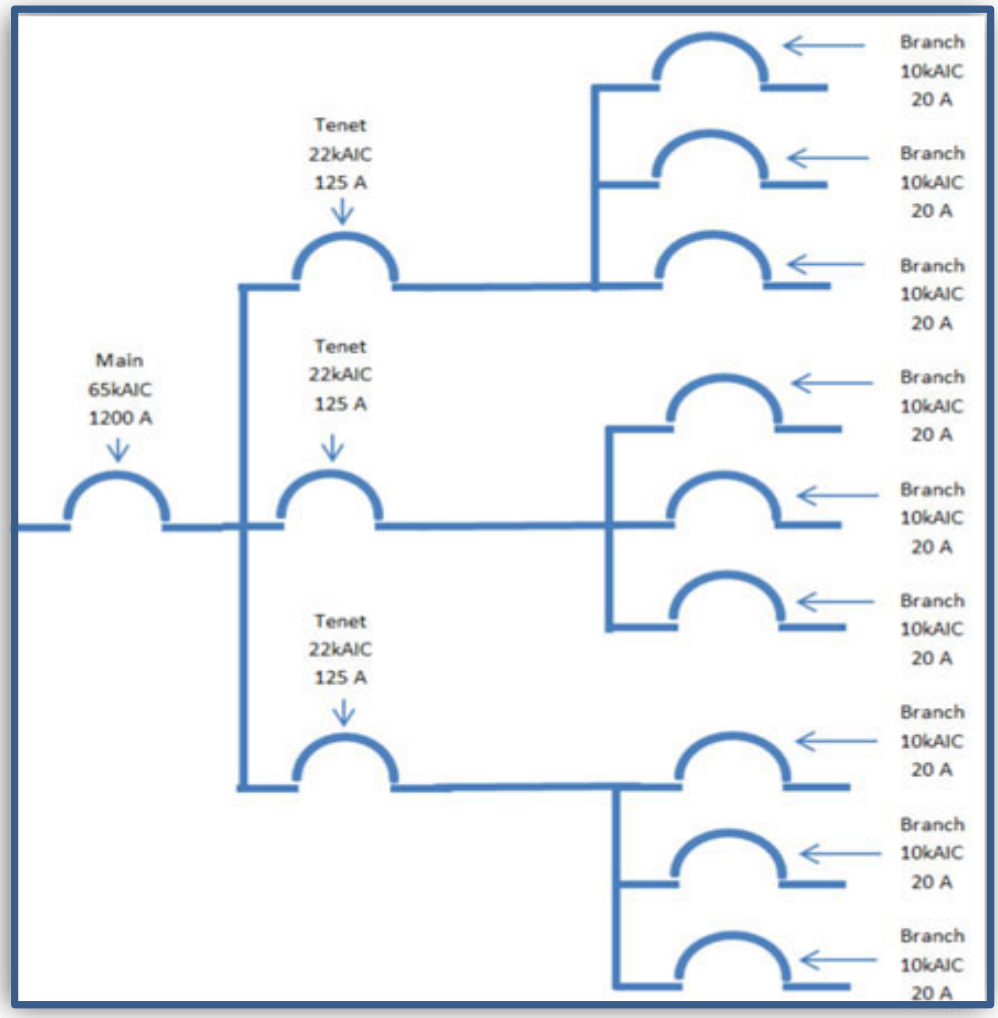
15.3 EDITION

Integrated Equipment Ratings



Application Handbook

Powering Business Worldwide

INDEX

Typical Specification: Integrated Equipment Ratings

Downstream Panelboard must be either FULLY RATED or INTEGRATED EQUIPMENT RATED with the upstream protective device.

For INTEGRATED EQUIPMENT RATED Panelboards, each panel must be labelled to indicate:
1) Tested IER kA rating
2) Specific upstream protective device
3) Permissible branch devices
4) Panelboard designation

All ratings contained herein are based on the latest data available at time of

A complete listing of Series Ratings is available from the CSA website:
https://www.csagroup.org/testing-certification/product-listing/certificate/?cert=003300_0_000-1432-01

The IER manual can also be found on the Eaton Canada website:
https://www.eatoncanada.ca/ier

For further information, consult your Eaton sales representative.

When applying IER to the old style NBA, NGB, NFD Panelboards, please refer to the 2nd edition of 20-1773 (Rev. B)

When applying IER to the old style PRL 1, 2, 3 Panelboards and BQL Loadcentres, please refer to the 6th edition of 20-1773 (Rev. F)

100% rated breakers may not be suitable for installation integral to all assemblies as referenced in the tables in this document. They have been included as they may be connected remote. If required, please consult factory to determine if integral mounting is allowed

Introduction

Low voltage distribution systems require the general need of continuity of supply and safety to personnel and equipment. The reliable and safe distribution of electrical power is dependent upon the use of protective devices for making and breaking circuits, detecting the presence of fault currents, and for isolating a faulty circuit with least disturbance to the system. In addition, the assemblies which house and provide interconnection points for protective devices play an important role in this reliability and safety perspective. All these matters must be considered when designing, developing, operating and maintaining a modern electrical power system.

Electrical standards of Canada and the USA provide two different methods of applying assemblies such as panelboards, switchboards, etc. into an electrical system.

Fully Rated

The short circuit protective devices at all levels have a rating that matches or exceeds the system available fault level.

Series Rated or Integrated Equipment Rating (IER)

The electrical standards permit the use of downstream equipment, such as moulded case circuit breaker panelboards, with protective devices having lower interrupting ratings than the available system fault level when protected by an upstream fully rated device. This "series" application of upstream and downstream devices must comply with CSA/UL standards which require that any installation supplied in this fashion makes use of devices which have been tested as a series combination.

Description

The upstream protective device may be either a moulded case circuit breaker or a fuse (Class R, J, T or L). In the event of a major fault, both upstream and downstream devices will open. The let-through current is limited by the simultaneous opening of both devices to a value which can be safely cleared. The upstream device thus protects the lower-rated downstream device. The resultant series rating when applied to a product assembly is known as an Integrated Equipment Rating.

Circuit Breakers

A downstream circuit breaker tested in combination with an upstream circuit breaker may be assigned a series connected rating. These circuit breakers can utilize either thermal-magnetic trip units or electronic trip units and can be 80% or 100% rated. When, the downstream circuit breaker is tested in a piece of distribution equipment, such as a panelboard, the net result is that the panelboard will have an Integrated Equipment Rating. Design of the equipment and selection of breakers is based on short circuit interruption tests specified and witnessed by CSA/UL. Because the devices and the equipment are tested as a system, the manufacturer can provide and warrant this Integrated Equipment Rating.

Fuses

Don't apply fuses using the up-over-down method. This graphical / empirical method of sizing an upstream current limiting fuse to protect downstream moulded case circuit breakers has been recommended by some fuse manufacturers. This selection process is no longer permissible as the electrical standards will now recognize only tested combinations. Moreover, the Up-Over-Down method could lead to erroneous and unsafe conclusions because it treats the circuit breaker as a device with only a static interrupting capacity characteristic. In fact, the circuit breaker has a number of dynamic characteristics at play during fault interruption ... one of the most dominant being the speed of contact opening. These dynamic characteristics vary greatly between circuit breaker designs. For proper application of current limiting fuses, always refer to recommendations by the manufacturer of the circuit breaker and its assembly, which are based on actual test data.

Circuit Protection and Continuity

In applying Integrated Equipment Ratings, the design engineer should understand that this technique does not jeopardize circuit protection and continuity when compared to fully rated equipment performance. Integrated Equipment Ratings generally apply to the 600 Ampere and lower feeder level. At the feeder level (i.e. upstream breaker), the device is fully rated. The user level device (i.e. downstream breaker) is a standard interrupting capacity device. Whether the downstream breaker is fully rated (see figure 1) or IER rated (see figure 2), co-ordination and selectivity remain the same. In BOTH Fully Rated and Integrated Equipment Rating systems, a downstream fault current higher than the instantaneous trip setting of the upstream breaker may result in both circuit breakers tripping. This situation is usually acceptable when one considers that the vast majority of faults are overloads or limited arcing faults where time-current selectivity still applies. Circuit continuity for Integrated Equipment Rating systems is the same as for fully rated systems when applied at 600 Amperes and below.

Fully Rated
Overcurrent Analysis, Voltage Base: 600VAC

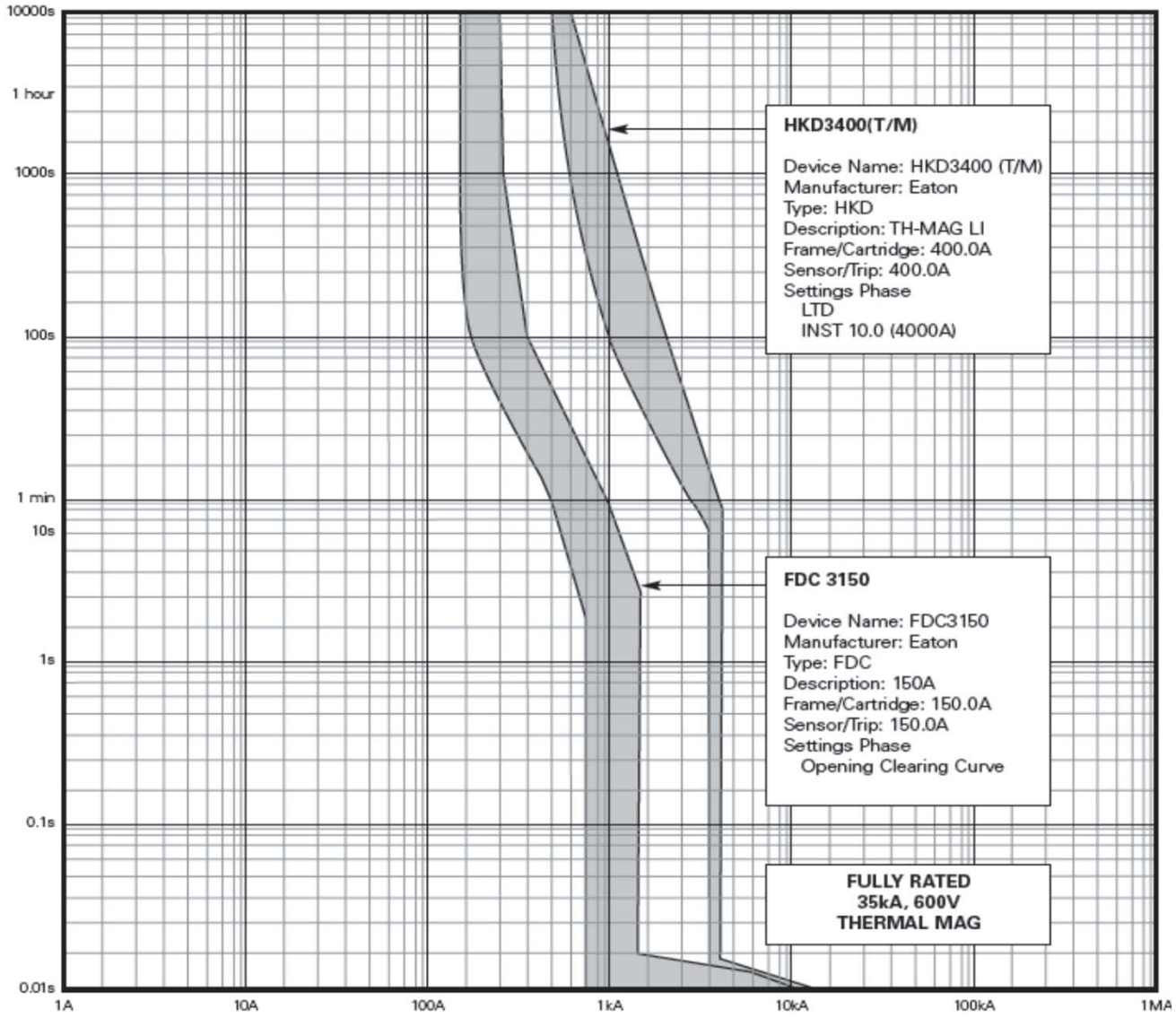


Figure 1 - Time-current curves for upstream and downstream breakers that are fully rated

