March 2006
Aftermarket Solutions, Ref. No. [175]

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Circuit Breaker Enclosure

Product Description

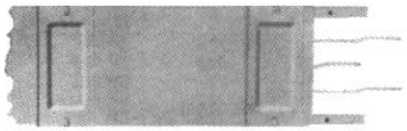
Cutler-Hammer® Low Voltage Busway from Eaton's electrical business consists of aluminum or copper bars inside a metal housing used for power distribution. Busway is available in ampere ratings of 100 – 5000 amperes. Busway is available as feeder (indoor or outdoor) and plug-in. Feeder busway routes power from point-to-point, whereas plug-in busway allows for power to be tapped off along a run as needed. Busway is typically used in manufacturing buildings and high rise office buildings.

Product History

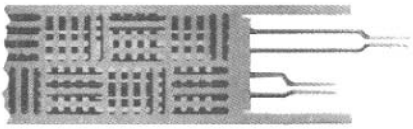
Westinghouse began marketing low voltage busway in 1938. The first product offering was Power Distribution Busway, utilizing a multiple bolt joint that later evolved into Standard Plug-in Busway. Victory Bus Duct was developed during the Second World War to comply with federal limitations placed on usage of materials such as steel and copper which were critical to the war effort. In 1947, Westinghouse began manufacturing busway at the newly acquired facility in Beaver, PA with Standard Plug-in and feeder bus in ratings up to 1500 amperes. All of these early designs used separated, uninsulated bus bars inside a totally enclosed or perforated steel housing.

In 1951, Low Impedance Feeder Busway was introduced as the first design to utilize heat shrinkable tubing for insulation on the bus bars and a ventilated steel housing. An internal ground bus was not available with this product line but provisions were made for mounting an external ground bus directly to the busway housing. Low Impedance Feeder and Standard Plug-in Busway accounted for the majority of busway business written by Westinghouse through the 1950s and into the 1960s. Low Impedance Plug-in Busway was introduced in 1961. With this design, the product offering was expanded to a maximum of 5000 amperes for feeder and 4000 amperes for plug-in.

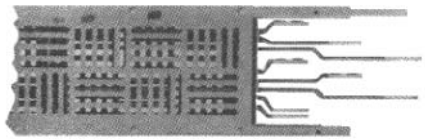
During the 1950s, various other designs were introduced to meet specific customer needs. Westinghouse Lifeline Unibus, rolled out in 1955, provided low impedance characteristics with plug-in openings and incorporated flexible armored cable into the design for use as elbows, offsets and flat to edgewise adapters.



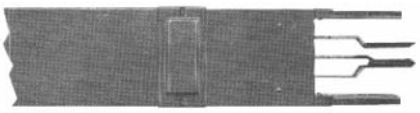
Standard Plug-in



Electric Utility (dc)

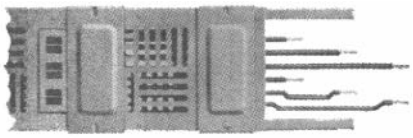


Low Impedance Feeder

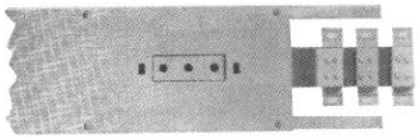


H5000 Plug-in 225 – 1000 Amperes

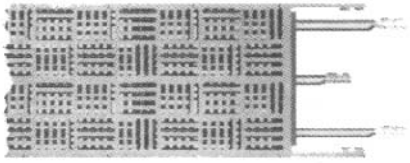
H5000 Feeder



Low Impedance Plug-in



High Frequency



Current Limiting

Typical Pow-R-Way Plug-in Straight Length

Typical Pow-R-Way II Plug-in Straight Length

Westinghouse High Frequency Busway was introduced in 1958 to address the inherent problems of transmitting power at frequencies from 180 to 20,000 Hz. Cutler-Hammer High Frequency BV (balanced voltage) Busway was also marketed during the late 1950s and early 1960s. Westinghouse High Frequency Busway and Cutler-Hammer BV Busway both found success in aircraft manufacturing plants, industrial induction heating systems, military missile and radar bases.

Electric Utility Busway was also introduced by Westinghouse in 1958 and was designed to conduct direct current with low voltage drop. By 1963, Electric Utility Busway had been expanded to meet the growing industrial market for direct current power and was marketed simply as dc Busway. This product line was applied to feeding plating processes, welding installations, mill drives and motors.

In 1958, Westinghouse sold the rights to the Life Line Unibus product line to EDP of Allentown, PA which marketed EDP Unibus until 1962 when EDP became a wholly owned subsidiary of Eaton. Eaton successfully marketed Unibus until the product line was discontinued in 1974.

In 1966, Westinghouse introduced its first true sandwich bus design with H5000 feeder busway. H5000 was also the first single bolt joint design offered by Westinghouse and it initially utilized a PVC shrink tubing and later a Mylar® wrap for bus bar insulation. A combination of steel and aluminum channels were used to form a lightweight non-magnetic housing. The grounding method for H5000 was similar to Low Impedance Busway and an external ground bus mounted onto the housing was the only offering. H5000 Plug-in Busway rolled out in 1968 as a non-sandwich design with separated and uninsulated bus bars.

