EXMAS INTERNATIONAL SOLUTIONS LTD.

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Selection Guide

Multi Distribution Switchboard

Features

- Compact size, only 14 in. deep (356mm), and free standing
- Suitable for use as service entrance equipment, as per CSA requirements
- Tested and certified to CSA 22.2 No 31.
- Mains rating 400, 600, 800A, 1000A and 1200A
- System voltage: 120/240, 120/208, 277/480 and 347/600 Vac
- NEMA Type 1 or Type 2 or sprinkler protected enclosures
- Full height add-on or stand-alone distribution section
- Main section feeder interiors in either NQ lighting (240 Vac) or NF lighting (600 Vac) or I-Line™ power (600 Vac) platforms
- Both aluminum and copper bus options are available.

Structures

MDS switchboards are totally enclosed conveniently front accessible with ASA49 grey finish. All sections are complete with a 1.5 in. H (38 mm. H) base channel that adds to the 90 in. H (2,286 mm. H) shown below.

Incoming Section Options:

Incoming Auxiliary Section	Type	Height	Width	Depth
Main is remote	Bussed auxiliary	90 in. (2,286 mm.)	24 in. (610 mm.)	14 in. (356 mm.)
Single main incoming auxiliary	Un-bussed:	90 in. (2,286 mm.)	16 in. (406 mm.)	14 in. (356 mm.)
	Bussed	90 in. (2,286 mm.)	24 in. (610 mm.)	14 in. (356 mm.) 18 in. (457 mm.) 24 in. (610 mm.)
Drip loop	In conjunction with a bussed auxiliary section for B.C. Hydro	90 in. (2,286 mm.)	24 in. (610 mm.)	Same as Incoming Aux Section
Fire pump breaker*		90 in. (2,286 mm.)	12 in. (305 mm.)	24 in. (610 mm.)

**Fire pump Breaker Selection: From 60A up to 250A*

**Fire pump requires a bussed incoming auxiliary section*

Main Section:

- 90 in. H x 14 in. D x 30 in. W (2,286 mm. H x 356 mm. D x 762 mm. W) for indoor use NEMA Type 1 OR drip protected Type 2 OR sprinkler protected
- 90 in. H x 14 in. D x 38 in. W (2,286 mm. H x 356 mm. D x 965 mm. W) for indoor use NEMA Type 1 OR drip protected Type 2 OR sprinkler protected enclosures

Distribution Section:

- 90 in. H x 14 in. D x 36 in. W (2,286 mm. H x 356 mm. D x 914 mm. W) for indoor use NEMA Type 1 OR drip protected Type 2 OR sprinkler protected
- 90 in. H x 14 in. D x 42 in. W (2,286 mm. H x 356 mm. D x 1,066 mm. W) for indoor use NEMA Type 1 OR drip protected Type 2 OR sprinkler protected

Example of 1200 A Lug

Main Device Lug - without bussed incoming auxilliary section

Type of Main	System Ampacity	Standard Wire Range and Qty/ Phase & Neut
PowerPact L	400A	2/0 - 500 kcmil (2)
	600A	2/0 - 500 kcmil (2)
PowerPact P or M	400A or 600A	3/0 - 500 kcmil (3)
	800A	3/0 - 500 kcmil (3)
	1000A or 1200A	3/0 - 500 kcmil (4)

Standard is mechanical 500kcmil. For instances that incoming cables are larger than 500 kcmil a bussed Incoming auxilliary section must be used .

Main Device Lug - with bussed incoming auxilliary section

System Amps	Lug Type	CU Wire Range	Wire Qty/ Phase or Neut
400A	Al Mechanical	3/0 – 750 kcmil Optional 350-1000 kcmil	3
			2
			1
	1 Hole Al Compression	500 – 750 kcmil	2
			1
	1 Hole Cu Compression	400 – 750 kcmil	2
			1
600A	Al Mechanical	3/0 – 750 kcmil Optional 350-1000 kcmil	3
			2
	1 Hole Al Compression	500 – 750 kcmil	2
			1
	1 Hole Cu Compression	400 – 750 kcmil	2
			1
800A	Al Mechanical	3/0 – 750 kcmil Optional 350-1000 kcmil	3
			2
	1 Hole Al Compression	500 – 750 kcmil	3
			2
	1 Hole Cu Compression	400 – 750 kcmil	3
1000A	Al Mechanical	3/0 – 750 kcmil Optional 350-1000 kcmil	4
			3
			2
	1 Hole Al Compression	500 – 750 kcmil	4
			3
	1 Hole Cu Compression	400 – 750 kcmil	4
			3
			2
1200A	Al Mechanical	3/0 – 750 kcmil Optional 350-1000 kcmil	4
			3
	1 Hole Al Compression	500 – 750 kcmil	4
			3
	1 Hole Cu Compression	400 – 750 kcmil	4
			3

All lugs for use with Al or Cu wire
Cu lugs for use with Cu wire only

Main Circuit Breaker Selection

P-frame unit-mount

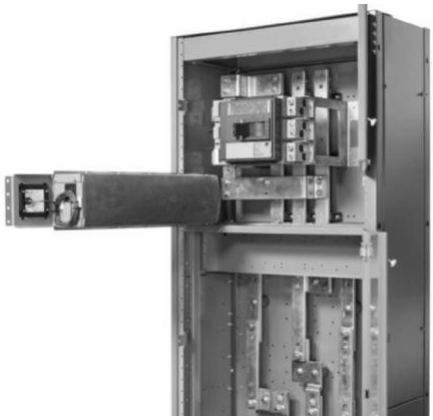
M-frame unit-mount

L-frame unit-mount

Main circuit breaker types are PowerPact™ L, M or P frame. MDS switchboard can be supplied with or without a feeder compartment or with/without a utility compartment.

Source Description	Max. System Voltage (Vac)	System Amps (A)	Max. Available Fault Current (KA)
Single Main	240	400 & 600	200
		800 to 1200	125
	480	400 & 600	200
		800 to 1200	100
	600	400 & 600	100
		800 to 1200	50
Main is Remote	240	All	200
	480	All	200
	600	All	100

Breaker Type	Ampere Rating	Frame Type	Interrupting Rating (KA) Max UL/CSA			Available Trip Values
			240Vac	480Vac	600Vac	
M-Frame Basic Electronic	300 350 400 450 500 600 700 800	MG	65	35	18	300-600
						700-800
		MJ	100	65	25	300-600
						700-800
P-Frame Basic Electronic	600-1200	PG	65	35	18	600-800 1000-1200
		PK	65	50	50	600-800 1000-1200
		PJ	100	65	25	600-800 1000-1200
		PL	125	100	–	600-800 1000-1200
P-Frame Micrologic trip circuit breaker 80% or 100% Rated	400-1200A	PG	65	35	18	160-1200A
		PK	65	50	50	
		PJ	100	65	25	
		PL	125	100	–	
L- Frame 80% Micrologic trip circuit breaker	400A or 600A	LD	25	18	14	125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600
		LG	65	35	18	
		LJ	100	65	25	
		LL	125	100	50	
		LR	200	200	100	
L- Frame 100% Micrologic trip circuit breaker	400A	LD	25	18	14	125, 150, 175, 200, 225, 250, 300, 350, 400
		LG	65	35	18	
		LJ	100	65	25	
		LL	125	100	50	
		LR	200	200	100	



Customer Metering

The new design of customer metering 6 in. H (152 mm. H) allows access to splice links and cable connections by swinging out. Access to line bus with main and utility compartment door in place is prevented by considering flanges at the top and bottom of the box.