Series Rated
Overcurrent Analysis, Voltage Base: 600VAC

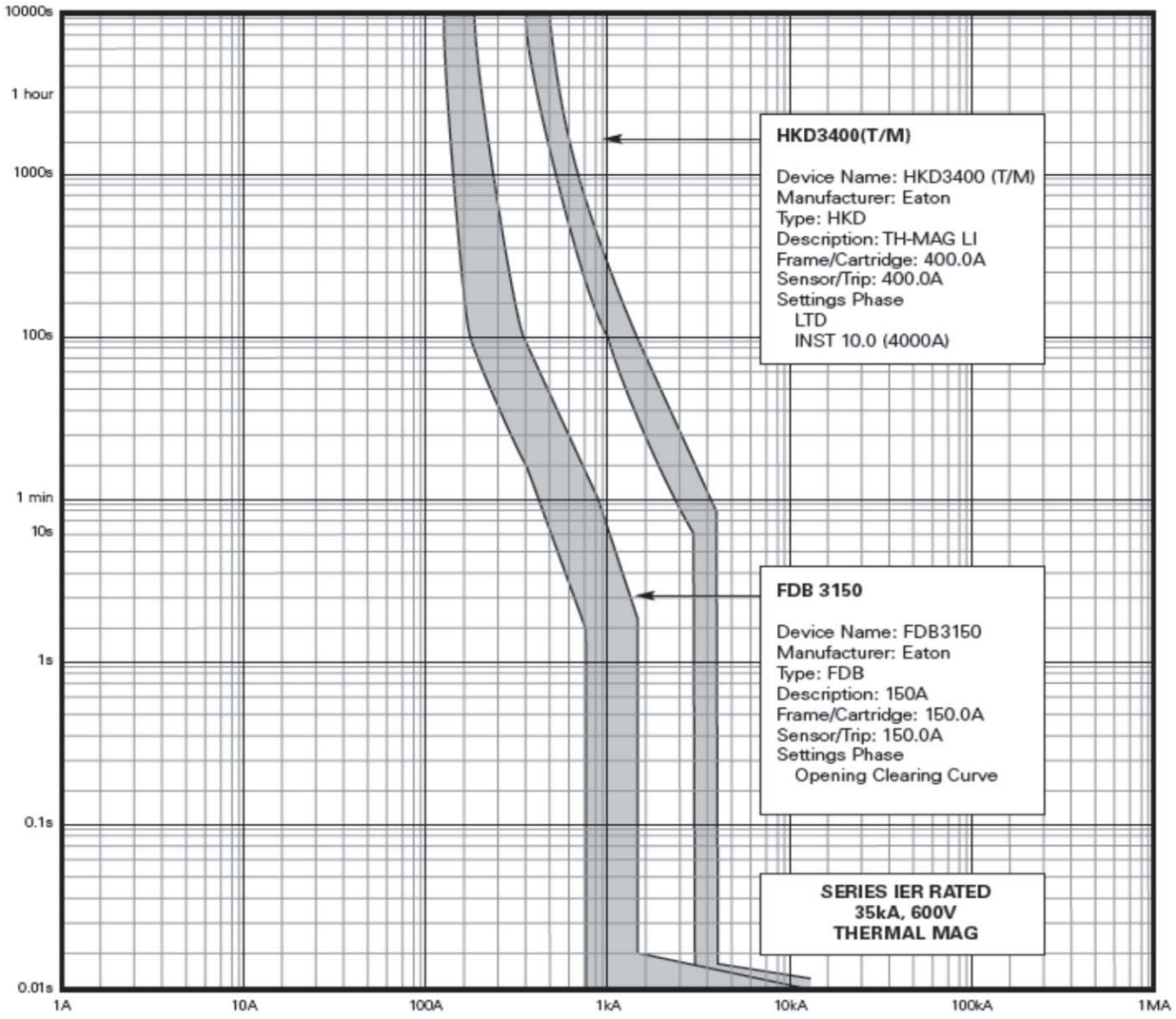


Figure 2 - Time-current curves for upstream and downstream breakers that are IER (series) rated

Fault Calculations/Protection of Downstream Devices and Equipment

When applying Integrated Equipment Ratings, it is only necessary to evaluate the available fault current level (in symmetrical kA) at the line terminals of the main or upstream device.

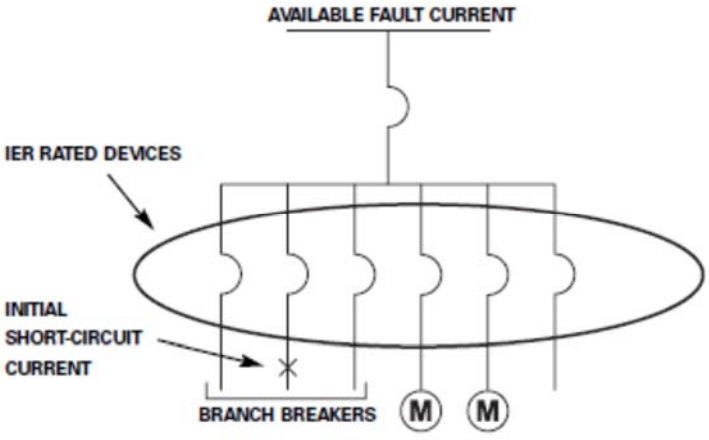
This is sufficient because:

- The upstream/main device (circuit breaker or fuse) is fully rated for the available fault level.
- The upstream device and downstream assembly have a test-proven Integrated Equipment Rating to meet or exceed the available fault level.
- The let-through current and energy below the downstream breaker is at or below the level of the let-through for the downstream device at its rated fault capacity. In this manner downstream cables and loads are protected as normal.

Selection

To develop a series connected protective system, it is suggested that the design engineer, after completing preliminary steps:

- Define available fault current at the line terminals of the upstream breaker.
- Select an upstream breaker with an interrupting rating equal to or greater than the available fault current.
- Verify the Integrated Equipment Ratings of the selected equipment by referring to the tables in this brochure. Tables show the maximum main or upstream fuse or breaker frame ampere rating. The IER combination applies from the minimum to the maximum fuse or breaker frame rating.
- Confirm, during commissioning, that the correct breakers have been installed by checking the nameplates appearing on the equipment.



CSA/UL Standards

Moulded case circuit breakers are designed and tested to CSA Spec. C22.2 #5.1 and/or UL #489. Both these standards include the test requirements for verifying a series combination rating. The short circuit tests are performed with the upstream device and the downstream circuit breaker mounted in the smallest enclosure in which each is to be used. Two short circuit shots are required; one where the fault is applied with both devices closed, the other by closing the downstream breaker on the fault. After the short circuit shots, the downstream device must pass a calibration check carrying twice rated current and a dielectric withstand test.

An intermediate interrupting test may be required by the testing agency if it is deemed necessary to verify the downstream breaker over the entire range of fault current. The short circuit test must be repeated if a manufacturer requires a series rating with the downstream circuit breaker mounted in a panelboard.

The series requirements which are now included in C22.2 #5.1 are in the CSA Canadian Electrical Code Part I, Rule 14-014, "Series Rated Combinations"

Motor Load Contribution

In most applications, circuit breakers feed non-motor or low inductance loads, and therefore, there is no requirement to consider motor contribution when selecting series combinations using the IER charts. However, if the downstream panelboard feeds motors through its branch circuit breakers then due consideration should be given to the motor fault contribution.

CEC Part 1, Appendix B, Notes on rules; 14-014 states that "Where motors are connected in the system between the series connected devices, any significant motor contribution to the fault current should be considered. It is generally agreed that the contribution of asynchronous motors to the short circuit current may be neglected if the sum of the rated currents on motors connected directly to the point between-the series connected devices is 1% or less of the interrupting rating of the downstream circuit breaker. (See IEC Publication 60781)."

For those situations where the total motor load is above this level, fully rated circuit breakers should be considered.

Example 1: Large Motor Contribution > 1%

Refer to Figure MCC-1. On an installation with 1,000A total load, of which 50% is motor load (or 500A), the motor contribution can be an issue in selecting a series rated combination. If a main/feeder series rating were to be considered, the feeder circuit breaker must have a least a 50kA individual or stand-alone interrupting capacity (1% of 50,000 = 500). If the protected circuit breaker has to have an individual interrupting capacity of at least 50,000A, it may negate the use of series rated combinations.

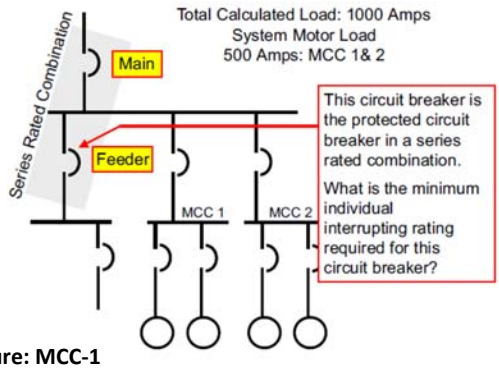


Figure: MCC-1

Example 2: Motor contribution < 1%

In some applications you may have one or two motors, however, their contribution must be considered in choosing the series rated breaker combination. As seen in Figure MCC-2, the full load current of the motor is *less* than 100A, thus using a downstream circuit breaker with an interrupting capacity of 10kA is a valid combination.

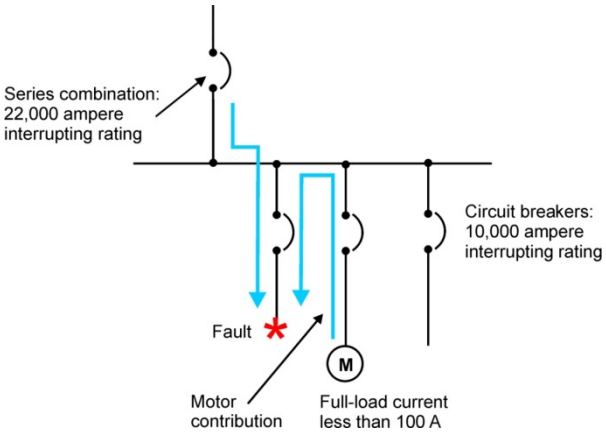


Figure: MCC-2

Conclusion

Series ratings are primarily used in Panelboard and Switchboard applications.