Product History (Continued)

In 1970, the Eaton's Cutler-Hammer Bethlehem, PA plant introduced CP2 SAFETYBUS which utilized an innovative single bolt, bridge joint design with a steel housing for plug-in and a combination of steel and aluminum channels for the feeder housing. CP2 used a Mylar wrap for bus bar insulation and an Alstan® process for plating. The feeder busway was a sandwich design while the plug-in design utilized separated bus bars which were braced and supported by corrugations formed in the housing sides.

Westinghouse introduced the Pow-R-Way product line in 1971. Pow-R-Way employed the sandwich design in both feeder and plug-in. At that time Pow-R-Way utilized a combination of PVC, applied by the fluidized bed process, and Mylar sheeting for bus bar insulation which achieved a Class A, 105°C rating. Silver-plating of all joint and contact surfaces was applied by a Zincate process. Pow-R-Way is a bolt-end/slot-end design with a single bolt connection at the joint and is rated from 600 to 5000 amperes. Pow-R-Way II was rolled out in 1975 with ratings of 225 and 400 amperes in feeder and plug-in. Pow-R-Way II is a single, captive, bolt per bar design for indoor, horizontal applications only.

During 1980, the Cutler-Hammer busway design was upgraded and they began marketing CP3 SAFETYBUS. CP3 featured an improved bridge joint package and a polyethylene terephthalate wrap for bus bar insulation. CP3 maintained the CP2 housing design with bus bar separation in the plug-in product configuration.

Cutler-Hammer CP4 SAFETYBUS was introduced in 1985 and incorporated the sandwich design into the plug-in busway. CP4 featured a UL® recognized case ground path rating, and 130°C Mylar bus bar insulation. CP4 utilized the CP3 bridge joint package and accepted CP2 and CP3 Bus Plugs. The CP4 product line was successful in both the commercial and industrial markets until it was discontinued in 1994.

Product History Time Line

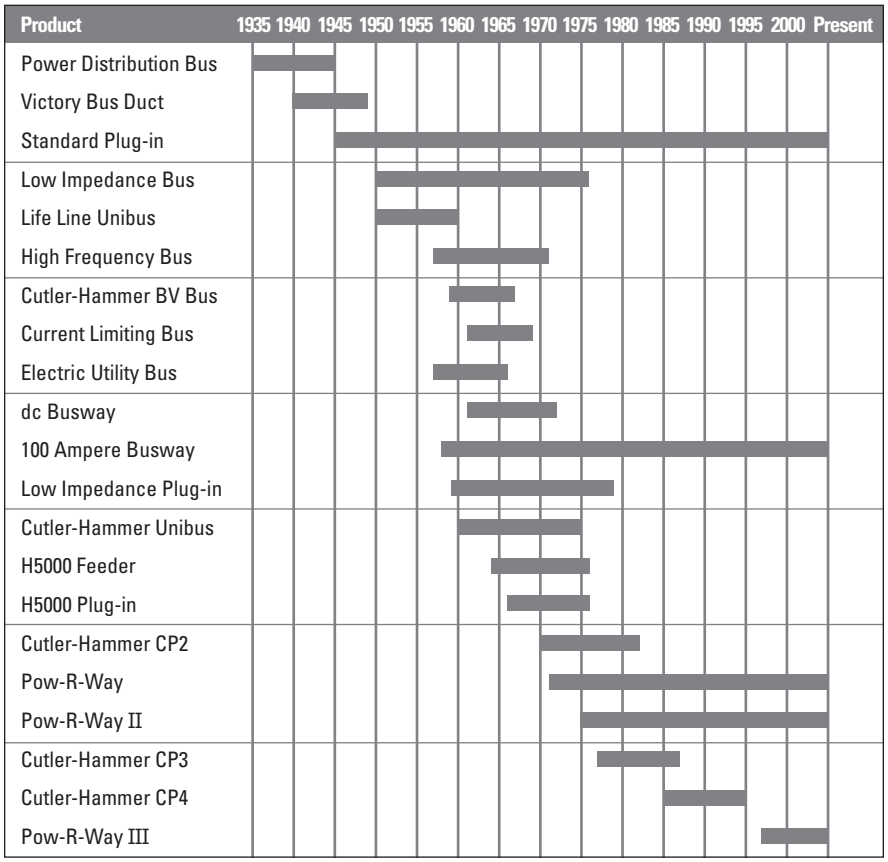


Figure 9-1. Product History Time Line

In 1988, Westinghouse moved the busway product line to the Greenwood, SC manufacturing facility. At that time an improved Alstan plating process was implemented for silver-plating the joint and contact surfaces. In 1993, the automated fluidized bed process was changed to Class B, 130°C, epoxy insulation.

Cutler-Hammer Pow-R-Way III® was introduced In 1997. As in the past, specific customer needs have driven the design of this product line. High short circuit ratings, finger safe protection at the plug-in openings, integral housing ground path, two-piece extruded aluminum housing, and an optional 200% neutral are just some of the features with this product line.