The swing out compartment is trapped closed when the main and utility door is closed and sealed. Serviceable components inside the metering compartment is gained through a vented access cover.

Power Meter	PM5563	Options are available
	PM8244	in tables on page 20 "Switchboard customer metering"
I-ON Meter c/w Remote Display and Branded Exmas international solutions Electric	RMICAN 6200	Standard Measurement Package P6200R2A0B0A0A3N
		Enhanced 1Measurement Package P6200R2A0B0A0A3P
		P6200R2A0B0A0A3R Enhanced 2 Measurement Package
		P6200R2A0B0A0B3N Digital output, Standard Measurement Package
		P6200R2A0B0A0B3P Digital output, Enhanced 1Measurement Package
		P6200R2A0B0A0B3R Digital output, Enhanced 2 Measurement Package
	7330	P7330R0B0B0A0A0A Serial comms option
		P7330R0B0B0E0A0A Serial & Ethernet comms option
	7350	P7350R0B0B0A0A0A Serial comms option

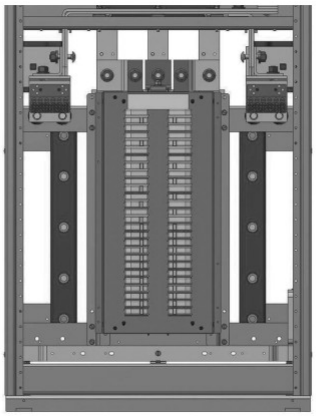
		P7350R0B0B0E0A0A Serial & Ethernet comms option

Multi Distribution Switchboard

Group Mounted NQ Circuit Breakers–Branch

NQ Lighting Panel Interior Features

- 240 Vac, maximum
- Reliable, versatile and convenient solution
- 600 A maximum interior rating
- 54 circuits available
- 70 A 1-P/ 125 A 2-P / 100 A 3-P maximum branch circuit breakers
- Interiors are available in plated copper or aluminum bus
- Interiors accept either bolt-on or plug-on branch circuit breakers



NQ Interior

Device Mounting	Breaker Frame ID	Pole	Trip Amps (A)
Bolt-on	QOB	1	15-60
			70
	QOB-VH	1	15-30
			40-60
			70
	QHB	1	15-30
	QOB	2	15-60
			70
			80-100
			110-125
	QOB-VH	2	15-60
			70
			80-100
			110-125
	QHB	2	15-30
	QOB	3	15-60
			70
			80-100
	QOB-VH	3	15-60
			70
			80-100
	QHB	3	15-30

Device Mounting	Breaker Frame ID	Pole	Trip Amps (A)
Plug-on	QO	1	15-60
			70
	QO-VH	1	15-30
	QH	1	15-30
	QO	2	15-60
			70
			80-100
			110-125
	QO-VH	2	15-60
			70
			80-100
			110-125
	QH	2	15-30
	QO	3	15-60
			70
			80-100
	QO-VH	3	15-60
			70
			80-100
	QH	3	15-30

Note: *Total number of QO breakers with ampacity greater than 60A that requires a neutral connection is 12.*

Group Mounted NF Circuit Breakers–Branch

NF Lighting Panel Interior Features

- 600Y/347 Vac maximum
- Reliable, versatile and convenient solution
- 42 circuits available.
- 800 A maximum, interior rating
- 125 A maximum branch mounted circuit breakers
  100 A maximum for system voltage 600Y/347 Vac
- Bolt-on branch circuit breakers attach with captive screws
- Branch circuit filler plates provided

Max Volts	Breaker Frame ID	Pole Qty	Trip Amps (A)
600Y/347 Max.	EDB	1	15-60
			70
	EGB	1	15-60
			70
	EJB	1	15- 60
			70
	EDB	2	15-60
			70-100
	EGB	2	15-60
			70 -100
	EJB	2	15-60
			70-100
	EDB	3	15-60
			70-100
	EGB	3	15-60
			70-100
	EJB	3	15-60
			70-100

Note: *The maximum combined amperage of circuit breakers mounted opposite each other is 170 Amps.*
Total number of circuit breakers mounted on NF panel with ampacity greater than 60 A that requires a neutral connection is 12.

I-Line Feeder Compartment on Main Section

Main section I-Line feeder compartment allows 18 in. H (457 mm. H) mounting space on single row or 36 in. H (914mm. H) mounting space on a double row interior.

SINGLE ROW

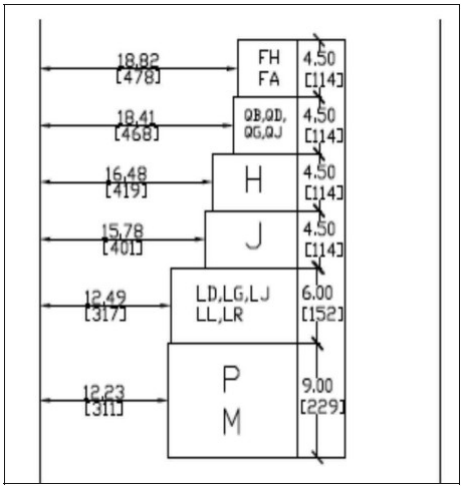


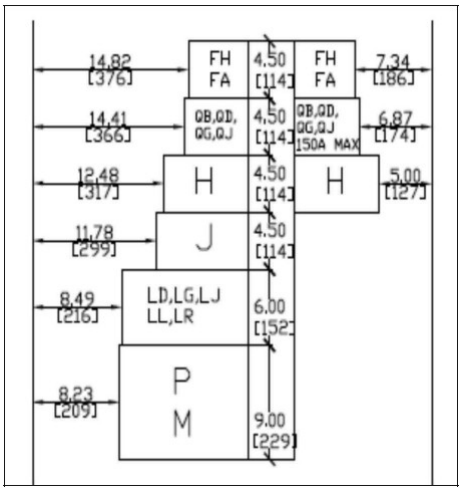
Image: circuit breaker height and wire bending space

Single Row I-Line mounting space examples:

- Section with horizontal bus:
  With large frames such as P or L frame:
  1 x 600 A & 2 x 150 A (H frame),
  or 2 x 400 A & 1 x 150 A (H frame), or 3 x 250 A *or with J Frame*
  4 x 250 A
- Section without horizontal bus:
  2 x 600 A & 1 x 225 A, or 1 x 600 A & 2 x 400 A
  With J Frame only
  4 x 250 A

AVAILABLE BREAKER FRAMES
100A: FA, FH, FJ
125A: BD, BG, BJ, BK
150A: HD, HG, HJ, HL, HR
250A: JD, JG, JJ, JL, JR
250A: QB, QD, QG, QJ
400A: LA, LH
600A: LD, LG, LJ, LL, LR
600A: MG, MJ
600A: PG, PJ, PK PL

DOUBLE ROW



Disclaimer: This image does not represent the actual mounting height available.