It is extremely important when applying series rated circuit breakers in MCC applications, or in any system where the motor contribution is significant, to apply the 1% rule as stated above.

Please note that future additions to the system may increase the motor contribution thus rendering the initial selection(s) null and void. Furthermore, if the motor contribution is large, as seen in Example 1, series rated combinations may not available and fully rated circuit breakers need to be selected.

Panelboard Marking

Downstream panelboards containing branch circuit breakers which are being applied on the basis of a series rating must be clearly marked to indicate the following (Figure 3):

- Short circuit rating
- Upstream breaker type
- Branch breaker type

Apply and replace breakers prudently since the interrupting capability of an Integrated Equipment Rating panelboard is based on specific upstream and downstream devices as marked on the panelboard label. It is absolutely essential that any additional or replacement breakers be of the same type and rating as indicated on the label.

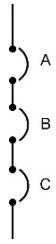
Other Applications of Series Ratings (IER)

Series ratings can also be applied under the following:

- Any fully rated breaker can be applied upstream, downstream or in the middle of any of the series ratings stated in tables.
- Any series rating stated in the tables may have additional series rated branch breakers of the exact same type further downstream in that rating.

Combining series ratings are allowed under certain conditions. Main and branch ratings may be combined if:

- Breakers A, B, and C are in series respectively from main to branch. Breakers A and B series rate together Breakers A and C series rate at the same fault level (or higher). Then it is allowable to use A, B and C together at the A-B series rating.



It is improper to combine series ratings under the following condition:

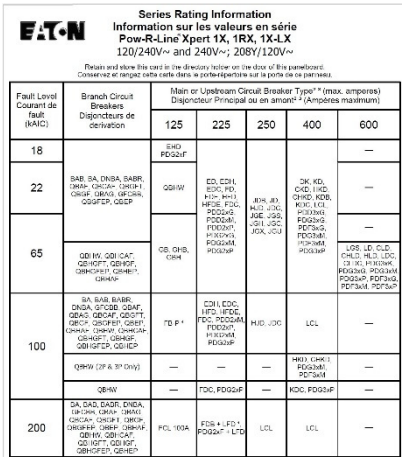
- Breakers A, B, and C are in series respectively from main to branch. Breakers A and B series rate together. Breakers B and C series rate at the Breaker B interrupting rating level. It is not allowable to use A, B and C together at the A-B series rating. However, combining multiple overcurrent devices as in this example, can be accomplished if all devices in the series combination have been tested together.

Summary

The utilization of this technique will result in a number of benefits without sacrificing either safety or reliability:

- Reduction of Panelboard initial cost and size, since downstream breakers are rated only for the prospective short circuit fault current at their point of application.
- Requirement of fault calculations for downstream product selection is eliminated.
- Downstream circuit breakers are readily available, volume produced and standard interrupting type.

Figure 3: Typical Panelboard Label



Series Rating Information
Information sur les valeurs en série
Pow-R-Line Xpert 1X, 1RX, 1X-LX
120/240V~ and 240V~; 208Y/120V~

Retain and store this card in the directory holder on the door of this panelboard.
Conservez et rangez cette carte dans le porte-répertoire sur la porte de ce panneau.

Fault Level Courant de faut (kAIC)	Branch Circuit Breakers Disjoncteurs de derivation	Main or Upstream Circuit Breaker Type* * (max. amperes) Disjoncteur Principal ou en amont* * (Ampères maximum)				
		125	225	250	400	600
18	BAB, BA, DNBA, BABR, QBAF, QBCAF, QBGB-1, QBGF, QBAG, QFCRS, QGGFEP, QGEP	EHD, FDG2xF	ED, EDH, EDC, HD, HDH, HHD, HFDE, FDG, FDG2xG, FDD2xM, FDD3xT, FXD2xG, FDG2xM, FDG3xP	JDB, JD, HJD, JDC, JDE, JGG, JGH, JGC, JDX, JCU	DK, KD, CKD, LKD, CHKD, KDB, KDC, LCL, FDG3xG, FDG3xM, FDG3xP	—
22		QBHW				—
65	QBHW, QBLCAF, QBHGFT, QBHGF, QBHCHFT, QBHEF, QBHAF	QB, QHB, QBH				—
100	BA, BAB, BABR, DNBA, QFCRB, QBAF, QBAG, QBCAF, QBGFT, QBCF, QBGFEP, QBEF, QHHAF, QHHFP, QHHCAF, QBHGFT, QBHGF, QBHGFEP, QBHEP	TD, P *	EDH, EDC, HFD, HFDE, FDC, FDG2xM, FDD2xT, FXD2xM, FDG2xP	HJD, JDC	LCL	—
	QBHW (2P & 3P Only)	—	—	—	HKD, CHKD, FDG2xM, FDF3xM	—
	QBHW	—	FDC, FDG2xF	—	KDC, FDG3xF	—
200	BA, DAD, DABR, DNDA, QHDNA, QHDA, QHDAF, QHCAF, QHGFT, QHCF, QHGFEP, QHEP, QHHAF, QBHW, QBHCAF, QBHGFT, QBHGF, QBHGFEP, QBHEP	FCL 100A	FDB + LFD *, FDG2xF * LFD	LCL	LCL	—

Application and Worked Example

Figure 4 shows a typical schematic that demonstrates the use of Integrated Equipment Ratings. The main Service Switchboard includes a 1600A incoming moulded case circuit breaker which feeds a power panelboard in a distribution section of the board. It is assumed that the fault current of 40kA is available at the power Panelboard bus since the main 1600A circuit breaker provides little or no current limitation.

The diagram also indicates that a 400A branch breaker in the distribution section feeds a downstream Lighting and Distribution Panel.

NOTE: The series ratings are independent of the product they reside in. The manual is segregated by product line for ease of use.

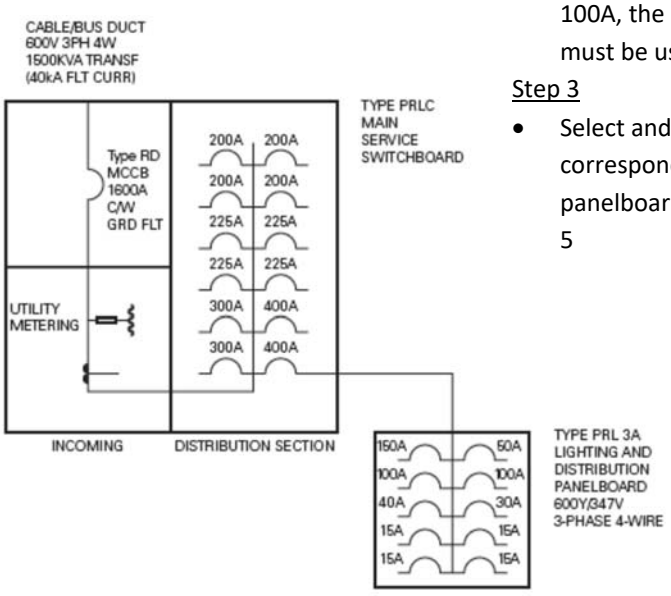


Figure 4 – Typical Schematic Diagram

Using the IER Charts

The selection of this downstream lighting and distribution panelboard using Integrated Equipment Ratings is achieved as follows:

Step 1

- Look at the given information (Figure 5)
- System Operating Voltage: 600/347V
- Fault Level Available: 40kA
- Upstream Breaker Amps: 400A
- Downstream Breakers Amps: 2 and 3 pole 15-150A, 1 pole 15-30A

Step 2

- Determine the type of panelboard
- System operating voltage is 600/347. There are two types of panelboards that operate at this voltage: PowR-Line-2a and PowR-Line-3a. Since some of the branches are greater than 100A, the PowR-Line-3a must be used.

Step 3

- Select and use the IER chart corresponding to the panelboard chosen; Figure 5
- First go to the left most column and select the Voltage Level; 600/347V (A)
- Next select the Fault Level associated with that voltage from the Fault Level Available column. Use the next highest value if the exact level is not shown – for example for 40kA, use 50kA (B)
- Now select the Main or Upstream Breaker Type Amperage. Proceed horizontally to the column with the required ampere rating of upstream device; 400A (C)
- Finally, proceed vertically down from this amperage (C), and horizontally across from the fault level (B). Where these intersect (D), read the required upstream device – KDC.
- Note: If no main or upstream or fuse is shown then go to a higher fault level that shows a device protecting the particular branch breakers. If one is not shown, then a good combination does not exist.

The upstream device selected is a KDC3400 breaker with standard rated FDB 14kA branch breakers.

That's INTEGRATED EQUPMENT RATINGS!

Pow-R-Line 3a Panelboard (Example only - Do not use)

Voltage	Maximum fault level available at main or upstream device (kA sym.)	Branch breakers	Main or upstream breaker type (max. amps)			
			225A	250A	400A (C)	600A
480Y/277 and 480 (2)	25	GHB, GBH EHD, FDB	FD, FDE HFD, HFDE, FDC	JDB, JD, HJD, JDC, JGE, JGS, JGH, JGC, JGU, JGX	KD, CKD HKD, CHKD KDC	—
	35	GHB, GBH	HFD, HFDE, FDC	JD, HJD, JDC, JGS, JGH, JGC, JGU, JGX	KD, CKD HKD, CHKD KDC	—
		EHD, FDB, FD, FDE	HFD, HFDE, FDC	JD, HJD, JDC, JGS, JGH, JGC, JGU, JGX	KD, CKD HKD, CHKD KDC	LD, HLD, CLD, CHLD LDC, CLDC, LGE, LGS LGH, LGC, LGU, LGX
	65	GHB, GBH	HFD, HFDE, FDC	HJD, JDC, JGH, JGU, JGX	HKD, CHKD KDC	—
		EHD, FDB, FD, FDE	HFD, HFDE, FDC	HJD, JDC, JGH, JGC, JGU, JGX	HKD, CHKD KDC	HLD, CHLD, LDC CLDC, LGH LGC, LGU, LGX
	100	GHB, GBH	FDC	JDC, LCL	KDC, LCL	—
		EHD, FDB, FD FDE, HFD, HFDE	FDC FB T/P	JDC, LCL LA T/P	KDC, LCL	—
	150	GHB, GBH EHD, FDB, FD, FDE HFD, HFDE, FDC	FCL 100A	LCL	LCL	—
	200	GHB, GBH EHD, FDB, FD, FDE HFD, HFDE, FDC	(FDB, FD, FDE) + LFD (3))	—	—	—
600Y/347 and 600 (A)	14	GBH	FDB FD, FDE HFD, HFDE, FDC	JD HJD, JDC	KD, CKD HKD, CHKD KDC	LD, HLD, LDC, CHLD LDC, CLDC
	18	GBH FDB	FD, FDE HFD, HFDE, FDC	JD HJD, JDC	KD, CKD HKD, CHKD KDC	LD, HLD, LDC, CHLD LDC, CLDC
	25	FDB, FD, FDE	HFD, HFDE, FDC	HJD, JDC	KD, CKD HKD, CHKD KDC	LD, HLD, LDC, CHLD LDC, CLDC
	35	GBH	FDC	—	—	—
		FDB, FD, FDE HFD, HFDE	FDC	HJD, JDC	HKD, CHKD KDC	HLD, CHLD, LDC, CLDC
	50 (B)	GBH	(FDB, FD, FDE) + LFD (3)	—	—	—
		FDB, FD, FDE HFD, HFDE, FDC	(FDB, FD, FDE) + LFD (3)) LA T/P, FB T/P	LCL (1)	KDC, LCL (1) (D)	—
	65	FDB, FD, FDE HFD, HFDE, FDC	(FDB, FD, FDE) + LFD (3) LA T/P, FB T/P	LCL (1)	KDC, LCL (1)	—
	100	FDB, FD, FDE HFD, HFDE, FDC	(FDB, FD, FDE) + LFD (3) LA T/P, FB T/P	LCL (1)	LCL (1)	—
	200	FDB, FD, FDE HFD, HFDE, FDC	(FDB, FD, FDE) + LFD (3)	—	—	—

NOTES: 1) For LCL @ 600V, branch breakers: 1 pole 15-70A; 2, 3 pole 15-225A.
2) GHB/GHB breakers are suitable for use only on 3-phase 4-wire, grounded wye systems.
3) 150A maximum.

