Closed transition
- ❒CXRE_A088-7 Non-automatic transition

Poles
- ❒CXRE_A028-7 3-poles [STANDARD]
- ❒CXRE_A029-7 4-poles, switched neutral

Application
- ❒CXRE_A035-7 Utility to generator set [STANDARD]
- ❒CXRE_A036-7 Utility to utility
- ❒CXRE_A037-7 Generator set to generator set

Performance ratings
- ❒CXRE_A087-7 UL 1008 30-cycle short time withstand ratings
- ❒CXRE_H024-7 UL 1008 3-cycle withstand ratings [STANDARD]

Frequency
- ❒CXRE_A044-7 60 Hz [STANDARD]
- ❒CXRE_A045-7 50 Hz

Phase
- ❒CXRE_A090-7 3-phase, 3-wire (no neutral)
- ❒CXRE_A091-7 3-phase, 4-wire (solid or switched neutral)

Voltage
- ❒CXRE_R021-7 208 V
- ❒CXRE_R026-7 480 V
- ❒CXRE_R027-7 600 V

Cabinet
- ❒CXRE_B001-7 Type 1: Indoor use, provides some protection against dirt (similar to IEC type IP30) [STANDARD]
- ❒CXRE_B002-7 Type 3R: Intended for outdoor use, provides some protection from dirt, rain and snow (similar to IEC type IP34)
- ❒CXRE_B003-7 Type 4: Indoor or outdoor use, provides some protection from wind-blown dust and water spray (similar to IEC type IP65)
- ❒CXRE_B010-7 Type 12: Indoor use, some protection from dust (similar to IEC type IP61)
- ❒CXRE_B025-7 Type 4X: Stainless steel, indoor or outdoor use, provides some protection from corrosion (similar to IEC Type IP65)

Standards
- ❒CXRE_A064-7 UL/NFPA 20 fire pump compliant
- ❒CXRE_A080-7 IBC seismic certification
- ❒CXRE_A085-7 OSHPD seismic pre-approval certification
- ❒CXRE_S043-7 UL 1008 listing (includes UL listing for Canada) [STANDARD]

Control
- ❒CXRE_C109-7 PC80 control [STANDARD]

Control options
- ❒CXRE_D403-7 Integrated high accuracy power quality metering
- ❒CXRE_L214-7 Load shed from standby source
- ❒CXRE_M079 Integral control power supply

Customer input/output
- ❒CXRE_M076-7 Standard - 5 digital inputs, 6 digital outputs, 2 dry-contact outputs
- ❒CXRE_M077-7 Premium - includes Standard plus 2 digital inputs, 6 digital outputs, 2 dry-contact output

Protective relays
- ❒CXRE_M045-7 IEEE protective relays, 62PL parallel timer, 86 lock-out
- ❒CXRE_M047-7 IEEE protective relays, 62PL parallel timer, 86 lock-out, 32R reverse power with 3-phase sensing

Cable lugs
- ❒CXRE_N069-7 No cable lugs, bus stabs
- ❒CXRE_N070-7 Cable lugs, mechanical, 1/0-750 MCM
- ❒CXRE_N071-7 Cable lugs, compression, 750 MCM

Power quality meter
- ❒CXRE_D010-7 Utility grade PQM, 3-wire, for delta systems
- ❒CXRE_D011-7 Utility grade PQM, 4-wire, for wye systems

Surge protective device (SPD)
- ❒CXRE_M060-7 S1 SPD, 120 kA, for wye systems
- ❒CXRE_M062-7 S1 SPD, 120 kA, for delta systems
- ❒CXRE_M064-7 S1 SPD, 240 kA, for wye systems
- ❒CXRE_M066-7 S1 SPD, 240 kA, for delta systems
- ❒CXRE_M068-7 S2 SPD, 120 kA, for wye systems
- ❒CXRE_M070-7 S2 SPD, 120 kA, for delta systems
- ❒CXRE_M072-7 S2 SPD, 240 kA, for wye systems
- ❒CXRE_M074-7 S2 SPD, 240 kA, for delta systems