Replacement Capabilities

Table 9-1. Replacement Capabilities

Busway Types	Bus	Adapter ①	Plugs
Power Distribution Bus	No	No	No
Victory Bus Duct	No	No	No
Standard Plug-in	Yes	No	Yes
Low Impedance Bus	No	Yes	—
Life Line Unibus	No	No	No
High Frequency Bus	No	No	No
Cutler-Hammer BV Bus	No	No	No
Current Limiting Bus	No	Yes	—
Electric Utility Bus	No	No	No
dc Busway	No	No	No
100 Ampere Busway	Yes	No	Yes
Low Impedance Plug-in	No	Yes	Yes
Cutler-Hammer Unibus	No	No	No
H5000 Feeder	No	No	—
H5000 Plug-in	No	No	Yes
Cutler-Hammer CP2	No	Yes	Yes ②
Pow-R-Way	Yes	No	Yes
Pow-R-Way II	Yes	No	Yes
Cutler-Hammer CP3	No	Yes	Yes ②
Cutler-Hammer CP4	No	Yes	Yes ②
Pow-R-Way III	Yes	—	Yes

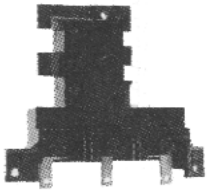
① Busway adapter (transposition) available from old line to Pow-R-Way III only.
② Fusible units only. No breaker units available.

Vintage Busway Products

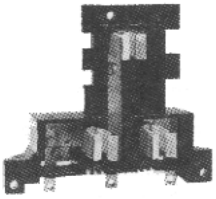
- Replacement pieces or additions to vintage Cutler-Hammer bus (CP2, CP3, CP4) are being handled whenever possible by making transition to our current design Pow-R-Way III bus.
- Obtain style number and complete nameplate information from existing busway and contact your local Eaton Field Sales office for pricing and availability.
- Plugs for vintage Cutler-Hammer bus, Pow-R-Way bus, and Pow-R-Way III bus are not interchangeable.

Pow-R-Way Plug-in Unit

Stab Base Assembly for Breaker and Fusible Types



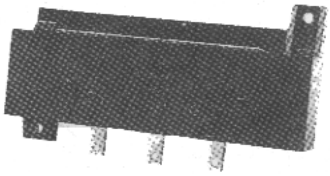
Top View



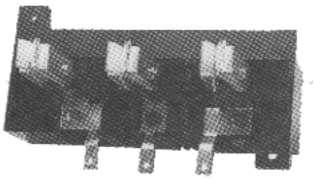
Bottom View

Vintage Busway Plug-in Unit

Stab Base Assembly for Breaker and Fusible Types



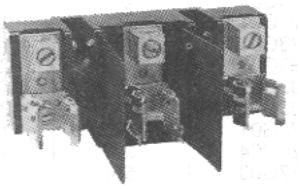
Top View



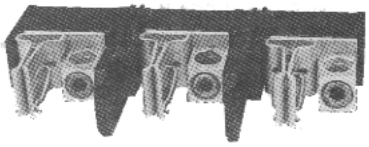
Bottom View

Fuse Base Assembly

For All Busway



30 Ampere Maximum



200 Ampere Maximum

Replacement Capabilities (Continued)

Originally a Westinghouse Product

Table 9-2. Breaker Plug-in Units

Reference Catalog Number for Existing Complete Plug-in Unit ①	Replacement Stab Base Assembly
Pow-R-Way	
IBPFB	2528D04G01
IBPFBP	2528D04G01
IBPFCL	2528D04G01
IBPFD	2528D04G01
IBPJD	2528D04G12
IBPKB	2528D04G07
IBPKD	2554D03G06
IBPLAP	2532D45G06
IBPLB	2554D03G05
IBPLCL	2554D03G03
IBPMC	2537D17G03
IBPNBP	2537D17G07
Standard Plug-in and Low Impedance Busway ②	
BPFB	2528D03G01
BPFBP	2528D03G01
BPFCL	2528D03G01
BPFD	2528D03G01
BPJD	2528D03G10
BPKB	2528D03G07
BPKD	2537D20G06
BPLB	2537D20G05
BPLCL	2537D20G01
BPMC	374D017G03

① Check Vista for pricing and minimum order quantities.

② Replacement stab base assembly and fuse base style numbers specified correspond to the most recent design of the reference catalog number for the complete plug-in unit. For verification that this style number is the correct replacement for your existing plug-in unit, contact your local Eaton Field Sales office.