Figure 5 - Worked Example

CH Plug-In Loadcentre: 120/240V and 240V: 208Y/120

Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers (1)	Main or Upstream Breaker Type (2) (3)		
		MAXIMUM FRAME SIZE / AMPS		
		125A	225A	400A
10	CH, CHAF, CHCAF, CH3 CHT, CHP, CHGFT CHF, CHFCAF, CHFGFT	CH, BW	CSR, BWH	CC, CCV
25		CSR, BWH		DK, PDD3xG KD, PDG3xK HKD, PDG3xM CKD, PDF3xK CHKD, PDF3xM
35		CSH	CSH	
42		CHB4	ED, PDD2xG EDH, PDD2xM EDC, PDD2xP	
65		CHH, CVH		
100			CHH, CVH EDH, PDD2xM EDC, PDD2xP	_

Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers (1)	Upstream Fuse Type		
		MAXIMUM AMPS		
		100A	200A	400A
100	CH, CHAF, CHCAF, CH3 CHT, CHP, CHGFT CHF, CHFCAF, CHFGFT	J,T	J,T	J,T

NOTES:

(1) CHNT superceded by CHT. Electrical characteristics are identical.

(2) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)

(3) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3

CBRPM/CBRPL/CPM/CPL (BR) Plug-In Loadcentre: 120/240V and 240V; 208Y/120V

Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers	Main or Upstream Breaker Type (3) (4)				
		MAXIMUM FRAME SIZE / AMPS				
		100A	225A		250A	400A
22	DNPL, BR, WCGFCB, GFTCB, BRPGFC, BRNGFC, GFEP, BRNEP BRAF, BRLAF, BRCAF, BRCCAF BRACAF, BRPAFC, BRNAFC	BRH, BRHH QBHW	BJH, CSR CHH, CCVH	ED, PDD2xG EDH, PDD2xM EDC, PDD2xP FD, FDE, PDG2xG HFD, HFDE, PDG2xM FDC, PDG2xP (5)	JDB, JD, HJD JDC, JGE, JGS JGH, JGC JGX, JGU	DK, PDD3xG KD, PDG3xK CKD, PDF3xK HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xP LCL
25	DNPL, BR, WCGFCB, GFTCB, BRPGFC, BRNGFC, GFEP, BRNEP BRAF, BRLAF, BRCAF, BRCCAF BRACAF, BRPAFC, BRNAFC, BRH GFTCBH, BRHNGF BRHAF, BRHCAF, BRHNAF	BRHH				
42		BRHH	CHH, CVH			
65	DNPL, BR, WCGFCB, GFTCB, BRPGFC BRNGFC, GFEP, BRNEP, BRAF BRLAF, BRCAF, BRCCAF, BRACAF BRPAFC, BRNAFC, BRH, BRHH GFTCBH, BRHNGF BRHAF, BRHCAF, BRHNAF	GB, GHB, GBH	CHH, CVH			
100	DNPL, BR, WCGFCB, GFTCB, BRPGFC BRNGFC, GFEP, BRNEP, BRAF BRLAF, BRCAF, BRCCAF, BRACAF BRPAFC, BRNAFC, BRH, BRHH GFTCBH, BRHNGF BRHAF, BRHCAF, BRHNAF	(2) FB-P	CHH, CVH	EDH, PDD2xM EDC, PDD2xP HFD, HFDE PDG2xM FDC, PDG2xP (5)	HJD, JDC	LCL
	BRH (2P & 3P Only)	_	_	_	_	HKD, PDG3xM CHKD, PDF3xM
	BRH	_	_	_	_	KDC, PDG3xP
200	DNPL, BR, WCGFCB, GFTCB, BRPGFC BRNGFC, GFEP, BRNEP, BRAF BRLAF, BRCAF, BRCCAF, BRACAF BRPAFC, BRNAFC, BRH, BRHH GFTCBH, BRHNGF BRHAF, BRHCAF, BRHNAF	FCL	(1) FDB + LFD PDG2xF + LFD		LCL	LCL

Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers	Upstream Fuse Type			
		MAXIMUM AMPS			
		100A	200A		400A
100	DNPL, BR, WCGFCB, GFTCB, BRPGFC BRNGFC, GFEP, BRNEP, BRAF BRLAF, BRCAF, BRCCAF, BRACAF BRPAFC, BRNAFC, BRH, BRHH GFTCBH, BRHNGF BRHAF, BRHCAF, BRHNAF	J, T, R	J, T		J, T
200		J, T, R	J, T		_

NOTES:

(1) 150A Maximum. Can substitute higher rated F-Frame breakers (FD+LFD, PDG2xG+LFD, etc.)
(2) FB-P = FB Tri-Pac
(3) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(4) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)
(5) Thermal Mag trip unit only

CBM/CBL Bolt-On Loadcentre: 120/240V and 240V; 208Y/120V

Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers	Main or Upstream Breaker Type (3) (4)			
		MAXIMUM FRAME SIZE / AMPS			
		100A	225A	250A	400A
22	BA, BAB, BABR, DNBA, GFCBB QBAF, QBAG, QBCAF QBGFT QBGF, QBGFEP, QBEP, QBHAF	QBHW	ED, PDD2xG EDH, PDD2xM EDC, PDD2xP FD, FDE, PDG2xG HFD, HFDE PDG2xM FDC, PDG2xP (5)	JDB, JD, HJD JDC, JGE, JGS JGH, JGC, JGX JGU	DK, PDD3xG KD, PDG3xK CKD, PDF3xK HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xP LCL
65	BA, BAB, BABR, DNBA, GFCBB QBAF, QBAG, QBCAF, QBGFT QBGF, QBGFEP, QBEP, QBHAF QBHW, QBHCAF, QBHGFT QBHGF, QBHGFEP, QBHEP	GB, GHB, GBH			
100	BA, BAB, BABR, DNBA, GFCBB QBAF, QBAG, QBCAF, QBGFT QBGF, QBGFEP, QBEP, QBHAF QBHW, QBHCAF, QBHGFT QBHGF, QBHGFEP, QBHEP	(2) FB-P	EDH, PDD2xM EDC, PDD2xP EGH, PDG1xM HFD, HFDE PDG2xM FDC, PDG2xP (5)	HJD, JDC	LCL
	QBHW (2P & 3P Only)	_	_	_	HKD, PDG3xM CHKD, PDF3xM
	QBHW	_	_	_	KDC, PDG3xP
200	BA, BAB, BABR, DNBA, GFCBB QBAF, QBAG, QBCAF, QBGFT QBGF, QBGFEP, QBEP, QBHAF QBHW, QBHCAF, QBHGFT QBHGF, QBHGFEP, QBHEP	FCL	(1) FDB + LFD PDG2xF + LFD	LCL	LCL

Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers	Upstream Fuse Type		
		MAXIMUM AMPS		
		100A	200A	400A
100	BA, BAB, BABR, DNBA, GFCBB QBAF, QBAG, QBCAF, QBGFT QBGF, QBGFEP, QBEP, QBHAF QBHW, QBHCAF, QBHGFT QBHGF, QBHGFEP, QBHEP	J, T, R	J, T	J, T
200		J, T, R	J, T	_

NOTES:

(1) 150A Maximum. Can substitute higher rated F-Frame breakers (FD+LFD, PDG2xG+LFD, etc.)
(2) FB-P = FB Tri-Pac
(3) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(4) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)
(5) Thermal Mag trip unit only