Double Row I-Line mounting space examples:

- Wide side, section with horizontal bus:
  With P or L frame:
  1 x 400 A & 2 x 150 A (H frame) *With J Frame only*
  3 x 250 A & 1 x 150 A (H frame)
- Wide side, section without horizontal bus:
  With P or L frame:
  1 x 600 A & 1 x 400 A & 1 x 150 A, or 1 x 600 A & 2 x 200 A
  With J Frame only
  4 x 250 A
- Narrow side, section supplied with or without horizontal bus:
  With H frame
  4 x 150 A

AVAILABLE BREAKER FRAMES (WIDE SIDE)	AVAILABLE BREAKER FRAMES (NARROW SIDE)
100A: FA, FH, FJ	100A: FA, FH, FJ
125A: BD, BG, BJ, BK	125A: BD, BG, BJ, BK
150A: HD, HG, HJ, HL, HR	150A: HD, HG, HJ, HL, HR
250A: JD, JG, JJ, JL, JR	150A: QB, QD, QG, QJ
250A: QB, QD, QG, QJ	
400A: LA, LH	
600A: LD, LG, LJ, LL, LR	
600A: MG, MJ	
600A: PG, PJ, PK PL	

I-Line Double Row distribution section

Group Mounted I-Line Circuit Breakers–Branch

The maximum amperage of any I-Line circuit breaker can be 800

A Thermal Magnetic Circuit Breakers:

Available only as a 80% rated device in the following frame types.
FA, FH, FJ, HD, HG, HJ, HL, QB, QD, QG, QJ, JD, JG, JJ, JL, JR, MG, MJ, PG, PJ, PK, PL

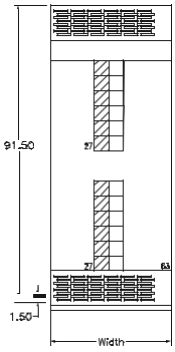
Micrologic Trip Circuit Breakers:
HD, HG, HJ, HL, HR, JD, JG, JJ, JL, JR, LD, LG, LJ, LL, LR, PG, PJ, PK, PL.
Plug on QO circuit breakers: 15-30A up to 65KA is optional on I-Line interior

The compact size and small footprint of the P-frame circuit breaker permits high density installations in switchboards. These circuit breakers are available in 100% rated construction for all unit-mount circuit breakers and up to 800 A in I-Line circuit breakers to meet a broad range of commercial and industrial application needs.

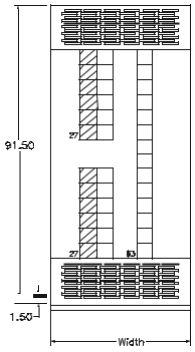
Single Row I-Line Distribution Sections		
CB Frame	CB Mounting Height inches (mm)	36" Wide (1200A Max.)
F	4.5" (114)	100A
B	4.5" (114)	125A
H	4.5" (114)	150A
Q	4.5" (114)	225A
J	4.5" (114)	250A
L	6" (152)	600A
M	9" (229)	800A
P	9" (229)	800A (Max.)
R	15" (381)	N/A

Double Row I-Line Distribution Sections			
		42" Wide (1200A Max.)	
CB Frame	CB Mounting Height inches (mm)	Left Side	Right Side
F	4.5" (114)	100A	100A
B	4.5" (114)	125A	125A
H	4.5" (114)	150A	150A
Q	4.5" (114)	225A	225A
J	4.5" (114)	250A	250A
L	6" (152)	600A	N/A
M	9" (229)	600A (Max.)	N/A
P	9" (229)	600A (Max.)	N/A
R	15" (381)	N/A	N/A

Single Row I-Line Distribution Sections



Double Row I-Line Distribution Sections



Note: *Additional I-Line Branch Breaker information can be found on page DE5-24*

I-Line Circuit Breakers Accessories:

- Padlock attachment
- Key interlock for M&P/Key Interlock + Padlock only on P Frame
- Cylinder lock available on FA, FH circuit breakers
- Alarm switch F,H,J,L
- Shunt trip F,H,J,L
- Shunt trip M,P
- Over current trip switch on P frame
- Auxiliary contacts (1A + 1B) on all except Q
- Auxiliary contacts (2A + 2B) on all except Q
- Auxiliary contacts (3A + 3B) on L, M, P
- Alarm switch M,P

I-Line mounted SPD

Surge Protective devices (SPD):

Individually mounted in feeder area on main section:
Surge ratings for individually mounted SPDs can be 100 kA, 120 kA, 160 kA, 240 kA, 320 kA or 480 kA.

For many System Voltages (Vac):

- 120/240 1Ph 3W
- 120/208Y 3Ph 4W
- 277/480Y 3Ph 4W
- 347/600Y 3Ph 4W

I-Line Mounted SPD

Surge ratings for I-Line mounted SPDs can be 120kA, 160kA, or 240kA.
Surge counter is standard.
Remote monitor is optional for SPD.
SPD height on I-Line interior is 13.5 in. H.

QED-2

Main Section	347/600 Vac 250 Vdc Max
Main Devices	6000 Amp. Mains Max.

Features

- 6000A maximum bus design.
- Copper bus silver plated (immersion) .
- Aluminum bus tin plated up to 2000A.
- Main devices include Masterpact NW, MCCB's or Bolt-Loc switches.
- Free standing, cable-fed distribution only section available.
- Bottom entry main section available without wireway.
- Available bus duct entry.
- Painted steel construction. All covers painted ASA49 gray.
- CSA general purpose (type 1) enclosure standard.
- Floor mounted, free standing.
- Channel base supplied as standard.
- CSA C22.2, No. 31 approved.

Main Section (Does not include main device)

		Entry Type				
Main Device Type	**Main Bus Amps**	**Direct Cable Entry (Top or Bottom)**	**Rear Bus Stub Entry**	**Transformer Connection Close-Coupled Side**	**Rear Bus Stub Entry**	**Bussed Wireway (Left or Right)**
Main Circuit Breaker	800					
	1200					
	1600					
	2000					
	2500					
	3000					
	4000					
	5000	- Top Only				
	6000	N/A				N/A
Main Fusible Switch	1600					
	2000					
	2500					
	3000					

See available main device types from tables below.

Main Devices (MCCB)

Ampere Rating	Trip Unit	Catalogue Number
800	Thermal-Magnetic	Powerpact M (MG,MJ) Powerpact P (PG,PJ,PK,PL)
	Electronic Trip	Powerpact P (PG,PJ,PK,PL) Powerpact R (RG,RJ,RK,RL)
1000	Thermal-Magnetic	Powerpact P (PG,PJ,PK,PL)
	Electronic Trip	Powerpact P (PG,PJ,PK,PL) Powerpact R (RG,RJ,RK,RL)
1200	Thermal-Magnetic	Powerpact P (PG,PJ,PK,PL) Powerpact R (RG,RJ,RK,RL)
	Electronic Trip	Powerpact P (PG,PJ,PK,PL) Powerpact R (RG,RJ,RK,RL)
1600	Thermal-Magnetic	Powerpact R (RG,RJ,RK,RL)
	Electronic Trip	Powerpact R (RG,RJ,RK,RL)
2000	Thermal-Magnetic	Powerpact R (RG,RJ,RK,RL)
	Electronic Trip	Powerpact R (RG,RJ,RK,RL)
2500	Thermal-Magnetic	Powerpact R (RG,RJ,RK,RL)
	Electronic Trip	Powerpact R (RG,RJ,RK,RL)

Main Devices (Masterpact NW - Micrologic Trip, 100% Rated)

Ampere Rating	Catalogue Number
1600	NW16
2000	NW20
3000	NW30
4000	NW40
5000	NW50
6000	NW60

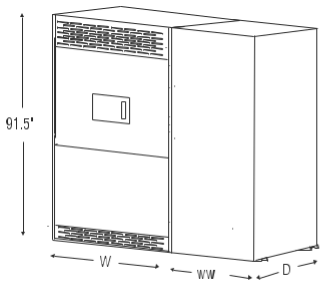
Main Devices (Fusible)