Miscellaneous
- ❒CXRE_M080-7 Anti-condensation cabinet heater

Warranty
- ❒CXRE_G004-7 2-years, comprehensive [STANDARD]
- ❒CXRE_G007-7 5-years, comprehensive
- ❒CXRE_G014-7 3-years, comprehensive
- ❒CXRE_G015-7 10-years, comprehensive

Shipping
- ❒CXRE_A050-7 Packing - wooden crate [STANDARD]
- ❒CXRE_A051-7 Packing - export box

Request for quotation
- ❒CXRE_Z555-7 Nonconfigurable spec (ETO)

Accessories
- Refer to the Parts Manual

Product codes for F-Frame submittal detail

Model
- ❒CXRF_CXR1200 1200 A, F frame
- ❒CXRF_CXR1600 1600 A, F frame

Transfer modes
- ❒CXRF_A077-7 Open transition/in-phase [STANDARD]
- ❒CXRF_A078-7 Open transition/time delayed (programmed)
- ❒CXRF_A079-7 Closed transition
- ❒CXRF_A088-7 Non-automatic transition

Poles
- ❒CXRF_A028-7 3-poles [STANDARD]
- ❒CXRF_A029-7 4-poles, switched neutral

Application
- ❒CXRF_A035-7 Utility to generator set [STANDARD]
- ❒CXRF_A036-7 Utility to utility
- ❒CXRF_A037-7 Generator set to generator set

Performance ratings
- ❒CXRF_A087-7 UL 1008 30-cycle short time withstand ratings
- ❒CXRF_H024-7 UL 1008 3-cycle withstand ratings [STANDARD]

Frequency
- ❒CXRF_A044-7 60 Hz [STANDARD]
- ❒CXRF_A045-7 50 Hz

Phase
- ❒CXRF_A090-7 3-phase, 3-wire (no neutral)
- ❒CXRF_A091-7 3-phase, 4-wire (solid or switched neutral)

Voltage
- ❒CXRF_R021-7 208 V
- ❒CXRF_R026-7 480 V
- ❒CXRF_R027-7 600 V

Cabinet
- ❒CXRF_B001-7 Type 1: Indoor use, provides some protection against dirt (similar to IEC type IP30) [STANDARD]
- ❒CXRF_B002-7 Type 3R: Intended for outdoor use, provides some protection from dirt, rain and snow (similar to IEC type IP34)
- ❒CXRF_B003-7 Type 4: Indoor or outdoor use, provides some protection from wind-blown dust and water spray (similar to IEC type IP65)
- ❒CXRF_B010-7 Type 12: Indoor use, some protection from dust (similar to IEC type IP61)
- ❒CXRF_B025-7 Type 4X: Stainless steel, indoor or outdoor use, provides some protection from corrosion (similar to IEC Type IP65)

Standards
- ❒CXRF_A064-7 UL/NFPA 20 fire pump compliant
- ❒CXRF_A080-7 IBC seismic certification
- ❒CXRF_A085-7 OSHPD seismic pre-approval certification
- ❒CXRF_S043-7 UL 1008 listing (includes UL listing for Canada) [STANDARD]

Control
- ❒CXRF_C109-7 PC80 control [STANDARD]

Control options
- ❒CXRF_D403-7 Integrated high accuracy power quality metering
- ❒CXRF_L214-7 Load shed from standby source
- ❒CXRF_M079-7 Integral control power supply

Customer input/output
- ❒CXRF_M076-7 Standard - 5 digital inputs, 6 digital outputs, 2 dry-contact outputs
- ❒CXRF_M077-7 Premium - includes Standard plus 2 digital inputs, 6 digital outputs, 2 dry-contact output