Table 9-3. Fusible Plug-in Units

Reference Catalog Number for Existing Complete Plug-in Unit ③	Replacement Stab Base Assembly	Replacement Fuse Base
Pow-R-Way		
ITAP321	2528D04G02	5009D52G01
ITAP361	2528D04G02	5009D52G13
ITAP322	2528D04G02	5009D52G03
ITAP362	2528D04G02	5009D52G04
ITAP323	2528D04G02	5009D52G05
ITAP363	2528D04G02	5009D52G05
ITAP324	767A373G02	2532D78G01
ITAP364	767A373G02	2532D78G01
ITAP325	2554D03G03	627B426G02
ITAP365	2554D03G03	627B426G02
ITAP326	2554D03G02	627B426G04
ITAP366	2554D03G02	627B426G04
ITAP367	2554D03G01	2553D93G02
ITAP361H	2528D04G02	2535D92G09
ITAP362H	2528D04G02	2535D92G10
ITAP363H	2528D04G02	2535D92G11
ITAP364H	2568D13G09	2532D78G02
ITAP365H	2554D03G03	1205C02G02
ITAP366H	2554D03G02	2599D97G02
Standard Plug-in and Low Impedance Busway ④		
TAP321	2528D03G02	5009D52G01
TAP361	2528D03G02	5009D52G13
TAP322	2528D03G02	5009D52G03
TAP362	2528D03G02	5009D52G04
TAP323	2528D03G02	5009D52G05
TAP363	2528D03G02	5009D52G05
TAP324	767A373G01	2532D78G01
TAP364	767A373G01	2532D78G01
TAP325	2537D20G04	627B426G02
TAP365	2537D20G04	627B426G02
TAP326	2584D73G01	627B426G04
TAP366	2584D73G01	627B426G02
TAP361H	2528D03G02	2535D92G09
TAP362H	2528D03G02	2535D92G10
TAP363H	2528D03G02	2535D92G11
TAP364H	767A373G01	2532D78G02
TAP365H	2537D20G04	1448D09G05
TAP366H	374D017G03	373D043G06

③ Check Vista for pricing and minimum order quantities.

④ Replacement stab base assembly and fuse base style numbers specified correspond to the most recent design of the reference catalog number for the complete plug-in unit. For verification that this style number is the correct replacement for your existing plug-in unit, contact your local Eaton Field Sales office.

Replacement Capabilities (Continued)

100-Ampere Busway

Elbow, Busway and Cable Tap Box

Accessories

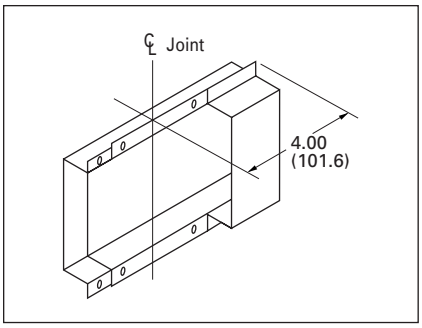


Figure 9-2. End Closers — EC1

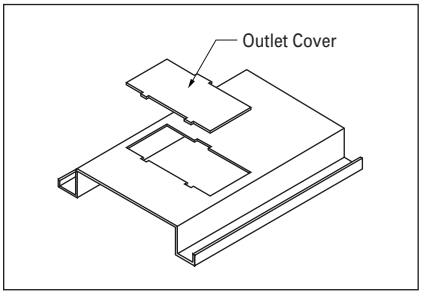


Figure 9-3. Replacement Outlet Cover — OC1

Table 9-4. 100-Ampere Busway — Copper (Includes 50% Internal Ground Bar)

Description	3-Phase, 3-Wire 600 Volts Maximum	3-Phase, 4-Wire FN 277/480 Volts	1-Phase, 3-Wire 120/240 Volts
	Catalog Number	Catalog Number	Catalog Number
Straight Lengths			
10-ft. (3048 mm)	**CST13G**	**CST14G**	**CST13NG**
5-ft. (1524 mm)	**CST135G**	**CST145G**	**CST13N5G**
3-ft. (914.4 mm)	**CST133G**	**CST143G**	**CST13N3G**
2-ft. (609.6 mm)	**CST132G**	**CST142G**	**CST13N2G**
1-ft. (304.8 mm)	**CST131G**	**CST141G**	**CST13N1G**
Elbows			
Forward	**CFE13G**	**CFE14G**	**CFE13NG**
Rearward	**CRE13G**	**CRE14G**	**CRE13NG**
Upward	**CUE13G**	**CUE14G**	**CUE13NG**
Downward	**CDE13G**	**CDE14G**	**CDE13NG**
Tees			
Forward	**CFT13G**	**CFT14G**	**CFT13NG**
Rearward	**CRT13G**	**CRT14G**	**CRT13NG**
Upward	**CUT13G**	**CUT14G**	**CUT13NG**
Downward	**CDT13G**	**CDT14G**	**CDT13NG**

Table 9-5. Cable Tap Boxes

Description	3-Wire or 4-Wire	Ground (If Required)
	Catalog Number	Catalog Number
Plug-in	**PIB14**	**PIGS100**
End	**EB14**	**GL100**
Center	**CBIB14G**	(Included)

Table 9-6. Fusible Plug-in Units

Voltage Rating	Ampere Rating	Fusible Enclosure	Ground (If Required)
		Catalog Number	Catalog Number
240	30	**FAN321**	**PIGS100**
	60	**FAN322**	**PIGS100**
	100	**FAN323**	**PIGS100**
600	30	**FAN361**	**PIGS100**
	60	**FAN362**	**PIGS100**
	100	**FAN363**	**PIGS100**

Table 9-7. Circuit Breaker Plug-in Units

Voltage Rating	Ampere Rating	Circuit Breaker Enclosure	Receptacle Enclosure	Ground (If Required)	External Handle (Required for Hook-Stick Operation)
		Catalog Number	Catalog Number	Catalog Number	Catalog Number
QUICKLAG HQP	15 – 50	**PINQP**	**LCNQP**	**PIGS100**	**HMQP**
ED, EHD, FDB	15 – 100	**PINFD**	**LCNFD**	**PIGS100**	**HMFD**