Ampere Rating	Device Type
1600	Bolt-Loc Bolt-Loc With Ground Fault
2000	Bolt-Loc Bolt-Loc With Ground Fault
2500	Bolt-Loc Bolt-Loc With Ground Fault
3000	Bolt-Loc Bolt-Loc With Ground Fault

347/600 Vac Max. 250 Vdc Max.
1600-6000 Amp. Mains

Main Section Dimensions

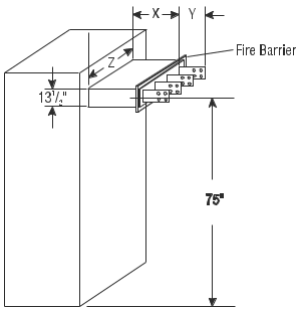
Dimensional Information



Height includes channel base

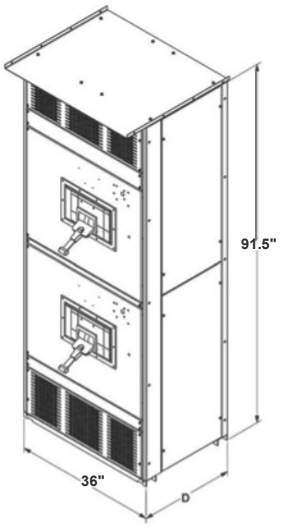
Main Cell Dimensions (in)

Amps	Main Device	W	D	ww
800	Powerpact P	36	24	24
	Powerpact R			
1200	Powerpact P			
	Powerpact R			
1600	Powerpact R			
	Bolt Loc			
2000	Powerpact R			
	Bolt Loc			
2500	Powerpact R			36
	Bolt Loc	42		
1600-3000	Masterpact NW	36	36	24
3000	Bolt Loc	42		36
4000	Masterpact NW	48	48	
5000	Masterpact NW		54	
6000	Masterpact NW	54	60	48



Bus Stub (Back View)

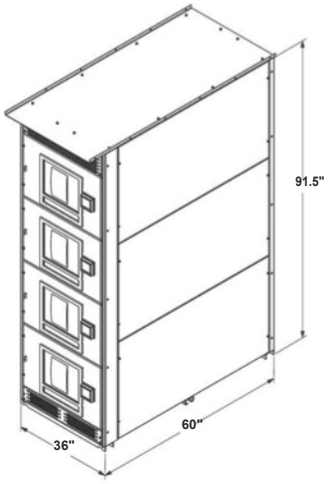
PowerPact R 2-High Stacked Feeder Section



Maximum breaker rating	
Top Feeder	**Bottom** Feeder
1200A	1600A
1200A	2500A
2000A	2000A

1. Minimum depth "D" is 24". Top breaker exit top, bottom breaker exit bottom
2. Power meters are available to meter each feeder

Masterpact NW 4-High Stacked Feeder Section



4-High Stacked Feeder Section	
Through Bus Rating	Total Load
3000A	3000A
4000A	4000A
5000A	5000A

1. Maximum breaker rating is 2000A
2. Power meters are available to meter each feeder

Notes:

1. For 6" wall, X = 7.25; 8" wall, X = 9.25"; 12" wall, X = 13.25". If other than standard is required, please consult factory.
2. Y dimensions and hole pattern as per local hydro requirements.
3. Z = Main cell width - 2.5".

Distribution Section

347/600 Vac

Distribution Sections

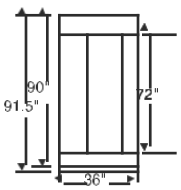
Distribution Type	Allowable Branch Device Frame	Distribution Type	Allowable Branch Device Frame
QMB/QMJ mounting, Single Row 72" Mounting Height 2000A Max.	QMB/QMJ Fusible Switch 36" Wide (400A Max) 42" Wide (800A Max) 48" Wide (1200A Max)	QMQB mounting, Single Row 106X Mounting Height 2400A Max.	QMQB Fusible Switch 42" Wide (1200A Max)
MQS mounting, Single Row 98X² Mounting Height 2400A Max.	MQS Fusible Switch with Sub-Meter 48" Wide (30-200A Max)		

* Maximum 600A feeder due to bending space restrictions.

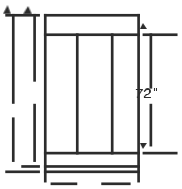
Notes:

1. Using a 1200A QMQB in the distribution section takes up additional X space. If top exit, remaining space is 44X. If bottom exit, remaining space is 26X. Only one 1200A QMQB per distribution section. 1200A QMQB space eliminates extra bus (no additional feeders).
2. Some utilities may limit available MQS height to 70X.
3. The distribution section depth will match the main section unless otherwise noted.

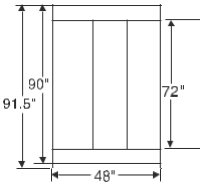
Dimensions



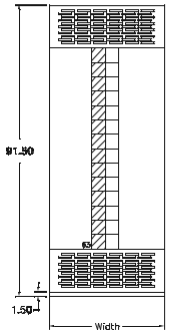
Single Row,
72" Mounting Height
QMB Mounting (400A Max.)



Single Row,
106X Mounting Height
QMQB Mounting (1200A Max.)

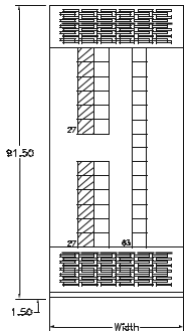


Single Row,
98X² Mounting Height
MQS Mounting (200A Max)



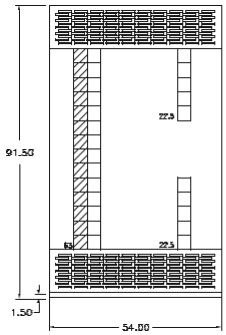
CB Frame	CB Mounting Height inches (mm) (ii)	Single Row I-Line Distribution Sections 36" Wide (3000A Max.)	42" Wide (3000A Max.)	48" Wide (3000A Max.)
QO (i)	N/A	30A	30A	30A
QO-VH (i)	N/A	30A	30A	30A
QH (i)	N/A	30A	30A	30A
F	4.5" (114)	100A	100A	100A
B	4.5" (114)	125A	125A	125A
H	4.5" (114)	150A	150A	150A
Q	4.5" (114)	225A	225A	225A
J	4.5" (114)	250A	250A	250A
L	6" (152)	600A	600A	600A
M	9" (229)	800A	800A	800A
P	9" (229)	1200A	1200A	1200A
R	15" (381)	1200A (max)	1200A (max)	1200A (max)

Notes:
(i) Must be used with QO I-Line adapter
(ii) Mounting height based on a 3-pole breaker



CB Frame	CB Mounting Height inches (mm)	Double Row I-Line Distribution Sections 36" Wide (2000A Max.) Left Side	Right Side	42" Wide (2000A Max.) Left Side	Right Side	48" Wide (2000A Max.) Left Side (top)	Left Side (bottom)	Right Side
QO (i)	N/A	30A	30A	30A	30A	30A	30A	30A
QO-VH (i)	N/A	30A	30A	30A	30A	30A	30A	30A
QH (i)	N/A	30A	30A	30A	30A	30A	30A	30A
F	4.5" (114)	100A	100A	100A	100A	100A	100A	100A
B	4.5" (114)	125A	125A	125A	125A	125A	125A	125A
H	4.5" (114)	150A	150A	150A	150A	150A	150A	150A
Q	4.5" (114)	225A	225A	225A	225A	225A	225A	225A
J	4.5" (114)	250A	N/A	250A	250A	250A	250A	250A
L	6" (152)	N/A	N/A	600A	N/A	600A	600A	N/A
M	9" (229)	N/A	N/A	600A	N/A	800A	800A	N/A
P	9" (229)	N/A	N/A	600A	N/A	1200A (ii)	1200A (ii)	N/A
R	15" (381)	N/A	N/A	N/A	N/A	N/A	1200A (max) (ii)	N/A

Notes:
(i) Must be used with QO I-Line adapter
(ii) Max of 3 x 1200A breakers on wide side



Double Row I-Line Distribution Sections		
	54" Wide (3000A Max.) (ii)	
CB Frame	Left Side	Right Side
QO (i)	30A	30A
QO-VH (i)	30A	30A
QH (i)	30A	30A
F	100A	100A
B	125A	125A
H	150A	150A
Q	225A	225A
J	250A	250A
L	600A	N/A
M	800A	N/A
P	1200A	N/A
R	1200A (max)	N/A

Notes:
(i) Must be used with QO I-Line adapter
(ii) Minimum depth is 36"

Select branch devices on page DE6-8.