Protective relays
- ❒CXRF_M045-7 IEEE protective relays, 62PL parallel timer, 86 lock-out
- ❒CXRF_M047-7 IEEE protective relays, 62PL parallel timer, 86 lock-out, 32R reverse power with 3-phase sensing

Cable lugs
- ❒CXRF_N069-7 No cable lugs, bus stabs
- ❒CXRF_N070-7 Cable lugs, mechanical, 1/0-750 MCM
- ❒CXRF_N071-7 Cable lugs, compression, 750 MCM

Power quality meter
- ❒CXRF_D010-7 Utility grade PQM, 3-wire, for delta systems
- ❒CXRF_D011-7 Utility grade PQM, 4-wire, for wye systems

Surge protective device (SPD)
- ❒CXRF_M060-7 S1 SPD, 120 kA, for wye systems
- ❒CXRF_M062-7 S1 SPD, 120 kA, for delta systems
- ❒CXRF_M064-7 S1 SPD, 240 kA, for wye systems
- ❒CXRF_M066-7 S1 SPD, 240 kA, for delta systems
- ❒CXRF_M068-7 S2 SPD, 120 kA, for wye systems
- ❒CXRF_M070-7 S2 SPD, 120 kA, for delta systems
- ❒CXRF_M072-7 S2 SPD, 240 kA, for wye systems
- ❒CXRF_M074-7 S2 SPD, 240 kA, for delta systems

Miscellaneous
- ❒CXRF_M080-7 Anti-condensation cabinet heater

Warranty
- ❒CXRF_G004-7 2-years, comprehensive [STANDARD]
- ❒CXRF_G007-7 5-years, comprehensive
- ❒CXRF_G014-7 3-years, comprehensive
- ❒CXRF_G015-7 10-years, comprehensive

Shipping
- ❒CXRF_A050-7 Packing - wooden crate [STANDARD]
- ❒CXRF_A051-7 Packing - export box

Request for quotation
- ❒CXRF_Z555-7 Nonconfigurable spec (ETO)

Accessories
- Refer to the Parts Manual

Product codes for G-Frame submittal detail

Model
- ❒CXRG_CXR1600 1600 A, G frame
- ❒CXRG_CXR2000 2000 A, G frame

Transfer modes
- ❒CXRG_A077-7 Open transition/in-phase [STANDARD]
- ❒CXRG_A078-7 Open transition/time delayed (programmed)
- ❒CXRG_A079-7 Closed transition
- ❒CXRG_A088-7 Non-automatic transition

Poles
- ❒CXRG_A028-7 3-poles [STANDARD]
- ❒CXRG_A029-7 4-poles, switched neutral

Application
- ❒CXRG_A035-7 Utility to generator set [STANDARD]
- ❒CXRG_A036-7 Utility to utility
- ❒CXRG_A037-7 Generator set to generator set

Performance ratings
- ❒CXRG_A087-7 UL 1008 30-cycle short time withstand ratings
- ❒CXRG_H024-7 UL 1008 3-cycle withstand ratings [STANDARD]

Frequency
- ❒CXRG_A044-7 60 Hz [STANDARD]
- ❒CXRG_A045-7 50 Hz

Phase
- ❒CXRG_A090-7 3-phase, 3-wire (no neutral)
- ❒CXRG_A091-7 3-phase, 4-wire (solid or switched neutral)

Voltage
- ❒CXRG_R021-7 208 V
- ❒CXRG_R026-7 480 V
- ❒CXRG_R027-7 600 V

Cabinet
- ❒CXRG_B001-7 Type 1: Indoor use, provides some protection against dirt (similar to IEC type IP30) [STANDARD]
- ❒CXRG_B002-7 Type 3R: Intended for outdoor use, provides some protection from dirt, rain and snow (similar to IEC type IP34)
- ❒CXRG_B003-7 Type 4: Indoor or outdoor use, provides some protection from wind-blown dust and water spray (similar to IEC type IP65)
- ❒CXRG_B010-7 Type 12: Indoor use, some protection from dust (similar to IEC type IP61)
- ❒CXRG_B025-7 Type 4X: Stainless steel, indoor or outdoor use, provides some protection from corrosion (similar to IEC Type IP65)