Table 9-8. Accessories

Item	Catalog Number
End Closer	**EC1**
Outlet Cover	**OC1**
Edgwise Hanger	**EH1**
"C" Clamp Hanger	**FH1**
Slip-on Wall Flange	**WF1**

Replacement Capabilities (Continued)

Originally a Westinghouse Product

Typical Standard Plug-in Straight Length

Table 9-9. Catalog Numbers

Duct Only Includes One Hanger per 10 Feet of Busway ①	Catalog Number for 10 Feet Lengths ②		Fittings (Price of Footage Through Each Fitting Must be Added)		
Ampere Rating	Aluminum	Copper	Universal Cable Tap Box (Lugs Included) ③	End Closer	
				Aluminum	Copper
	Catalog Number				
3-Phase, 3-Wire, 600 Volts with 50% Ground Bus					
225	AST302G	ST302G	UCTB302G	UEC10	UEC10
400	AST304G	ST304G	UCTB304G	UEC20	UEC15
600	AST306G	ST306G	UCTB306G	UEC35	UEC20
800	AST308G	ST308G	UCTB308G	UEC50	UEC30
1000	AST310G	ST310G	UCTB310G	UEC60	UEC40
3-Phase, 4-Wire, Full Neutral, 277/480 Volts with 50% Ground Bus					
225	AST502G	ST502G	UCTB402G	UEC10	UEC10
400	AST504G	ST504G	UCTB404G	UEC20	UEC15
600	AST506G	ST506G	UCTB406G	UEC35	UEC20
800	AST508G	ST508G	UCTB408G	UEC50	UEC30
1000	AST510G	ST510G	UCTB410G	UEC60	UEC40

① When ordering from stock, all hangers must be shown as a separate item marked included in price.
② Suitable for horizontal mounting only. Contact your local Eaton Field Sales office for pricing and lead-times.
③ If UCTB is used on end of run, an end closer must also be used for that end.

Table 9-10. Cantilever Hangers

Ampere Rating	Aluminum	Copper
	Catalog Number	
3-Phase, 3-Wire, 600 Volts		
225	CLH10	CLH10
400	CLH20	CLH15
600	CLH35	CLH20
800	CLH50	CLH30
1000	CLH60	CLH40
3-Phase, 4-Wire, Full Neutral, 277/480 Volts		
225	CLH10	CLH10
400	CLH20	CLH15
600	CLH35	CLH20
800	CLH50	CLH30
1000	CLH60	CLH40

Table 9-11. Miscellaneous Accessories

Description
Wall/Floor Flange
Extra Cantilever Hangers
Hookstick Kit (8 – 14 feet) HS8-14 ④
Renewal Parts
Joint Hardware – EXWK10
Access Covers (two)
Splice Plates (two)

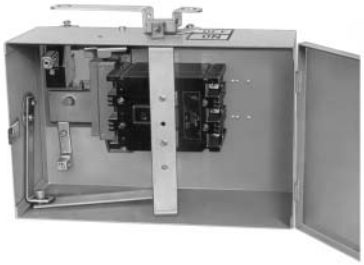
④ Normally available from stock.

Replacement Capabilities (Continued)

Originally a Westinghouse Product

Circuit Breaker Plug-in Units

Circuit Breaker Plug-in Unit (Closed)



Circuit Breaker Plug-in Unit (Open)

The enclosure, circuit breaker, neutral and ground are ordered and shipped assembled.

Note: Breaker and Fusible plugs must be ordered as assembled units. See **Page 9-10** for instructions on how to build the assembled catalog numbers.

Note: For units mounting at the joint and feeder type ducts, see bolt-on units — standard plug-in, low impedance and H5000.

Table 9-12. Catalog Numbers

Breaker Frame	Enclosure	Neutral (If Required) ①		Ground (If Required) ②
		Standard Plug-in	Low Impedance	
	Catalog Number			
EHD, FDB, FD, HFD, FDC (15 – 150 A)	**BPFD** ③	**N110 (15 – 110 A)** ③ **N250KB (125 – 150 A)** ③	**ZN110 (15 – 110 A)** ③ **ZN250KB (125 – 150 A)**	**GS104** ③
JDB, JD, HJD, JDC (70 – 250 A)	**BPJD** ③	**N250KB (125 – 250 A)** ③	**ZN250KB (125 – 250 A)** ③	**GS104** ③
KDB, KD, HKD, KDC (125 – 400 A)	**BPKD**	**N400 (250 – 400 A)** ③	**ZN400 (250 – 400 A)** ③	**GS104** ③
LDB, LD, HLD, LDC (300 – 600 A)	**BPLD**	④	④	④
MC, HMC (500 – 800 A)	**BPMD**	**N/A**	④	④
NC, HNC (900 – 1200 A)	**BPND**	④	④	④
FB (TRI-PAC®) (15 – 100 A)	**BPFBP**	**N110 (15 – 100 A)** ③	**ZN110 (15 – 100 A)**	**GS104** ③
LA (TRI-PAC) (125 – 400 A)	**BPLAP** ⑤	**N400 (125 – 400 A)** ③	**ZN400 (125 – 400 A)** ③	**GS104** ③
NB (TRI-PAC) (500 – 800 A)	**BPNBP**	④	④	**GS104** ③

① Full neutral. For half neutral, contact your local Eaton Field Sales office.
② Not available for low impedance bus duct.
③ Normally available from stock.
④ Contact your local Eaton Field Sales office for delivery. Order by description on suffix **BUS**.
⑤ Obsolete; no longer available.