I-Line Circuit Breakers

Moulded Case Circuit Breakers (Thermal Magnetic) - Please Refer to Section DE5

Moulded Case Circuit Breakers (Micrologic Trip) - Please Refer to Section DE5

QO Adapter
QO Branch Breakers

I-Line Branch Breakers

Single Pole

Moulded Case Circuit Breakers (Single Pole)

Breaker Frame	Continuous Ampere Rating	Number of Poles	Interrupting Capacity - RMS Symmetrical Amperes				Mounting Height (in)
			120 Vac	277 Vac	347 Vac	125 Vdc	
FG	15-30	1	65 kA	35 kA	18 kA		1.5
FJ	15-30	1	100 kA	65 kA	25 kA		1.5
FK	15-30	1			65 kA		1.5

QO Adapter - 240 Vac, 30A max. branch circuit breaker

Catalogue Number	No. of Poles	Mounting Height (in)
HQO206AB		
HQO206BC 2	4.5	HQO206AC
HQO306	3	

Accepts 6 - 1 pole QO type breakers. Includes 5 - QO1DB dummy circuit breakers.

QO Branch Circuit Breakers

Breaker Type	Interrupting Capacity - 120/240 Vac	No. of Poles	Ampere Rating	Catalogue Number
QO	10 kA	1	15-20	QO115 - 20
			25-30	QO125 - 30
		2	15-20	QO215 - 20
			25-30	QO225 - 30
		3	15-20	QO315 - 20
			25-30	QO325 - 30


QO
1 Pole


QO
2 Pole


QO
3 Pole

Switchboard Devices, QMQB Switches

Max. Volts	Amps	Catalogue Number	Maximum Wire Size	Branch Height	Fuse Type	Poles
600 Vac 250 Vdc	30-30	QMQB3336S	(1) #6 Cu/Al	8X	J	3
	60-60	QMQB6636S	(1) #2 Cu/Al			
	100-100	QMQB1136S	(1) 1/0 Cu/Al			
	200	QMQB2036S2	(1) 250 MCM Cu/Al	14X	H,R,J,T	
	400	QMQB4836S2	(1) 750 MCM or (2) 500 MCM or (3) 300 MCM or (4) 3/0 Cu/Al	24X		
	600	QMQB7036S				
	800	QMQB8836S	(2) 750 MCM or (3) 500 MCM Cu/Al	28X	L,T	
	1200	QMQB9836S2	(3) 750 MCM Cu/Al or (4) 500 MCM Cu/Al	54X[6]	L	
	1200 c/w Shunt Trip	QMQB9836S2S				

Notes:

1. Above prices include cost of installation.
2. Prices do not include fuses.
3. 200A to 600A units are shipped in class J fuse configuration only. Please specify type of fuse required.
4. 800A units are shipped in Class L configuration only. Please specify when Class T fuse is required.
5. On DC systems use outer poles.
6. See page DE6-7 for additional mounting space details on the 1200A QMQB switches.

Switchboard Branch Devices, MQS Branch Utility Metering Switches

Max. V	Amp	Maximum Wire Size	Catalogue No.	Branch Height	Fuse Type	Poles
600 Vac 250 Vdc	30-30	(1) #6 Cu/Al	MQS7-3336S	14X	J	3
	60-60	(1) #2 Cu/Al	MQS7-6636S			
	100-100	(1) 1/0 Cu/Al	MQS7-1136S			
	200	(1) 250 MCM Cu/Al	MQS7-2036S			

Note:

1. Utility meter not included.

Switchboard Branch Devices, QMQB and MQS Switches Mounting Kits

Description	Catalogue Number
30/60/100A twin	CKBH-QMQB
200A single	QMQB200CMH
400A single	QMQB400CMH
600A single	QMQB600CMH
800A single	QMQB800CMH
1200A single	Factory installed only


30A : 30A (TWIN)


200A (SINGLE)

Note:

1. Mounting kits included with factory mounted switches, required for switches added in the field.

QMB Fusible Switches

Max. Voltage	Ampere Rating	No. of Poles	Catalogue Number	Mounting Height (in)	Fuse Types	Electrical Interlock Kit
	30 - 30		QMB321-TW	4.5		QMB300EK-(1 or 2)
	60 - 60		QMB322-TW	4.5		QMB300EK-(1 or 2)
	100 - 100		QMB323-TW	6.0	H,R,J	QMB610EK-(1 or 2)
240 Vac	200	3	QMB324-W	9.0		QMB200EK-(1 or 2)
	400		QMB325-W	15.0		
	600		QMB326-W	15.0	H,R,J,T	
	30 - 30		QMB361-TW	4.5		QMB300EK-(1 or 2)
	60 - 60		QMB362-TW	6.0		QMB300EK-(1 or 2)
	100 - 100		QMB363-TW	7.5	H,R,J	QMB610EK-(1 or 2)
	200		QMB364-W	9.0		QMB200EK-(1 or 2)
600 Vac	400	3	QMB365-W	15.0		
	600		QMB366-W	15.0	H,R,J,T	
	800		QMB367-W	15.0		
	1200		QMB368-W	24.0	L, T	

QMB Fusible Switches with HRCII-C Form II Fuse Provisions

Max. Voltage	Ampere Rating	No. of Poles	Catalogue Number	Mounting Height (in)	Electrical Interlock Kit
	30 - 30		QMB361-THEW	4.5	QMB300EK-(1 or 2)
	60 - 60		QMB362-THEW	6.0	QMB300EK-(1 or 2)
600 Vac	100 - 100	3	QMB363-THEW	7.5	QMB610EK-(1 or 2)
	200		QMB364-HEW	9.0	QMB200EK-(1 or 2)
	400		QMB365-HEW	15.0	
	600		QMB366-HEW	15.0	

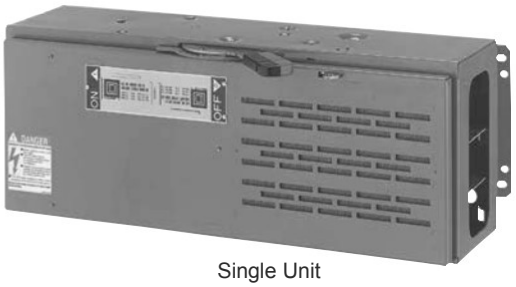
QMJ Fusible Switches

QMJ fusible switches accept class J fuses only. Its smaller size allows for fewer switchboard sections, saving installation time and space.