Standards
- ❒CXRG_A064-7 UL/NFPA 20 fire pump compliant
- ❒CXRG_A080-7 IBC seismic certification
- ❒CXRG_A085-7 OSHPD seismic pre-approval certification
- ❒CXRG_S043-7 UL 1008 listing (includes UL listing for Canada) [STANDARD]

Control
- ❒CXRG_C109-7 PC80 control [STANDARD]

Control options
- ❒CXRG_D403-7 Integrated high accuracy power quality metering
- ❒CXRG_L214-7 Load shed from standby source
- ❒CXRG_M079-7 Integral control power supply

Customer input/output
- ❒CXRG_M076-7 Standard - 5 digital inputs, 6 digital outputs, 2 dry-contact outputs
- ❒CXRG_M077-7 Premium - includes Standard plus 2 digital inputs, 6 digital outputs, 2 dry-contact output

Protective relays
- ❒CXRG_M045-7 IEEE protective relays, 62PL parallel timer, 86 lock-out
- ❒CXRG_M047-7 IEEE protective relays, 62PL parallel timer, 86 lock-out, 32R reverse power with 3-phase sensing

Cable lugs
- ❒CXRG_N069-7 No cable lugs, bus stabs
- ❒CXRG_N070-7 Cable lugs, mechanical, 1/0-750 MCM
- ❒CXRG_N071-7 Cable lugs, compression, 750 MCM

Power quality meter
- ❒CXRG_D010-7 Utility grade PQM, 3-wire, for delta systems
- ❒CXRG_D011-7 Utility grade PQM, 4-wire, for wye systems

Surge protective device (SPD)
- ❒CXRG_M060-7 S1 SPD, 120 kA, for wye systems
- ❒CXRG_M062-7 S1 SPD, 120 kA, for delta systems
- ❒CXRG_M064-7 S1 SPD, 240 kA, for wye systems
- ❒CXRG_M066-7 S1 SPD, 240 kA, for delta systems
- ❒CXRG_M068-7 S2 SPD, 120 kA, for wye systems
- ❒CXRG_M070-7 S2 SPD, 120 kA, for delta systems
- ❒CXRG_M072-7 S2 SPD, 240 kA, for wye systems
- ❒CXRG_M074-7 S2 SPD, 240 kA, for delta systems

Miscellaneous
- ❒CXRG_M080-7 Anti-condensation cabinet heater

Warranty
- ❒CXRG_G004-7 2-years, comprehensive [STANDARD]
- ❒CXRG_G007-7 5-years, comprehensive
- ❒CXRG_G014-7 3-years, comprehensive
- ❒CXRG_G015-7 10-years, comprehensive

Shipping
- ❒CXRG_A050-7 Packing - wooden crate [STANDARD]
- ❒CXRG_A051-7 Packing - export box

Request for quotation
- ❒CXRG_Z555-7 Nonconfigurable spec (ETO)

Accessories
- Refer to the Parts Manual

Product codes for H-Frame submittal detail

Model
- ❒CXRH_CXR2600 2600 A, H frame
- ❒CXRH_CXR3000 3000 A, H frame

Transfer modes
- ❒CXRH_A077-7 Open transition/in-phase [STANDARD]
- ❒CXRH_A078-7 Open transition/time delayed (programmed)
- ❒CXRH_A079-7 Closed transition
- ❒CXRH_A088-7 Non-automatic transition

Poles
- ❒CXRH_A028-7 3-poles [STANDARD]
- ❒CXRH_A029-7 4-poles, switched neutral

Application
- ❒CXRH_A035-7 Utility to generator set [STANDARD]
- ❒CXRH_A036-7 Utility to utility
- ❒CXRH_A037-7 Generator set to generator set