Meter Centre: CMM Design, 208Y/120V 3-Phase 4 Wire or 120/240V 1-Phase 3 Wire

Maximum Fault Level Available at Main or Upstream Device (kA)	Suite Panel Breakers	Tenant/Remote Panel Main Breakers (2) (3)	Main or Upstream Breaker Type (2) (3)					
			MAXIMUM FRAME SIZE / AMPS					
			225A	250A	400A	600A	800A	1200A
22	DNPL, BR, WCGFCB GFTCB, BRPGFC, BRNGFC GFEP, BRNEP, BRAF BRLAF, BRCAF, BRCCAF BRACAF, BRPAFC, BRNAFC BAB, BA. DNBA, BABR QBAF, QBCAF, QBGFT QBGF, QBAG GFCBB, QBGFEP, QBEP	BRH, BRHH, QBHW CC, CCV, GD ED, PDD2xG	ED, PDD2xG EDH, PDD2xM EDC, PDD2xP FD, FDE, PDG2xG HFD, HFDE, PDG2xM FDC, PDG2xP (4), BJH, CSR	JDB, JD, HJD JDC, JGE, JGS JGH, JGC JGX, JGU	DK, PDD3xG KD, PDG3xK CKD, PDF3xK HKD, PDG3xG, PDG3xM CHKD, PDF3xG, PDF3xM KDC, PDG3xN, PDG3xP LCL	–	–	–
		BR (15A-100A)	–	–	DK, PDD3xG KD, PDG3xK HKD, PDG3xM CKD, PDF3xK CHKD, PDF3xM	–	–	–
42	DNPL, BR, WCGFCB GFTCB, BRPGFC, BRNGFC GFEP, BRNEP, GFTCBH BRHNGF, BRAF BRLAF, BRCAF, BRCCAF BRACAF, BRPAFC, BRNAFC BRH, BRHAF, BRHCAF BRHNAF, BAB. BA, DNBA BABR, QBAF, QBCAF QBGFT, QBGF, QBHAF QBAG, GFCBB, QBGFEP QBEP. QBHW, QBHCAF QBHGFT, QBHGF QBHGFEP, QBHEP	BRHH, CC CCV, GD ED, PDD2xG	ED, PDD2xG EDH, PDD2xM EDC, PDD2xP FD, FDE, PDG2xG HFD, HFDE, PDG2xM FDC, PDG2xP (4), CSR	JDB, JD, HJD JDC, JGE, JGS JGH, JGC JGX, JGU	DK, PDD3xG KD, PDG3xK CKD, PDF3xK HKD, PDG3xG, PDG3xM CHKD, PDF3xG, PDF3xM KDC, PDG3xN,	–	–	–
		BRH, QBHW CHH-H2, CCVH	–	–	–	LD, PDG3xK HLD, PDG3xM LDC, PDG3xP CLD, PDF3xK CHLD, PDF3xM CLDC, PDF3xP	–	–
		BR (15A-70A)	–	–	DK, PDD3xG KD, PDG3xK CKD, PDF3xK HKD, PDG3xM CHKD, PDF3xM	–	–	–
		BRHH, CHH-H4, CVS	–	–	–	–	MDL, PDG4xK CMDL, PDF4xK NGS, PDG5xK NGH, PDG5xM NGC, PDG5xP NGS-C, PDF5xK NGH-C, PDF5xM NGC-C, PDF5xP	NGS, PDG5xK NGH, PDG5xM NGC, PDG5xP NGS-C, PDF5xK NGH-C, PDF5xM NGC-C, PDF5xP
65	DNPL, BR, WCGFCB GFTCB, BRPGFC, BRNGFC GFEP, BRNEP, GFTCBH BRHNGF, BRAF, BRLAF BRCAF, BRCCAF, BRACAF BRPAFC, BRNAFC, BRH BRHH, BRHAF, BRHCAF BRHNAF, BAB. BA, DNBA BABR, QBAF, QBCAF QBGFT, QBGF, QBHAF QBAG, GFCBB, QBGFEP QBEP. QBHW, QBHCAF QBHGFT, QBHGF QBHGFEP, QBHEP	GB, GHB, GBH CC, CCV, GD ED, PDD2xG	ED, PDD2xG EDH, PDD2xM EDC, PDD2xP FD, FDE, PDG2xG HFD, HFDE, PDG2xM FDC, PDG2xP (4), CSR	JDB, JD, HJD JDC, JGE, JGS JGH, JGC JGX, JGU	DK, PDD3xG KD, PDG3xK CKD, PDF3xK HKD, PDG3xG, PDG3xM CHKD, PDF3xG, PDF3xM	–	–	–
		BRH, BRHH, QBHW CHH, CV	–	–	–	LD, PDG3xK HLD, PDG3xM LDC, PDG3xP CLD, PDF3xK CHLD, PDF3xM CLDC, PDF3xP	–	–
		BRHH	–	–	–	–	MDL, PDG4xK CMDL, PDF4xK NGS, PDG5xK NGH, PDG5xM NGC, PDG5xP NGS-C, PDF5xK NGH-C, PDF5xM NGC-C, PDF5xP	NGS, PDG5xK NGH, PDG5xM NGC, PDG5xP NGS-C, PDF5xK NGH-C, PDF5xM NGC-C, PDF5xP
100	DNPL, BR, WCGFCB GFTCB, BRPGFC, BRNGFC GFEP, BRNEP, GFTCBH BRHNGF, BRAF, BRLAF BRCAF, BRCCAF, BRACAF BRPAFC, BRNAFC, BRH BRHH, BRHAF, BRHCAF BRHNAF, BAB. BA, DNBA BABR, QBAF, QBCAF QBGFT, QBGF, QBHAF QBAG, GFCBB, QBGFEP QBEP. QBHW, QBHCAF QBHGFT, QBHGF QBHGFEP, QBHEP	CC, CCV, GD ED, PDD2xG	EDH, PDD2xM EDC, PDD2xP HFD, HFDE,PDG2xM FDC PDG2xP (4), CSR	HJD, JDC	-	-	.	-
		BRH, BRHH, QBHW CHH, CVH	-	-	HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xP	HLD, PDG3xM LDC, PDG3xP CHLD, PDF3xM CLDC, PDF3xP	-	-
200		GD ED, PDD2xG	(1) FDB + LFD PDG2xF + LFD	LCL	LCL	–	–	–

NOTES: **(1) 150A Maximum. Can substitute higher rated F-Frame breakers (FD+LFD, PDG2xG+LFD, etc.)**
(2) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(3) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)

Meter Centre: CMM Design, 208Y/120V 3-Phase 4 Wire or 120/240V 1-Phase 3 Wire

Maximum Fault Level Available at Main or Upstream Device (kA)	Suite Panel Breakers	Tenant/Remote Panel Main Breakers (1) (2)	Main or Upstream Fuse Type					
			MAXIMUM AMPS					
			100A	200A	400A	600A	800A	1200A
100	DNPL, BR, WCGFCB GFTCB, BRPGFC, BRNGFC GFEP, BRNEP, GFTCBH BRHNGF, BRAF, BRLAF BRCAF, BRCCAF, BRACAF BRPAFC, BRNAFC, BRH BRHH, BRHAF, BRHCAF BRHNAF, BAB. BA, DNBA BABR, QBAF, QBCAF QBGFT, QBGF, QBHAF QBAG, GFCBB, QBGFEP QBEP. QBHW, QBHCAF QBHGFT, QBHGF QBHGFEP, QBHEP	CC, CCV, GD, BR QBHW, ED, PDD2xG FDB, PDG2xF FD, FDE, PDG2xG	J,T,R	J,T			–	–
		BRH, BRHH CHH, CCVH EDC, PDD2xP EHD, PDG2xF	J,T,R	J,T			T	T
200		CC, CCV, GD	J,T,R	J,T		–	–	–

NOTES: **(1) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3**
(2) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)

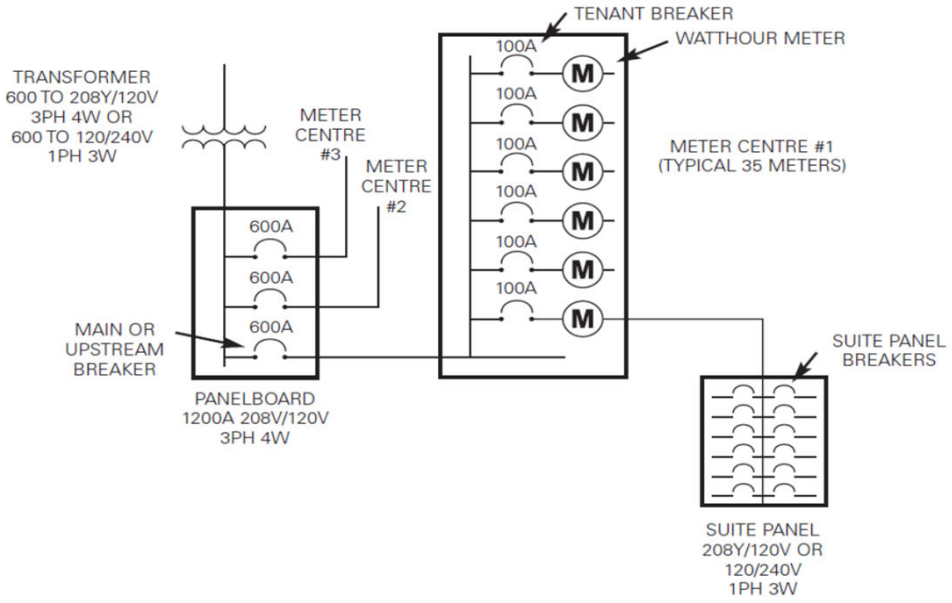


Figure 6 - Meter Centre Application

Meter Centre: CMM Design, 600Y/347V 3-Phase 4 Wire

Maximum Fault Level Available at Main or Upstream Device (kA)	Suite Panel Breakers (1)	Tenant/Remote Panel Main Breakers (3) (4)	Main or Upstream Breaker Type (3) (4)			
			MAXIMUM FRAME SIZE / AMPS			
			100A	225A	400A	400A
35	GBH	FDB, PDG2xF FD, PDG2xG HFD, PDG2xM FDC, PDG2xP (5)	FDC, PDG2xP (5)		–	–
50	GBH	FDB, PDG2xF FD, PDG2xG HFD, PDG2xM FDC, PDG2xP (5)	(2) FDB + LFD PDG2xF + LFD	–	–	–

Maximum Fault Level Available at Main or Upstream Device (kA)	Suite Panel Breakers (1)	Tenant/Remote Panel Main Breakers (3) (4)	Main or Upstream Fuse Type			
			MAXIMUM AMPS			
			100A	200A	400A	600A
100	GBH	FD, FDE, PDG2xG HFD, HFDE, PDG2xM FDC, PDG2xP (5)	J,T		–	–

NOTES: **(1) GHB/GBH breakers are suitable for use only on 3-phase 4-wire (solidly) grounded wye systems**
(2) 150A Maximum. Can substitute higher rated F-Frame breakers (FD+LFD, PDG2xG+LFD, etc.)
(3) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(4) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)
(5) Thermal Mag trip unit only

Pow-R-Line 1a/1X/1R/1RX Panelboard - 120/240V and 240V; 208Y/120V, Switchboards and MCCs (2)

Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers	Main or Upstream Breaker Type (3)(4)				
		MAXIMUM FRAME SIZE / AMPS				
		100A	225A	250A	400A	600A
18	BAB, BA, DNBA, BABR, QBAF QBCAF, QBGFT, QBGF, QBAG GFCBB, QBGFEP, QBEP	EHD PDG2xF	ED, PDD2xG, PDD2xK EDH, PDD2xM EDC, PDD2xN, PDD2xP FD, FDE, PDG2xG, PDG2xK HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	JDB, JD, HJD JDC, JGE, JGS JGH, JGC, JGX JGU	DK, PDD3xG KD, PDG3xG, PDG3xK CKD, PDF3xG, PDF3xK HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP LCL	–
22		QBHW				–
65		GB, GHB, GBH				–
	QBHW, QBHCAF, QBHGFT QBHGF, QBHGFEP QBHEP, QBHAF					LGS, PDG3xG, PDG3xK LD HLD, PDG3xM LDC , PDG3xN, PDG3xP CLD,PDF3xG (6), PDF3xK (6) CHLD, PDF3xM (6) CLDC
100	BA, BAB, BABR, DNBA, GFCBB QBAF, QBAG, QBCAF, QBGFT QBGF, QBGFEP, QBEP, QBHAF QBHW, QBHCAF, QBHGFT QBHGF, QBHGFEP, QBHEP	(5) FB-P	EDH, PDD2xM EDC,PDD2xN, PDD2xP HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	HJD, JDC	LCL	–
	QBHW (2P & 3P Only)	–	–	–	HKD, PDG3xM CHKD, PDF3xM	–
	QBHW	–	FDC, PDG2xN, PDG2xP	–	KDC, PDG3xN, PDG3xP	–
200	BA, BAB, BABR, DNBA, GFCBB QBAF, QBAG, QBCAF, QBGFT QBGF, QBGFEP, QBEP, QBHAF QBHW, QBHCAF, QBHGFT QBHGF, QBHGFEP, QBHEP	FCL 100A	(1) FDB + LFD PDG2xF + LFD	LCL	LCL	–

Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers	Upstream Fuse Type			
		MAXIMUM AMPS			
		100A	200A	400A	600A
100	BA, BAB, BABR, DNBA, GFCBB QBAF, QBAG, QBCAF, QBGFT QBGF, QBGFEP, QBEP, QBHAF QBHW, QBHCAF, QBHGFT QBHGF, QBHGFEP, QBHEP	J,T,R	J,T		–
200		J,T,R	J,T	–	–