Max. Voltage	Ampere Rating	No. of Poles	Catalogue Number	Mounting Height (in)	Fuse Types	Electrical Interlock Kit
	30 - 30		QMJ361T	4.5		QMB300EK- (1 or 2)
	60 - 60		QMJ362T	6.0		QMB610EK - (1 or 2)
600 Vac	100 - 100	3	QMJ363T	6.0	J	QMB610EK - (1 or 2)
250 Vdc †	200 - 200		QMJ364T	7.5		QMB610EK - (1 or 2)
	400		QMJ365	9.0		QMB610EK - (1 or 2)
	600		QMJ366	15.0		QMB200EK - (1 or 2)

† On DC systems, use outer poles

Twin Unit



Single Unit

QMB and QMJ Fusible Switches
Horsepower and Terminal Lug Data

QMB Horsepower Ratings and Terminal Lug Data

Max. Voltage	Ampere Rating	No. of Poles	Catalogue Number	Horsepower Ratings								Lug Wire Range (Cu/Al)
				240 Vac				600 Vac				
				Standard		Maximum		Standard		Maximum		250 Vdc
				1Ø	3Ø	1Ø	3Ø	1Ø	3Ø	1Ø	3Ø	
240 Vac	30 - 30	3	QMB321-TW	—	3	—	7.5	—	—	—	—	—	(1) #14 - #2
	60 - 60		QMB322-TW	—	7.5	—	15	—	—	—	—	—	(1) #14 - #2
	100 - 100		QMB323-TW	—	15	—	30	—	—	—	—	—	(1) #14 - 1/0
	200		QMB324-W	—	25	—	60	—	—	—	—	—	(1) #4 - 300 kcmil
	400		QMB325-W	—	50	—	125	—	—	—	—	—	(2) 3/0 - 600 kcmil
	600		QMB326-W	—	75	—	150	—	—	—	—	—	(2) 3/0 - 600 kcmil
600 Vac	30 - 30	3	QMB361-TW	—	3	—	7.5	—	—	7.5	20	—	(1) #14 - #2
	60 - 60		QMB362-TW	—	7.5	—	15	—	—	15	50	—	(1) #14 - #2
	100 - 100		QMB363-TW	—	15	—	30	—	—	30	75	—	(1) #14 - 1/0
	200		QMB364-W	—	25	—	60	—	—	60	150	—	(1) #4 - 300 kcmil
	400		QMB365-W	—	—	—	—	—	—	125	350	—	(2) 3/0 - 600 kcmil
	600		QMB366-W	—	—	—	—	—	—	250	500	—	(2) 3/0 - 600 kcmil
	800		QMB367-W	—	—	—	—	—	—	250	500	—	(3) 3/0 - 600 kcmil
	1200		QMB368-W	—	—	—	—	—	—	—	—	—	(4) 3/0 - 600 kcmil

QMJ Horsepower Ratings and Terminal Lug Data

Max. Voltage	Ampere Rating	No. of Poles	Catalogue Number	Horsepower Ratings								Lug Wire Range (Cu/Al)
				240 Vac				600 Vac				
				Standard		Maximum		Standard		Maximum		250 Vdc
				1Ø	3Ø	1Ø	3Ø	1Ø	3Ø	1Ø	3Ø	
600 Vac 250 Vdc	30 - 30	3	QMJ361T	—	3	—	7.5	—	7.5	—	20	5	(1) #14 - #2
	60 - 60		QMJ362T	—	7.5	—	15	—	15	—	50	10	(1) #14 - #2
	100 - 100		QMJ363T	—	15	—	30	—	30	—	75	20	(1) #14 - 1/0
	200		QMJ364T	—	25	—	60	—	60	—	150	40	(1) #6 - 300 kcmil
	400		QMJ365	—	50	—	125	—	125	—	350	50	(1) 1/0 - 750 kcmil
	600		QMJ366	—	75	—	150	—	150	—	500	—	(2) 3/0 - 600 kcmi

Use only 90˚C insulated conductors based on an ampacity of 75˚C conductors.

I-LINE SURGELOGIC™ SPD Unit

QMB SURGELOGIC SPD Unit

QMQB SURGELOGIC SPD Unit

Branch Mounted SPD for I-LINE ®, QMB and QMQB Distribution Sections

Provide high performance surge suppression even in severe electrical conditions.
Features include:

- Audible alarm with enable/disable switch and dry contact standard
- Standard internal 200 kAIR surge rated fusing
- Short circuit current rating 200 kA at 240, 480V and 100 kA at 600V
- EMI/RFI filtering

SURGELOGICTVSS

Voltage	Surge Current Rating	I-LINE Branch Units g		QMB Branch Units ▾	QMQB Branch Units ✈
		Catalogue No.	Catalogue No.	Catalogue No.	Catalogue No.
120/240 V 1Ø3W	120 kA	HL1IMA12C	HR1IMA12C	QMB1IMA12	. . .
	160 kA	HL1IMA16C	HR1IMA16C	QMB1IMA16	. . .
	240 kA	HL1IMA24C	HR1IMA24C	QMB1IMA24	. . .
208Y/120 V 3Ø4W	120 kA	HL2IMA12C	HR2IMA12C	QMB2IMA12	. . .
	160 kA	HL2IMA16C	HR2IMA16C	QMB2IMA16	. . .
	240 kA	HL2IMA24C	HR2IMA24C	QMB2IMA24	QMQB2IMA24C
240/120 V 3Ø4W High Leg Delta	120 kA	HL3IMA12C	HR3IMA12C	QMB3IMA12	. . .
	160 kA	HL3IMA16C	HR3IMA16C	QMB3IMA16	. . .
	240 kA	HL3IMA24C	HR3IMA24C	QMB3IMA24	. . .
480Y/277 V 3Ø4W	120 kA	HL4IMA12C	HR4IMA12C	QMB4IMA12	. . .
	160 kA	HL4IMA16C	HR4IMA16C	QMB4IMA16	. . .
	240 kA	HL4IMA24C	HR4IMA24C	QMB4IMA24	QMQB4IMA24C
600Y/347 V 3Ø4W	120 kA	. . .	HR8IMA12C	QMB8IMA12	. . .
	160 kA	. . .	HR8IMA16C	QMB8IMA16	. . .
	240 kA	. . .	HR8IMA24C	QMB8IMA24	QMQB8IMA24C

◆ Can be used on 4 wire or 3 wire grounded neutral system.
g Requires 13.5" mounting height. ▾
Requires 9" mounting height.
✈ Requires 14X mounting height.

1600-6000A; up to 600Vac; Draw-out type;
Compartmentalized; Rear-Connected

Power-Style™ QED-6 Rear-Connected Switchboards with Masterpact™ NW, NT, and PowerPact™ H-, J-, L-Frame Circuit Breakers

The QED-6 switchboard is designed to provide excellent electrical distribution, protection, and power quality management solutions in commercial and industrial environments where uptime is essential. The circuit protection components of the switchboard are the Masterpact™ NW circuit breakers in 800–6000 A frame sizes for main and feeder devices, Masterpact™ NT circuit breakers in 800–1200 A frame sizes for feeder devices, and PowerPact™ H-, J-, L-Frame circuit breakers in 150, 250, 600 A frame sizes for feeder devices. These circuit breakers deliver maximum system uptime, system selectivity, ease of maintenance, reliable circuit protection and are C22.2 No. 5 / UL 489 Listed.