Performance ratings
- ❒CXRH_A087-7 UL 1008 30-cycle short time withstand ratings
- ❒CXRH_H024-7 UL 1008 3-cycle withstand ratings [STANDARD]

Frequency
- ❒CXRH_A044-7 60 Hz [STANDARD]
- ❒CXRH_A045-7 50 Hz

Phase
- ❒CXRH_A090-7 3-phase, 3-wire (no neutral)
- ❒CXRH_A091-7 3-phase, 4-wire (solid or switched neutral)

Voltage
- ❒CXRH_R021-7 208 V
- ❒CXRH_R026-7 480 V
- ❒CXRH_R027-7 600 V

Cabinet
- ❒CXRH_B001-7 Type 1: Indoor use, provides some protection against dirt (similar to IEC type IP30) [STANDARD]
- ❒CXRH_B002-7 Type 3R: Intended for outdoor use, provides some protection from dirt, rain and snow (similar to IEC type IP34)

Standards
- ❒CXRH_A064-7 UL/NFPA 20 fire pump compliant
- ❒CXRH_A080-7 IBC seismic certification
- ❒CXRH_A085-7 OSHPD seismic pre-approval certification
- ❒CXRH_S043-7 UL 1008 listing (includes UL listing for Canada) [STANDARD]

Control
- ❒CXRH_C109-7 PC80 control [STANDARD]

Control options
- ❒CXRH_D403-7 Integrated high accuracy power quality metering
- ❒CXRH_L214-7 Load shed from standby source
- ❒CXRH_M079-7 Integral control power supply

Customer input/output
- ❒CXRH_M076-7 Standard - 5 digital inputs, 6 digital outputs, 2 dry-contact outputs
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- ❒CXRH_M070-7 S2 SPD, 120 kA, for delta systems
- ❒CXRH_M072-7 S2 SPD, 240 kA, for wye systems
- ❒CXRH_M074-7 S2 SPD, 240 kA, for delta systems

Miscellaneous
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Warranty
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- ❒CXRH_G007-7 5-years, comprehensive
- ❒CXRH_G014-7 3-years, comprehensive
- ❒CXRH_G015-7 10-years, comprehensive

Shipping
- ❒CXRH_A050-7 Packing - wooden crate [STANDARD]
- ❒CXRH_A051-7 Packing - export box

Request for quotation
- ❒CXRH_Z555-7 Nonconfigurable spec (ETO)

Accessories
- Refer to the Parts Manual

Codes and Standards

UL	All switches are **UL 1008** Listed with **UL 50E** Type Rated cabinets and UL Listed CU-AL terminals.	NEMA National Electrical Manufacturers Association	All switches comply with **NEMA ICS 10**.
c UL us	All switches are **UL 1008** Listed for Canadian requirements.	IEEE	All switches comply with **IEEE 446** Recommended Practice for Emergency and Standby Power Systems.
NFPA	All switches comply with **NFPA 20**, **70**, **99** and **110 (Level 1)**.	RoHS	All switches are **RoHS** compliant.
NEC®	Suitable for use in emergency, legally required and Standby and Critical Operations Power Systems (COPS) applications per **NEC 700**, **701**, **702** and **708**.	ISO	All switches are designed and manufactured in facilities certified to **ISO 9001**.
IBC®	All switches are certified to **IBC 2018**.	OSHPD	All switches are certified to **CBC 2019**.
EMC	All switches have been tested to meet the the following Electromagnetic Compatibility (**EMC**) standards: **EN 61000-4-3** Radiated Immunity **EN 61000-4-4** Electrical Fast Transients **EN 61000-4-2** Electrostatic Discharge **EN 61000-4-6** Conducted Immunity **EN 61000-4-8** Power Frequency Magnetic Field **EN 61000-6-2** Generic Immunity Standard		

For more information, please contact your local Cummins distributor or visit cummins.com

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NAS-6542-EN PD00000511 (Last revised: 11/2023)