NOTES:

(1) 150A Maximum. Can substitute higher rated F-Frame breakers (FD+LFD, PDG2xG+LFD, etc.)
(2) For MCCs, please refer to Page 8: "Motor Load Contribution" and the 1% rule
(3) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(4) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)
(5) FB-P = FB Tri-Pac
(6) For separately mounted upstream device

POW-R-Line 2a/2X/2R/2RX Panelboard, Switchboards and MCCs (3)

Voltage	Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers	Main or Upstream Breaker Type (4) (5)			
			MAXIMUM FRAME SIZE / AMPS			
			225A	250A	400A	600A
208Y/120 and 240V	85	GB, GHB, GBH				LGS, PDG3xK
	100		EDH, PDD2xM EDC, PDD2xN, PDD2xP HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	HJD, JDC, JGH JGC, JGX, JGU	HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP LCL	LGH, HLD, PDG3xM CHLD, PDF3xM (6) LDC, CLDC
	200		FCL (100A) FDC, PDG2xP, FDB + LFD (2) PDG2xF + LFD (2)	JDC, LCL	KDC, PDG3xP LCL	–
480Y/277	25	GHB, GBH (1)	FD, FDE, PDG2xG HFD, HFDE, PDG2xK, PDG2xM FDC, PDG2xP	JDB, JD, HJD, JDC JGE, JGS, JGH JGC, JGX, JGU	KD, PDG3xG, PDG3xK CKD, PDF3xG, PDF3xK HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	–
	35			JD, HJD, JDC, JGS JGH, JGC, JGX, JGU		–
	65		HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	HJD, JDC, JGH JGC, JGX, JGU	HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	–
	100		FDC, PDG2xN, PDG2xP	JDC, LCL	KDC, PDG3xP LCL	
	150		FCL 100A	LCL	LCL	
	200		(2) FDB + LFD PDG2xF + LFD	–	–	–
600Y/347	14	GBH (1)	FDB, PDG2xF FD, FDE, PDG2xG, PDG2xK HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	JDB, JD, HJD, JDC	KD, PDG3xG, PDG3xK CKD, PDF3xG, PDF3xK HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	LD, HLD LDC, CLD CHLD, CLDC
	18		FD, FDE, PDG2xG, PDG2xK HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	JD, HJD, JDC		
	25		HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	–	–	–
	35		FDC, PDG2xP (7)	–	–	–
	50		(2) FDB + LFD PDG2xF + LFD	–	–	–

Voltage	Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers	Upstream Fuse Type			
			MAXIMUM AMPS			
			100A	200A	400A	600A
208Y/120 and 240V	100	GB, GHB, GBH	J,T,R	J,T,R	J,T	J,T
	200			J,T	J,T	–
480Y/277	100	GHB, GBH (1)	J,T,R	J,T,R	J,T	–
	200			J,T	J,T	–
600Y/347	100	GBH (1)	J,T	J,T	–	–

NOTES:
(1) GHB/GBH breakers are suitable for use only on 3-phase 4-wire (solidly) grounded wye systems
(2) 150A Maximum. Can substitute higher rated F-Frame breakers (FD+LFD, PDG2xG+LFD, etc.)
(3) For MCCs, please refer to Page 8: "Motor Load Contribution" and the 1% rule
(4) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(5) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)
(6) For separately mounted upstream device
(7) Thermal Mag trip unit only

POW-R-Line 3a/3X Panelboard, Switchboards and MCCs (3)

Voltage	Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers (5)	Main or Upstream Breaker Type (6)(7)					
			MAXIMUM FRAME SIZE / AMPS					
			225A	250A	400A	600A	800A	1200A
120/240 and 240V	65	BAB, BA, DNBA, BABR GFCBB, QBAF, QBAG QBCAF QBGFT, QBGF QBGFEP, QBEP	ED, PDD2xG, PDD2xK EDH, PDD2xM EDC, PDD2xN, PDD2xP FD, FDE, PDG2xG, PDG2xK HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	JDB, JD, HJD, JDC JGE, JGS JGH JGC, JGX, JGU	DK, PDD3xG KD, PDG3xK CKD, PDF3xK HKD, PDG3xG, PDG3xM CHKD, PDF3xG, PDF3xM KDC, PDG3xN, PDG3xP LCL	–	–	–
		QBHW, QBHCAF QBHAF, QBHGFEP QBHEP, QBHGFT, QBHGF EHD, FDB, PDG2yF				LGS, PDG3xK LD, PDG3xK LGH, HLD, PDG3xM LGC, LDC, PDG3xN, PDG3xP CLD, PDF3xK (8) CHLD, PDF3xM (8) CLDC	–	–
	100	BA, BAB, BABR, DNBA, GFCBB QBAF, QBAG, QBCAF, QBGFT QBGF, QBGFEP, QBEP, QBHAF QBHW, QBHCAF, QBHGFT QBHGF, QBHGFEP, QBHEP	EDH, PDD2xM EDC, PDD2xN, PDD2xP HFD, HFDE,PDG2xM FDC, PDG2xN, PDG2xP	HJD, JDC, JGH JGC, JGX ,JGU	LCL	–	–	–
		QBHW (2P & 3P Only)	–	–	HKD, PDG3xM CHKD, PDF3xM	–	–	–
		QBHW	FDC, PDG2xN, PDG2xP	–	KDC, PDG3xN, PDG3xP	–	–	–
		GB, GHB, GBH	EDH, PDD2xM EDC, PDD2xN, PDD2xP HFD, HFDE,PDG2xM FDC, PDG2xN, PDG2xP	HJD, JDC, JGH JGC, JGX ,JGU	HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP LCL	LGH, HLD, PDG3xM LGC, LDC, PDG3xN, PDG3xP CHLD, PDF3xM (8) CLDC LGU, LGX	–	–
		ED, PDD2yG, PDD2yK, PDD2yM EHD, FDB, PDD2yF FD, FDE, PDG2yF, PDG2yG, PDG2yK, PDG2yM					HMDL, PDG4xM CHMDL, PDF4xM NGH-C, CHND, PDF5xM NGH, PDG5xM NDC, NGC, PDG5xN, PDG5xP NGC-C, CNDC, PDF5xN, PDF5xP	HND, NGH, PDG5xM NGH-C, CHND, PDF5xM NDC, NGC, PDG5xN, PDG5xP NGC-C, CNDC, PDF5xN, PDF5xP
	200	BA, BAB, BABR, DNBA, GFCBB QBAF, QBAG, QBCAF, QBGFT QBGF, QBGFEP, QBEP, QBHAF QBHW, QBHCAF, QBHGFT QBHGF, QBHGFEP, QBHEP	(2) FDB + LFD PDG2xF + LFD	LCL	LCL	–	–	–
		GB, GHB, GBH	FDC, PDG2xP FDB + LFD (2) PDG2xF + LFD (2)	JDC, LCL	KDC, PDG3xP LCL	LDC, PDG3xP CLDC	–	–
		EDH, PDD2yM EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM				LGC, LDC, PDG3xP CLDC LGU, LGX	–	–
480Y/277	25	GHB, GBH (1) EHD, FDB, PDG2yF	FD, FDE, PDG2xG HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	JDB, JD, HJD, JDC JGE, JGS JGH JGC, JGX, JGU	KD, PDG3xG, PDG3xK CKD, PDF3xG, PDF3xK HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	–		
	35	GHB, GBH (1)	HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	JD, HJD, JDC JGS, JGH, JGC JGX, JGU		–		
		EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG				LGS, LD, PDG3xK LGE, PDG3xG LGH, HLD, PDG3xM LGC, LDC, PDG3xN, PDG3xP CLD, PDF3xG (8), PDF3xK (8) CHLD, PDF3xM (8) CLDC LGU, LGX		
	65	GHB, GBH (1)	HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	HJD, JDC, JGH JGC, JGX, JGU	HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	–		
		EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG, PDG2yM				LGH, HLD, PDG3xM LGC, LDC, PDG3xN, PDG3xP CHLD, PDF3xM (8) CLDC LGU, LGX		
	100	GHB, GBH (1)	FDC, PDG2xP	JDC, LCL	KDC, PDG3xP LCL	–		
		EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM	FDC, PDG2xP FB-P (4)	JDC, LCL LA-P (4)		–		
	150	GHB, GBH (1) EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM FDC, PDG2yN, PDG2yP	FCL 100A	LCL	LCL	–		
	200		(2) FDB + LFD PDG2xF + LFD	–	–	–		

NOTES:
(1) GHB/GBH breakers are suitable for use only on 3-phase 4-wire (solidly) grounded wye systems
(2) 150A Maximum. Can substitute higher rated F-Frame breakers (FD+LFD, PDG2xG+LFD, etc.)
(3) For MCCs, please refer to Page 8: "Motor Load Contribution" and the 1% rule
(4) FB-P = FB Tri-Pac
(5) For Power Defense Breakers, PDD2yG, PDG3yM, etc., y = 1, 2 or 3
(6) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(7) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)
(8) For separately mounted upstream device

POW-R-Line 3a/3X Panelboard, Switchboards and MCCs (3)

Voltage	Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers (4)	Main or Upstream Breaker Type (5)			
			MAXIMUM FRAME SIZE / AMPS			
			225A	250A	400A	600A
600Y/347	14	GBH (1)	FDB, PDG2xF, PDG2xK FD, FDE, PDG2xG HFD, HFDE, PDG2xM FDC, PDG2xP	JD, HJD, JDC	KD, PDG3xK CKD, PDF3xK HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	LD, HLD LDC, CLD CHLD, CLDC
	18	GBH (1) FDB, PDG2yF, PDG2yK, PDG2yG, PDG2yM	FD, FDE, PDG2xG HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP			
	25	FDB, PDG2yF FD, FDE, PDG2yG	HFD, HFDE, PDG2xM FDC, PDG2xP	HJD, JDC		LGS, PDG3xK LD, PDG3xK HLD, PDG3xM LDC, PDG3xN, PDG3xP CLD, PDF3xK (7) CHLD, PDF3xM (7) CLDC
		GBH (1)		_	_	_
	35	GBH (1)	FDC, PDG2xP (8)	_	_	_
		FDB, PDG2yF. PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM		JDC	HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	LGH, HLD, PDG3xM LGC, LDC, PDG3xN, PDG3xP CHLD, PDF3xM (7) CLDC LGU, LGX
	50	GBH (1)	(2) FDB + LFD PDG2xF + LFD	_	_	_
		FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM FDC, PDG2yN, PDG2yP	FB-P, LA-P FDB + LFD (2) PDG2xF + LFD (2)	LCL	KDC, PDG3xN, PDG3xP LCL	_
	65	FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM FDC, PDG2yN, PDG2yP	FB-P, LA-P FDB + LFD (2) PDG2xF + LFD (2)	LCL	KDC, PDG3xP, LCL	_
	100				LCL	_
	200		(2) FDB + LFD PDG2xF + LFD	_	_	_