QED-6 switchboard features include:

- Up to 600 Vac maximum
- 1Ø3W, 3Ø3W, 3Ø4W system
- 1600-6000 A rated current
- Short-circuit current rating up to 100 kA at 600 Vac, up to 150 kA at 480 Vac and Up to 200kA at 240 Vac
- Compartmentalization: separate compartments for circuit breakers, bussing, and cables
- Depending on rated current, available in 54-, 60-, 72-, and 80-inch deep construction
- Large rear cable compartment pull area allows maximum room for power cables
- Bus provisions for future equipment expansion
- Circuit breakers are individually mounted, rear connected, drawout type. Drawout construction allows quick and simple replacement of circuit breakers
- Family of field installable and upgradeable Micrologic™ trip units with optional “Direct Ethernet” communication
- Flexible branch circuit breaker locations: Masterpact™ NW and NT and PowerPact™ H-, J-, L-Frame circuit breakers can be mixed in a single 30-inch wide section (15–2000 A)
- Arc Flash Limiting (LF) feeder breakers are available
- Up to 8 1200 A frame Masterpact™ NT circuit breakers in a single 30-inch wide section
- Up to 12 PowerPact™ H and J circuit breakers (15-250A) in a single 30-inch wide section
- Front access to control and communication wiring
- Remote racking of the Masterpact™ circuit breaker is available
- Field-installable accessories like motor operators, shunt trips, under voltage releases, trip units, communication modules.
- Surge Protective Devices (please refer to DE7 section)
- PowerLogic™ Power Meters (please refer to DE13 section)
- Power Management Software (please refer to DE13 section)
- CSA C22.2 No. 31 certified;

For details, please refer to catalogues:
- 2746CT0101 “QED-6 Switchboards”
- 0613CT0001 “Masterpact™ NT and NW Universal Power Circuit Breakers”
- 0611CT1001 “PowerPact™ H-, J-, and L-Frame Circuit Breakers”

Micrologic™ “Power” or “Harmonic” Trip Unit for Masterpact™ NT, NW, PowerPact™ P-, R-Frame

Micrologic™ “Energy” for PowerPact™ H-, J-, L-Frame (15-600A)

In addition to providing protection functions, circuit breaker maintenance indicators, Micrologic™ “Power”, “Harmonic” (for Masterpact™ NT, NW, PowerPact™ P-, R-Frame), “Energy” (for PowerPact™ H-, J-, L-Frame) trip units provide metering/energy information.

The energy data from the electronic trip units will help you study consumption patterns, compare the performance of different facilities, and isolate where energy is being wasted. Exposing the associated energy cost at the building, department, or machine level will drive efficiency. Having integrated metering in your breakers can also complement existing tenant metering systems, helping you validate utility billing, or verify that consumption at upstream feeders matches the sum of the associated tenant meters.

The energy data can be accessed locally or remotely: circuit breakers with Micrologic™ can be networked using open protocols to overlying system management programs for simple data management and analysis. For details, please refer to catalogues:

- 0613CT0001 “Masterpact™ NT and NW Universal Power Circuit Breakers”
- 0611CT1001 “PowerPact™ H-, J-, and L-Frame Circuit Breakers”

PowerLogic PM5000 Series

The PowerLogic PM5000 series unites high quality and affordability in a compact meter. It is meticulously engineered to provide high-end cost management capabilities in a straightforward metering platform. This means it's both affordable and capable, while being simple to purchase, install and use. Use it to maximize operational efficiency, increase network reliability, and improve business performance.

An essential combination of features, such as multiple tariffs and data logging, merges with industry-leading measurement accuracy to match the requirements of energy cost management applications, in buildings and industry. Compliant with MID, IEC 62052/53, and IEC 61557-12 metering standards, the PM5000 series meters remove any uncertainty in billing for energy costs and ensure a high level of performance that noncompliant devices cannot match.

PowerLogic PM5000 Series

Features and Options	PM5110	PM5330	PM5340	PM5560	PM5563
Installation					
Fast installation, panel mount with integrated display	■	■	■	■	–
Fast installation, DIN rail mountable	–	–	–	–	■
Accuracy	CL 0.5S	CL 0.5S	CL 0.5S	CL 0.2S	CL 0.2S
Display					
Backlit LCD, multilingual, bar graphs, 6 lines, 4 concurrent values	■	■	■	■	■
Power and energy metering					
3-phase voltage, current, power, demand, energy, frequency, power factor	■	■	■	■	■
Multi-tariff	–	4	4	8	8
Power quality analysis					
THD, thd, TDD	■	■	■	■	■
Harmonics, individual (odd) up to	15th	31st	31st	63rd	63rd
I/Os and relays					
I/Os	1DO	2DI/2DO	2DI/2DO	4DI/2DO	4DI/2DO
Relays	0	2	2	0	0
Alarms and control					
Alarms	33	35	35	52	52
Set point response time, seconds	1	1	1	1	1
Single and multi-condition alarms	–	■	■	■	■
Boolean alarm logic	–	–	–	■	■
Communications					
Serial ports with modbus protocol	1	1	–	1	1
Ethernet port with Modbus TCP protocol	–	–	1	2**	2**
Onboard web server with web pages	–	–	–	■	■

* 2 Ethernet ports for daisy chain, one IP address.

PowerLogic PM8000 Series

The PowerLogic PM8000 series meter is a highly accurate, extremely reliable power and energy meter with unmatched flexibility and usability. The meter combines accurate 3-phase energy and power measurements with data logging, power quality analysis, alarming and I/O capabilities not typically available in such a compact meter.

The PM8000 series meters are compliant with stringent international standards that guarantee their metering accuracy and power quality measurements. Ideal for industrial and critical power installations that are responsible for maintaining the operation and profitability of a facility.

PowerLogic PM8000 series meter with remote display.