Table 9-13. Circuit Breaker Selection and Interrupting Ratings

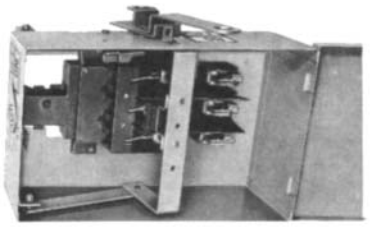
Breaker Frame	Ampere Rating	Symmetrical Amperes		
		240 Vac	480 Vac	600 Vac
EHD	15 – 60 70 – 100	18,000 18,000	14,000 14,000	— —
FDB	15 – 60 70 – 100 110 – 150	18,000 18,000 18,000	14,000 14,000 14,000	14,000 14,000 14,000
FD	15 – 60 70 – 100 110 – 150	65,000 65,000 65,000	25,000 25,000 25,000	18,000 18,000 18,000
HFD	15 – 60 70 – 100 110 – 150	100,000 100,000 100,000	65,000 65,000 65,000	25,000 25,000 25,000
FDC	15 – 60 70 – 100 110 – 150	200,000 200,000 200,000	100,000 100,000 100,000	50,000 50,000 50,000
JDB	70 – 225 250	65,000 65,000	25,000 25,000	18,000 18,000
JD	70 – 225 250	65,000 65,000	25,000 25,000	18,000 18,000
HJD	70 – 225 250	100,000 100,000	65,000 65,000	25,000 25,000
JDC	70 – 225 250	200,000 200,000	100,000 100,000	50,000 50,000
KDB KD HKD	250 – 400 250 – 400 250 – 400	65,000 65,000 100,000	35,000 35,000 65,000	25,000 25,000 35,000
KDC LDB LD	250 – 400 300 – 600 300 – 600	200,000 65,000 65,000	100,000 45,000 45,000	50,000 25,000 25,000
HLD LDC MDL	300 – 600 300 – 600 400 – 800	100,000 200,000 65,000	65,000 100,000 50,000	35,000 50,000 25,000
HMDL NP HND	400 – 800 400 – 1200 400 – 1200	100,000 65,000 100,000	65,000 50,000 65,000	35,000 25,000 35,000
FB (TRI-PAC)	15 – 100	200,000	200,000	200,000
LA (TRI-PAC)	70 – 400	200,000 200,000	200,000 200,000	200,000 200,000
NB (TRI-PAC)	600 – 800	200,000 200,000	200,000 150,000	200,000 200,000

Replacement Capabilities (Continued)

Originally a Westinghouse Product

Fusible Plug-in Units

- For Standard Plug-in and Low Impedance Plug-in Busway. (Not for use on Pow-R-Way Busway. Not available for low impedance bus duct.)
- Fuses not included.
- Mechanical lugs only.
- Plug-in unit, neutral and ground can be ordered separately and shipped unassembled.



Fusible TAP

Special Industry Fusible Plug-in Units

- Special industry plugs are I^2t rated.
- Knockouts are not provided.
- Grounding lug included on 200 amperes and above.
- Lugs ordered and shipped separately.
- Fuses are not included.
- If neutral or ground assembly required, contact your local Eaton Field Sales office.

Table 9-14. Fusible Switch Horsepower Ratings

Ampere Rating	240 Volts		480 Volts		600 Volts	
	NEC® Standard	Time Delay	NEC Standard	Time Delay	NEC Standard	Time Delay
30	3	7-1/2	5	15	7-1/2	20
60	7-1/2	15	15	30	15	50
100	15	30	25	60	30	75
200	25	60	50	125	60	150
400	50	100	100	250	125	350
600	75	100	200	400	200	500

Table 9-15. Fusible Plug-in Units ①

Ampere Rating	600 Volts	240 Volts	Neutral (If Required)		Ground (If Required)	Class R Fuse Clips (If Required)	
			Standard Plug-in	Low Impedance		600 Volts	240 Volts
	Catalog Number						
30	TAP361 ②	TAP321 ②	N110 ②	ZN110 ②	GS104 ①②	RFK161 ②	RFK121 ②
60	TAP362 ②	TAP322 ②	N110 ②	ZN110 ②	GS104 ①②	RFK262 ②	RFK222 ②
100	TAP363 ②	TAP323 ②	N110 ②	ZN110 ②	GS104 ①②	RFK464 ②	RFK464 ②
200	TAP364 ②	TAP324 ②	N250KB ②	ZN250KB	GS104 ①②	RFK464 ②	RFK464 ②
400	TAP365	TAP325	N400 ②	②	GS104 ①②	RFK666 ②	RFK666 ②
600	TAP366	TAP326	N400 ②③	ZN400 ②	④	RFK666 ②	RFK666 ②
800	⑤	⑤	—	④	—	—	—

① Not available for low impedance bus duct.
② Normally available from stock.
③ Only half neutral available. For full neutral use a TAP366BO or TAP326BO unit.
④ Must be factory assembled. Order by description on suffix **BUS**.
⑤ Plug-in unit not available, contact your local Eaton Field Sales office for bolt on type.