NOTE: FB-P = FB Tri-Pac, LA-P = LA Tri-Pac

Voltage	Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers (5)	Upstream Fuse Type			
			MAXIMUM AMPS			
			100A	200A	400A	600A
120/240 AND 240	100	BA, BAB, BABR, DNBA GFCBB, QBAF, QBAG QBCAF, QBGFT, QBGF QBGFEP, QBEP, QBHW QBHGFT, QBHGF QBHGFEP, QBHEP QBHCAF	J,T	J,T	J,T	_
		GB, GHB, GBH	J,T,R	J,T,R		
		ED,PDD2yF, PDD2yG, PDD2yK, PDD2yM EHD, FDB, PDG2yF FD, FDE, PDG2yG, PDG2yK, PDG2yM	J,T	J,T		J,T
	200	BA, BAB, BABR, DNBA GFCBB, QBAF, QBAG QBCAF, QBGFT, QBGF QBGFEP, QBEP, QBHW QBHGFT, QBHGF QBHGFEP, QBHEP QBHCAF	J,T,R	J,T	_	_
		GB, GHB, GBH			J,T	
		ED, PDD2yF, PDD2yG, PDD2yK EDH, PDD2yM EDC, PDD2yN, PDD2yP EHD, FDB, PDG2yF FD, FDE, PDG2yG, PDG2yK HFD, HFDE PDG2yM				
480Y/277 and 480	100	GHB, GBH (1)	J,T,R	J,T,R	J,T	_
		EHD, FDB, PDG2yF FD, FDE, PDG2yG, PDG2yK HFD, HFDE PDG2yM		J,T		J,T
	200	GHB, GBH (1)	J,T	J,T	J,T	_
		EHD, FDB, PDG2yF FD, FDE, PDG2yG, PDG2yK HFD, HFDE PDG2yM	J,T,R			
600Y/347 and 600	100	GBH (1)	J,T	J,T	_	_
		FDB, PDG2yF FD, FDE, PDG2yG, PDG2yK HFD, HFDE PDG2yM FDC, PDG2yN, PDG2yP	J,T,R		J,T	
	200		J,T,R	J,T	_	_

NOTES:
(1) GHB/GBH breakers are suitable for use only on 3-phase 4-wire (solidly) grounded wye systems
(2) 150A Maximum. Can substitute higher rated F-Frame breakers (FD+LFD, PDG2xG+LFD, etc.)
(3) For MCCs, please refer to Page 8: "Motor Load Contribution" and the 1% rule
(4) For Power Defense Breakers, PDD2yG, PDG3yM, etc., y = 1, 2 or 3
(5) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(6) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)
(7) For separately mounted upstream device
(8) Thermal Mag trip unit only

Pow-R-Line 3e Panelboard

Voltage	Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers (1)	Main or Upstream Breaker Type (2) (3)		
			MAXIMUM FRAME SIZE / AMPS		
			225A	250A	400A
120/240 and 240	100	EGE, EGH PDG1yF, PDG1yM	EDH, PDD2xM EDC, PDD2xP HFD, HFDE, PDG2xM FDC, PDG2xP	HJD	HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xP
	200		FDC, PDG2xP	JDC	KDC, PDG3xP
480Y/277	25	EGE, EGH PDG1yF, PDG1yM	FD, FDE, PDG2xG HFD, HFDE, PDG2xM FDC, PDG2xP	–	KD, PDG3xK CKD, PDF3xK HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xP
	35		HFD, HFDE, PDG2xM FDC, PDG2xP		
	65			HJD	HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xP
	100		FDC, PDG2xP	JDC	KDC, PDG3xP
600Y/347	25	EGE, EGH PDG1yF, PDG1yM	–	–	KDC, PDG3xP
	35		FDC, PDG2xP		
	65		–		

Voltage	Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers	Upstream Fuse Type (max. amps)		
			100A	200A	400A
208Y/120 and 240	100	EGE, EGH PDG1yF, PDG1yM			
	200				
480Y/277	100				
	200				
600Y/347	100				
	200				

Data Not Available

NOTES: (1) For Power Defense Breakers, PDG1yF, etc., y = 1, 2 or 3
(2) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(3) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)

POW-R-Line 4/4X Panelboard, Switchboards and MCCs (3)

Voltage	Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers (4)(8)	Main or Upstream Breaker Type (5) (6)					
			MAXIMUM FRAME SIZE / AMPS					
			225A	250A	400A	600A	800A	1200A
208Y/120 and 240V (1)	65	BA, BAB, BABR, DNBA GFCBB, QBAF, QBAG QBCAF QBGFT, QBGF QBGFEP, QBEP	ED, PDD2xG, PDD2xK EDH, PDD2xM EDC, PDD2xN, PDD2xP FD, FDE, PDG2xG, PDG2xK HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	JDB, JD, HJD, JDC JGE, JGS, JGH JGC, JGX, JGU	DK, PDD3xG KD, PDG3xK CKD, PDF3xK HKD, PDG3xG, PDG3xM CHKD, PDF3xG, PDF3xM KDC, PDG3xN, PDG3xP LCL	–	–	–
		QBHW, QBHCAF QBHAF, QBHGFEP QBHEP, QBHGFT, QBHGF EHD, FDB, PDG2yF				PDG3xG LD, PDG3xK HLD, PDG3xM LDC, PDG3xN, PDG3xP CLD, PDF3xK (7) CHLD, PDF3xG (7), PDF3xM (7) CLDC	–	–
	100	BA, BAB, BABR, DNBA GFCBB, QBAF, QBAG QBCAF, QBGFT, QBGF QBGFEP, QBEP, QBHW QBHGFT, QBHGF QBHGFEP, QBHEP QBHCAF, QBHAF	EDH, PDD2xM EDC, PDD2xN, PDD2xP HFD, HFDE,PDG2xM FDC, PDG2xN, PDG2xP	HJD, JDC, JGH JGC, JGX ,JGU	LCL	–	–	–
		QBHW (2P & 3P Only)	–	–	HKD, PDG3xM CHKD, PDF3xM	–	–	–
		QBHW	–	–	KDC, PDG3xN, PDG3xP	–	–	–
		GB, GHB, GBH	EDH, PDD2xM EDC, PDD2xN, PDD2xP HFD, HFDE,PDG2xM FDC, PDG2xN, PDG2xP	HJD, JDC, JGH JGC, JGX ,JGU	HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP LCL	LGH, HLD, PDG3xM LGC, LDC, PDG3xN, PDG3xP CHLD, PDF3xM (7) CLDC LGU, LGX	–	–
		ED, PDD2yG, PDD2yK, PDD2yM EHD, FDB, PDD2yF FD, FDE, PDG2yF, PDG2yG, PDG2yK, PDG2yM					HMDL, PDG4xM CHMDL, PDF4xM NGH, PDG5xM NGH-C, PDF5xM NGC, PDG5xN, PDG5xP NGC-C, PDG5xN, PDF5xP	HND, NGH, PDG5xM NGH-C, CHND, PDF5xM NDC, NGC, PDG5xN, PDG5xP NGC-C, CNDC, PDF5xN, PDF5xP
		JD, JDB, JGE, JGS DK, PDD3yG KD, PDG3yF, PDG3yG, PDG3yK, PDG3yM CKD, PDF3yF, PDF3yG PDF3yK, PDF3yM LD, CLD	–	–	–	LGH, HLD, PDG3xM LGC, LDC, PDG3xN, PDG3xP CHLD, PDF3xM (7) CLDC LGU, LGX	–	–
	200	BA, BAB, BABR, DNBA GFCBB, QBAF, QBAG QBCAF, QBGFT, QBGF QBGFEP, QBEP, QBHW QBHGFT, QBHGF QBHGFEP, QBHEP QBHCAF, QBHAF	(2) FDB + LFD PDG2xF + LFD	LCL	LCL	–	–	–
		GB, GHB, GBH ED, PDD2yF, PDD2yG, PDD2yK EDH, PDD2yM EHD, FDB, PDG2yF FD, FDE, PDG2yG , PDG2yK HFD, HFDE PDG2yM	FDC, PDG2xP FDB + LFD (2) PDG2xF + LFD (2)	JDC, LCL	KDC, PDG3xP LCL	–	–	–
		ED, PDD2yF, PDD2yG, PDD2yK EDH, PDD2yM EHD, FDB, PDG2yF FD, FDE, PDG2yG, PDG2yK HFD, HFDE PDG2yM		JDC, LCL	KDC, PDG3xP LCL	LGC, PDG3xP LGU, LGX	–	–

NOTES:
(1) For PRL 1a/2a/1x/2x sub chassis, refer to the respective charts
(2) 150A Maximum. Can substitute higher rated F-Frame breakers (FD+LFD, PDG2xG+LFD, etc.)
(3) For MCCs, please refer to Page 8: "Motor Load Contribution" and the 1% rule
(4) For Power Defense Breakers, PDD2yG, PDG3yM, etc., y = 1, 2 or 3
(5) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(6) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)
(7) For separately mounted upstream device
(8) For Power Defense Breakers, PDz3, z= G, F, D, maximum alllowable 400A

POW-R-Line 4/4X Panelboard, Switchboards and MCCs (3)

Voltage	Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers (5)(9)	Main or Upstream Breaker Type (6) (7)			
			MAXIMUM FRAME SIZE / AMPS			
			225A	250A	400A	600A
480Y/277	25	GHB, GBH (1) EHD, FDB, PDG2yF, PDG2yK, PDG2yG, PDG2yM	FD, FDE, PDG2xG, PDG2xK HFD, HFDE, PDG2xM, FDC, PDG2xN, PDG2xP	JDB, JD, HJD, JDC JGE, JGS JGH JGC, JGX, JGU	KD, PDG3xG, PDG3xK CKD, PDF3xG, PDF3xK HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	_
	35	GHB, GBH (1)	HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	JD, HJD, JDC JGS, JGH, JGC JGX, JGU		_
		EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG, PDG2yM				LGE, PDG3xG LGS, PDG3xK LD LGH, HLD, PDG3xM LGC, LDC, PDG2xN, PDG3xP PDF3xG (8) CLD, PDF3xK (8) CHLD, PDF3xM (8) CLDC LGU, LGX
		JDB, JD, JGE	_	HJD, JDC		LGS, PDG3xK LD LGH, HLD, PDG3xM LGC, LDC, PDG3xN, PDG3xP PDF3xG (8) CLD, PDF3xK (8) CHLD, PDF3xM (8) CLDC LGU, LGX
	65	GHB, GBH (1)	HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	HJD, JDC, JGH JGC, JGX, JGU	HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	_
		EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG, PDG2yM				LGH, HLD, PDG3xM LGC, LDC, PDG3xN, PDG3xP CHLD, PDF3xM (8) CLDC LGU, LGX
		JDB, JD, JGE, JGS	_			
		KD, PDG3yF, PDG3yG, PDG3yK, PDG3yM CKD, PDF3yF, PDF3yG, PDF3yK, PDF3yM LD, CLD		_		
	100	GHB, GBH (1)	FDC, PDG2xP	JDC, LCL	KDC, PDG3xP LCL	_
		EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM	FDC, PDG2xP, FB-P (4)	JDC, LCL LA-P (4)		
		JDB, JD, HJD JGE, JGS, JGH	_	JDC	KDC, PDG3xP	
		KD, PDG3yF, PDG3yG, PDG3yK CKD, PDF3yF, PDF3yG, PDF3yK HKD, PDG3yM CHKD, PDF3yM LD, HLD CLD, CHLD		_		
	150	GHB, GBH (1) EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM FDC,PDG2yN, PDG2yP	FCL 100A	LCL	LCL	_
		JD, JDB, HJD, JDC KD, PDG3yF, PDG3yG, PDG3yK CKD, PDF3yF, PDF3yG, PDF3yK HKD, PDG3yM CHKD, PDF3yM KDC, PDG3yN, PDG3yP	_	_		
	200	GHB, GBH (1) EHD, FDB, PDG2yF, PDG2yG, PDG2yK FD, FDE, PDF2yF, PDF2yG, PDF2yK HFD, HFDE, PDG2yM FDC, PDG3yN, PDG3yP	(2) FDB + LFD PDG2xF + LFD	_	_	_