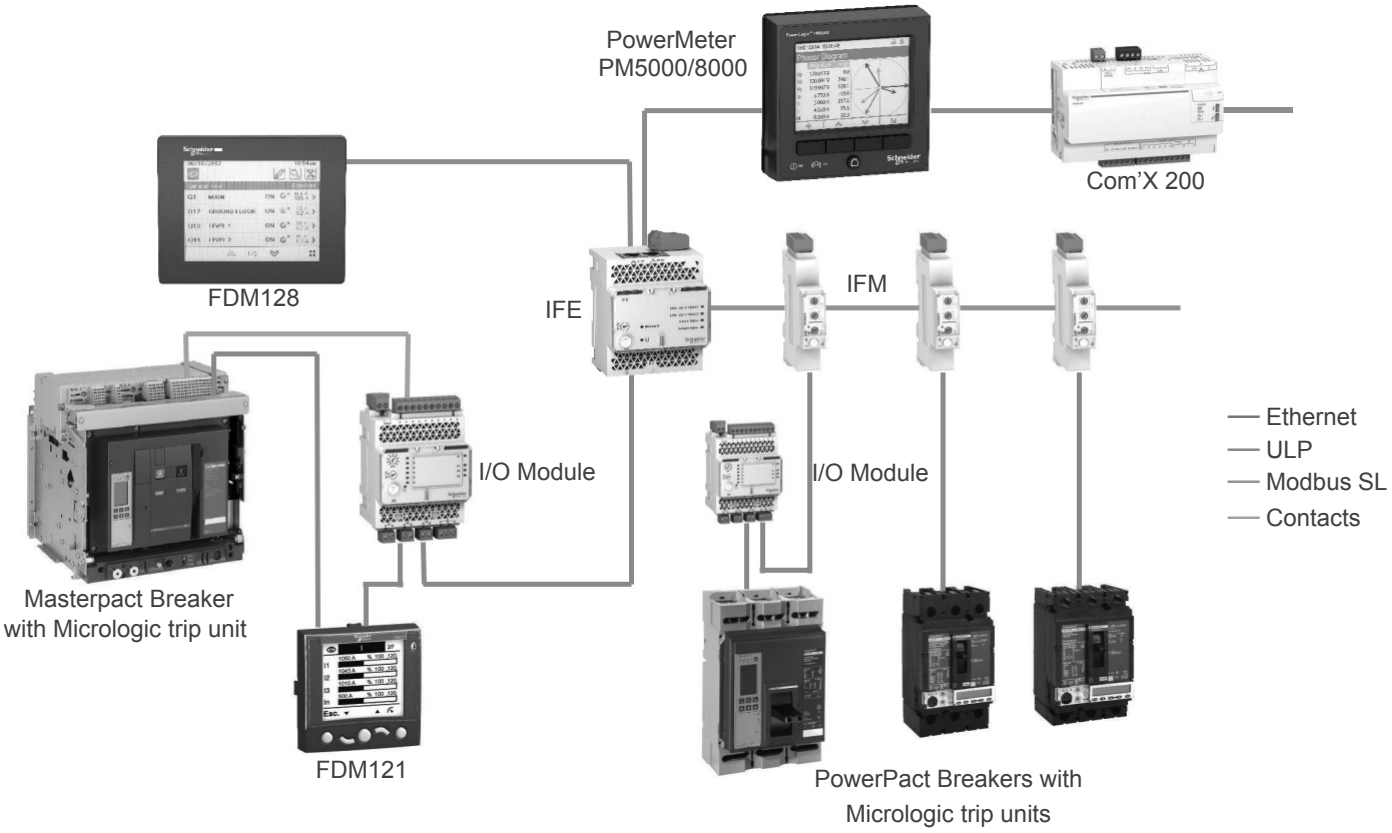
PowerLogic PM8000 series meter with I/O modules.

Feature and Options	PM5500	PM8000
DIN Rail Mount Transducer with Remote Display	YES	YES
Accuracy	CL 0.2	CL 0.2
Sampling Rate (Samples/Cycle)	128	256
Graphical Display Type	Monochrome	Color
3-Phase Voltage, Current, Power, Demand, Energy, Frequency,	YES	YES
Power Factor		
Multi-Tariff counters	8	TOU
THD, thd, TDD	YES	YES
Harmonics (Individual up to)	63rd	63rd
EN 50160 PQ Compliance	NO	YES
Alarms (1-second)	YES	YES
Single & Multi Condition Alarms	YES	YES
High Speed Alarms (1/2 Cycle)	NO	YES
Disturbance Alarms (Sag/Swell)	NO	YES
Disturbance Direction Detection	NO	YES
GPS Time Synchronization	NO	YES
Millisecond Time Stamping	NO	YES
Serial Port / Ethernet Port	1/2	1/2
Modbus RTU / ION	YES / NO	YES / YES
CT Inputs	4	4
Digital Inputs / Digital Output / Relay output Options	4/2/-	27/1/8
Analog Input / Analog Output Options	-	16/8
Memory for Data Logging	1.1MB	10MB
ION Custom Frameworks	NO	YES

Note: *For PM8000 product features please refer to DE13, or Technical Data Sheet PLSED310058EN*

Smart System is an innovative connected solution that uses your electrical distribution equipment to deliver relevant information, helping you improve asset management, overall reliability, and operational efficiency of your facility.

Due to System's modularity, there are many possible configurations. One of them is presented below.



For features and benefits, please refer to the next page.
For details, please refer to catalogues:
- 0613CT0001 "Masterpact™ NT and NW Universal Power Circuit Breakers"
- 0612CT0101 "PowerPact(TM) M-, P-, and R-Frame Circuit Breakers"
- 0611CT1001 "PowerPact™ H-, J-, and L-Frame Circuit Breakers

Features and benefits include:

Remote Connectivity
Instead of physically checking to ensure each power distribution circuit is operational and its status confirmed, you can do so automatically on your desktop. You can even check on electrical distribution assets in multiple buildings or even in different geographic locations across the country or globe.

Fast and reliable connectivity
With the speed and convenience of Ethernet now common in nearly every connected device, you can monitor your building in real time and immediately act on operational efficiencies. Plus with Ethernet, you have no worries about bandwidth slowing your data speed.

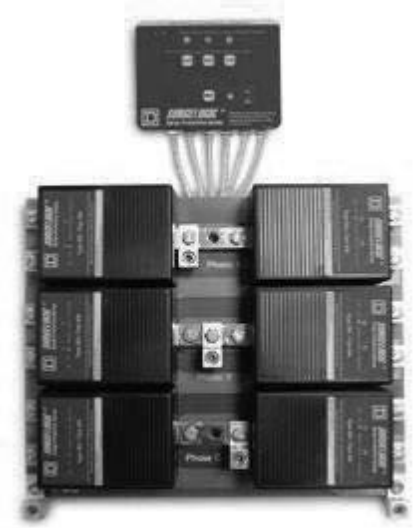
Data is presented simply
View the “big picture” and easily keep track of your buildings’ electrical assets’ condition and status – on whatever time frame you choose. Smart System removes the complexity of communicating with circuit breakers, so you may easily spot potential problems that could lead to an outage or unscheduled downtime.

Commissioning is simple
Components use a straightforward, plug-and-play design that can be quickly commissioned. Most components “auto discover” one another, so time-consuming module programming is minimized.

Stop chasing alarm details
Up to 56 email alert types are available, depending on the Square D circuit breaker. From your desktop, simply “check box” the preferred alerts and input the email addresses you wish to receive the alert.

Keep an eye on your energy usage
With baseline energy consumption information, you can drive overall energy efficiencies. Smart Systems can help you measure and verify energy consumption and identify
opportunities for improvement in your facilities.

Make smarter decisions
The Smart System helps you view, control, and streamline data from your electrical equipment assets, and facilitate a predictive maintenance program that helps reduce cost and improve uptime.



Internally mounted SPDs are installed integrally to Switchboards for service entrance and branch surge suppression. These SPDs, installed next to the supply bus, utilize a high-energy suppression circuit that provides 10 modes of suppression from 100,000 to 480,000 peak Amps of surge current rating per phase. Modular SPDs feature circuity that provides not only transient surge suppression, but also noise filtration. Integral solutions come pre-wired into Swichboards from the factory insuring short lead lengths and high performance. All units are tested at the factory before delivery to their final destination, maintaining Square D brand's high standard of quality. There is also no need for additional enclosures or installation labor costs.

FEATURES	ADVANTAGES	BENEFITS
Integral to Switchboards	SPDs are installed at the factory	Delivers high levels of SPD performance and saves on enclosure and installation expenses
100,000 to 480,000 Amp Capacity (depending on model)	Longer service life and suppression against high-energy lightning strikes	High performance surge suppression even in severe electrical conditions
EMI/RFI Noise Rejection	Increased transient suppression	Improves surge suppression to the equipment
Advanced Diagnostics	Allows for visual indication/testing of the suppressor's functionality	Provides immediate response if suppressor is damaged
Suppression Status Alarms	Allows multiple methods of alarm notification	Provides immediate notification through audible, visual and remote signaling if reduced suppression occurs
Coordinated Fuse Technology	Coordinated fusing allows disconnection methods for thermal and high-current events	Provides premium surge suppression while managing both thermal and high-current end-of-life events