Table 9-16. Special Industry Fusible Plug-in Units

3-Wire, 600 Volt Plug-in Unit		If Required		Terminal Kits for Industry Fusible Plug-in Units					
		Neutral	Ground	Mechanical Lugs ⑥			Compression Lugs ⑥		
Ampere Rating	Catalog Number			Catalog Number	Lugs Per Phase	Wire Size	Catalog Number	Lugs Per Phase	Wire Size
30	TAP361H	⑦	⑦	MTK30SC	1	#14 – #4	CTK30SC	1	#12 – #10
60	TAP362H	⑦	⑦	MTK160SC	1	#14 – 1/0	CTK60SC	1	#8
100	TAP363H	⑦	⑦	MTK160SC	1	#14 – 1/0	CTK100SC	1	#4
200	TAP364H	⑦	⑦	MTK200SC	1	#6–350 kcmil	CTK200BSC	1	2/0
400	TAP365H	⑦	⑦	MTK400DPW	2	#2 – 4/0	CTK400SPW	1	750 kcmil
600	TAP366H	⑦	⑦	MTK600DFW	2	500 kcmil	CTK600DPM	2	500 kcmil

⑥ Normally available from stock.
⑦ Must be factory assembled. Order by description.

Table 9-17. 3-Wire — Ground Detector and Neutralizer Plug

Maximum Volts	Catalog Number
600	GND36

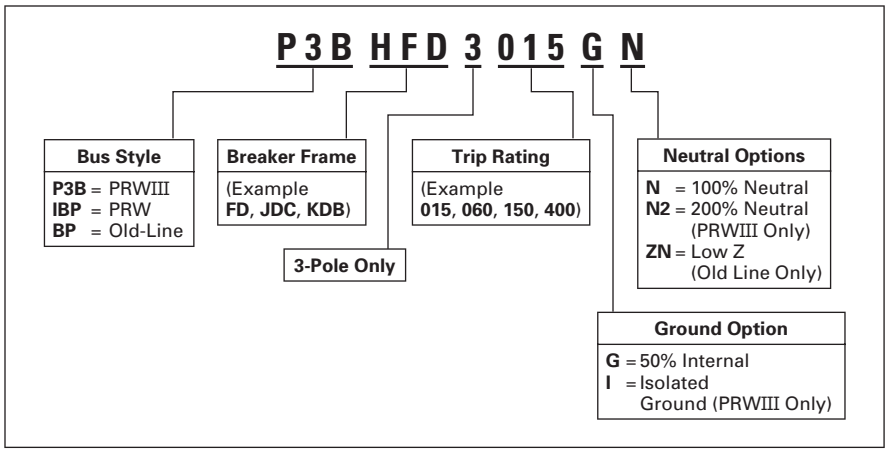
Replacement Capabilities (Continued)

Quick Assembled Plugs

The Mod Center in Spartanburg, SC will perform the assembly of the bus plugs in 3 days or less for most orders. Bid Manager enables you to "build" the appropriate catalog number. When the order is entered on Bid Manager, it will automatically transfer the order to suffix "QAP." Please see the following rules for building the assembled catalog number.

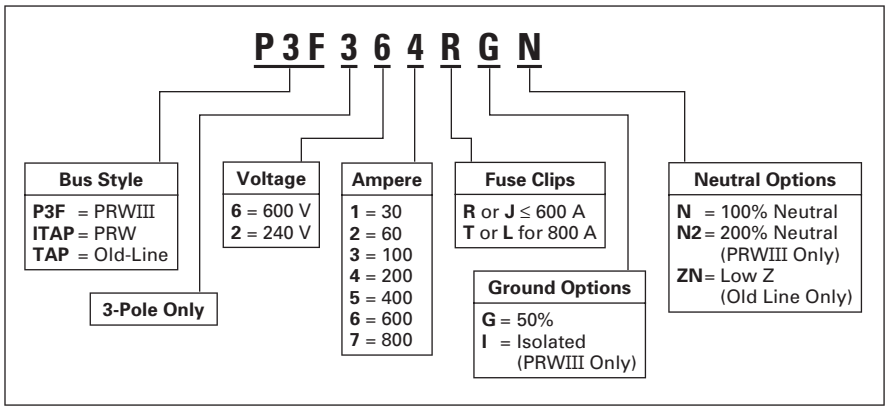
Catalog Numbering System

Table 9-18. Quick Assembled Plugs — Breaker Unit ①②



① Do not leave space between characters. Example: **P3BHFD3015GN**.
② Contact your local Eaton Field Sales office for help in assigning a catalog number for a specific application.

Table 9-19. Quick Assembled Plugs — Fusible Unit ③④⑤



③ Do not leave space between characters. Example: **P3F264RGN**.
④ Contact your local Eaton Field Sales office for help in assigning a catalog number for a specific application.
⑤ "H" clips are standard for Pow-R-Way and Vintage Busway Products unless specified by adding "R" or "J" in catalog number. Example: **P3F264RGN**, **ITAP361JGN**.