NOTES:
(1) GHB/GBH breakers are suitable for use only on 3-phase 4-wire (solidly) grounded wye systems
(2) 150A Maximum. Can substitute higher rated F-Frame breakers (FD+LFD, PDG2xG+LFD, etc.)
(3) For MCCs, please refer to Page 8: "Motor Load Contribution" and the 1% rule
(4) FB-P = FB Tri-Pac, LA-P = LA Tri-Pac
(5) For Power Defense Breakers, PDD2yG, PDG3yM, etc., y = 1, 2 or 3
(6) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(7) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)
(8) For separately mounted upstream device
(9) For Power Defense Breakers, PDz3, z= G, F, D, maximum alllowable 400A

POW-R-Line 4/4X Panelboard, Switchboards and MCCs (3)

Voltage	Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers (5)(9)	Main or Upstream Breaker Type (6) (7)			
			MAXIMUM FRAME SIZE / AMPS			
			225A	250A	400A	600A
600Y/347	14	GBH (1)	FDB, PDG2xF FD, FDE, PDG2xG, PDG2xK HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	JD, HJD, JDC	KD, PDG3xG, PDG3xK CKD, PDF3xG, PDF3xK HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	LD, HLD LDC, CLD CHLD, CLDC
	18	GBH (1) FDB, PDG2yF, PDG2yK, PDG2yG, PDG2yM	FD, FDE, PDG2xG, PDG2xK HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP			
	25	FDB, PDG2yF, PDG2yK, PDG2yM FD, FDE, PDG2yG	HFD, HFDE, PDG2xM FDC, PDG2xN, PDG2xP	HJD, JDC	KD, PDG3xG, PDG3xK CKD, PDF3xG, PDF3xK HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	LGS, PDG3xG, PDG3xK LD HLD, PDG3xM LDC, PDG3xN, PDG3xP CLD, PDF3xG (8), PDF3xK (8) CHLD, PDF3xM (8) CLDC
		JD, JDB, JGE	–			
	35	GBH (1)	FDC, PDG2xP (10)	–	–	–
		FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM FDC, PDG2yN, PDG2yP		JDC	HKD, PDG3xM CHKD, PDF3xM KDC, PDG3xN, PDG3xP	LGH, HLD, PDG3xM LGC, LDC, PDG3xN, PDG3xP CHLD, PDF3xM (8) CLDC LGU, LGX
		JD, JDB, HJD, JGE, JGS	–			
		KD, PDG3yF,PDG3yG, PDG3yK, PDG3yM CKD, PDF3yF, PDF3yG, PDF3yK, PDF3yM LD, CLD		–	–	
	50	GBH (1)	(2) FDB + LFD PDG2xF + LFD	–	–	–
		FDB, PDG2yF. PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM	FB-P, LA-P (4) FDB + LFD (2) PDG2xF + LFD (2)	LCL	KDC, PDG3xN, PDG3xP LCL	
		JD, JDB, HJD, JDC	–	LCL	KDC,PDG3xN, PDG3xP	
		KD, PDG3yF,PDG3yG, PDG3yK, PDG3yM CKD, PDF3yF, PDF3yG, PDF3yK, PDF3yM	–	–		–
	65	FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM FDC, PDG2yN, PDG2yP	FB-P, LA-P (4) FDB + LFD (2) PDG2xF + LFD (2)	LCL	KDC, PDG3xP LCL	–
		KD, PDG3yF, PDG3yG, PDG3yK CKD, PDF3yF, PDF3yG, PDF3yK HKD, PDG3yM CHKD, PDF3yM	–	LCL	KDC, PDG3xP	
	100	FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM FDC, PDG2yN, PDG2yP	FB-P, LA-P (4) FDB + LFD (2) PDG2xF + LFD (2)	LCL	LCL	–
		JD, JDB, HJD, JDC	–			
		KD, PDG3yF, PDG3yG, PDG3yK CKD, PDF3yF, PDF3yG, PDF3yK HKD, PDG3yM CHKD, PDF3yM KDC, PDG3yP				
	200	FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM FDC, PDG2yN, PDG2yP	(2) FDB + LFD PDG2xF + LFD	–	–	–

NOTES: **(1) GHB/GBH breakers are suitable for use only on 3-phase 4-wire (solidly) grounded wye systems**
(2) 150A Maximum. Can substitute higher rated F-Frame breakers (FD+LFD, PDG2xG+LFD, etc.)
(3) For MCCs, please refer to Page 8: "Motor Load Contribution" and the 1% rule
(4) FB-P = FB Tri-Pac, LA-P = LA Tri-Pac
(5) For Power Defense Breakers, PDD2yG, PDG3yM, etc., y = 1, 2 or 3
(6) For Power Defense Breakers, PDD2xG, PDG3xM, etc., x = 2 or 3
(7) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)
(8) For separately mounted upstream device
(9) For Power Defense Breakers, PDz3, z= G, F, D, maximum alllowable 400A **(10) Thermal Mag trip unit only**

POW-R-Line 4/4X Panelboard, Switchboards and MCCs (2)

Voltage	Maximum Fault Level Available at Main or Upstream Device (kA)	Branch Breakers (3) (4)	Upstream Fuse Type (max. amps)	
			400A	600A
120/240 AND 240	100	BA, BAB, BABR, DNBA GFCBB, QBAF, QBAG QBHAF, QBCAF QBGFT QBGF, QBGFEP, QBEP QBHW, QBHGFT, QBHGF QBHGFEP, QBHEP, QBHCAF	J,T	–
		GB, GHB, GBH		J,T
		ED,PDD2yF, PDD2yG, PDD2yK EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG		
	200	GB, GHB, GBH	J,T	–
		ED, PDD2yF, PDD2yG, PDD2yK EDH, PDD2yM EDC, PDD2yN, PDD2yP EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE PDG2yM		
480Y/277 and 480	100	GHB, GBH (1)	J,T	–
		EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE PDG2yM		J,T
		JDB, JD, HJD		
		KD, PDG3yF, PDG3yG, PDG3yK CKD, PDF3yF (5), PDF3yG (5), PDF3yK (5) HKD, PDG3yM CHKD, PDF3yM (5)	J,T,R	
		LD, PDG3yF, PDG3yG, PDG3yK HLD, PDG3yM CLD, CHLD		
	200	GHB, GBH (1)	J,T	–
		EHD, FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE PDG2yM		
		KD, PDG3yF, PDG3yG, PDG3yK CKD, PDF3yF (5), PDF3yG (5), PDF3yK (5) HKD, PDG3yM CHKD, PDF3yM (5) KDC, PDG3yN, PDG3yP		J,T
600Y/347 and 600	100	FDB, PDG2yF, PDG2yK FD, FDE, PDG2yG HFD, HFDE, PDG2yM FDC, PDG2yN, PDG2yP	J,T	–
		JDB, JD, HJD, JDC		
		KD, PDG3yF, PDG3yG, PDG3yK CKD, PDF3yF (5), PDF3yG (5), PDF3yK (5) HKD, PDG3yM CHKD, PDF3yM (5) KDC, PDG3yN, PDG3yP	J,T,R	J,T
		LD, PDG3yK HLD, PDG3yM LDC, PDG3yP CLD, CHLD, CLDC		
	200	KD, PDG3yF, PDG3yG, PDG3yK CKD, PDF3yF (5), PDF3yG (5), PDF3yK (5) HKD, PDG3yM CHKD, PDF3yM (5) KDC, PDG3yN, PDG3yP	J,T	J,T

NOTES: **(1) GHB/GBH breakers are suitable for use only on 3-phase 4-wire (solidly) grounded wye systems**
(2) For MCCs, please refer to Page 8: "Motor Load Contribution" and the 1% rule
(3) For Power Defense Visi-Breakers Cat. Nos. are: PDS.. (80% Rated); PDV.. (100% Rated)
(4) For Power Defense Breakers, PDD2yG, PDG3yM, etc., y = 1, 2 or 3
(5) 400A Frame Only

Series C	Power Defense (PD)	PD Voltage Rating	Notes
ED	PDD2xG	240V	
EDH	PDD2xM	240V	
EDC	PDD2xP	240V	
EHD	PDG2xF	600V	
FDB	PDG2xF	600V	
FD, FDE	PDG2xG	600V	
HFD, HFDE	PDG2xM	600V	
FDC	PDG2xP	600V	
LFD LIMITER	Same as previous offering		
DK	PDD3xG	240V	
KD	PDG3xK	600V	
HKD	PDG3xM	600V	
CKD	PDF3xK	600V	100% RATED
CHKD	PDF3xM	600V	100% RATED
LD	PDG3xK	600V	
HLD	PDG3xM	600V	
LDC	PDG3xP	600V	
CLD	PDF3xK	600V	100% RATED
CHLD	PDF3xM	600V	100% RATED
CLDC	PDF3xP	600V	100% RATED
LGS	PDG3xK	600V	
LGE	PDG3xG	600V	
LGH	PDG3xM	600V	
LGC	PDG3xP	600V	
MDL	PDG4xK	600V	
HMDL	PDG4xM	600V	
CMDL	PDF4xK	600V	100% RATED
CHMDL	PDF4xM	600V	100% RATED
HND	PDG5xM	600V	
NDC	PDG5xP	600V	
CHND	PDF5xM	600V	100% RATED
CNDC	PDF5xP	600V	100% RATED
NGS	PDG5xK	600V	
NGH	PDG5xM	600V	
NGC	PDG5xP	600V	
NGH-C	PDF5xM	600V	100% RATED
NGC-C	PDF5xP	600V	100% RATED
VISI-Breakers	PDS……	80% Rated	600V FRAME ONLY
	PDV…..	100% Rated	600V FRAME ONLY

PDD	240V	80% RATED
PDG	600V	80% RATED
PDF	600V	100% RATED

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* At Eaton, we believe that power is a fundamental part of just about everything people do. Technology, transportation, energy and infrastructure—these are things the world relies on every day. That's why Eaton is dedicated to helping our customers find new ways to manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. To improve people's lives, the communities where we live and work, and the planet our future generations depend upon. Because that's what really matters. And we're here to make sure it works.

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