Replacement Capabilities (Continued)

Originally a Westinghouse Product

Table 9-20. Bolt-on Units ①

Breaker Frame	Ampere Rating	Enclosure	Neutral ② (If Required)	Ground ③ (If Required)
		Catalog Number		
Circuit Breaker Bolt-on Units (Breaker Not Included)				
EHD, FDB, FD HFD, FDC	15 – 150	**BPFDBO**	④	④
JDB, JD, HJD, JDC	125 – 250	**BPJDBO**	④	④
KDB, KD, HKD, KDC	250 – 400	**BPKDBO**	④	④
LDB, LD, HLD LDC	300 – 600	**BPLDBO**	④	④
MDL, HMDL	400 – 800	**BPMDBO**	④	④
FB (TRI-PAC)	15 – 100	**BPFBPBO**	④	④
LA (TRI-PAC)	125 – 400	**BPLAPBO**	④	④
NB (TRI-PAC)	500 – 800	**BPNBPBO**	④	④
Fusible Bolt-on Units ⑤				
240 Volts	30	**TAP321BO**	④	④
	60	**TAP322BO**	④	④
	100	**TAP323BO**	④	④
	200	**TAP324BO**	④	④
	400	**TAP325BO**	④	④
	600	**TAP326BO**	④	④
	800	**TAP327BO**	④	④
600 Volts	30	**TAP361BO**	④	④
	60	**TAP362BO**	④	④
	100	**TAP363BO**	④	④
	200	**TAP364BO**	④	④
	400	**TAP365BO**	④	④
	600	**TAP366BO**	④	④
	800	**TAP367BO**	④	④

① Factory assembled. Contact your local Eaton Field Sales office for delivery and order entry information. When ordering, you must specify:
1. Load left or load right.
2. Front or rear mounting.
3. Type of busway to which unit is to be mounted.

② Full neutral. For half neutral, contact your local Eaton Field Sales office.

③ Not available for low impedance bus duct.

④ Order by description with bolt-on unit.

⑤ These bolt-on units include an adapter for mounting at the joint. They do not require a power take-off unit.

Table 9-21. Circuit Breaker Selection and Interrupting Ratings ⑥

Breaker Frame	Ampere Rating	Symmetrical Amperes		
		240 Vac	480 Vac	600 Vac
EHD	15 – 60	18,000	14,000	—
	70 – 100	18,000	14,000	—
FDB	15 – 60	18,000	14,000	14,000
	70 – 100	18,000	14,000	14,000
	110 – 150	18,000	14,000	14,000
FD	15 – 60	65,000	25,000	18,000
	70 – 100	65,000	25,000	18,000
	110 – 150	65,000	25,000	18,000
HFD	15 – 60	100,000	65,000	25,000
	70 – 100	100,000	65,000	25,000
	110 – 150	100,000	65,000	25,000
FDC	15 – 60	200,000	100,000	50,000
	70 – 100	200,000	100,000	50,000
	110 – 150	200,000	100,000	50,000
JDB	70 – 225	65,000	25,000	18,000
	250	65,000	25,000	18,000
JD	70 – 225	65,000	25,000	18,000
	250	65,000	25,000	18,000
HJD	70 – 225	100,000	65,000	25,000
	250	100,000	65,000	25,000
JDC	70 – 225	200,000	100,000	50,000
	250	200,000	100,000	50,000
KDB	250 – 400	65,000	35,000	25,000
KD	250 – 400	65,000	35,000	25,000
HKD	250 – 400	100,000	65,000	35,000
KDC	250 – 400	200,000	100,000	50,000
LDB	300 – 600	65,000	45,000	25,000
LD	300 – 600	65,000	45,000	25,000
HLD	300 – 600	100,000	65,000	35,000
LDC	300 – 600	200,000	100,000	50,000
MDL	400 – 800	65,000	50,000	25,000
HMDL	400 – 800	100,000	65,000	35,000
NP	400 – 1200	65,000	50,000	25,000
HND	400 – 1200	100,000	65,000	35,000
FB (TRI-PAC)	15 – 100	200,000	200,000	200,000
LA (TRI-PAC)	70 – 400	200,000	200,000	200,000
		200,000	200,000	200,000
NB (TRI-PAC)	600 – 800	200,000	200,000	200,000
		200,000	150,000	200,000

⑥ Refer to the current *Price and Availability Digest (PAD)* for breaker list prices.

Replacement Capabilities (Continued)

Originally a Cutler-Hammer Product

Table 9-22. Fusible Switch Plug-in Units

Class R Fuse Clip Included				
Ampere Rating	**Maximum hp Rating ①**	**Catalog Number**	**Maximum hp Rating ①②**	**Catalog Number ③**
240 Volt, 3-Phase, 3-Wire			**120 – 208 Volt, 3-Phase, 4-Wire**	
30	7-1/2	**CP4HD321**	5	**CP4HD421**
60	15	**CP4HD322**	10	**CP4HD422**
100	30	**CP4HD323**	25	**CP4HD423**
200	60	**CP4HD324**	60	**CP4HD424**
400	100	**CP4HD325**	250	**CP4HD425**
600 ④	100	**CP4HD326**	400	**CP4HD426**
600 Volt, 3-Phase, 3-Wire			**277 – 480 Volt, 3-Phase, 4-Wire**	
30	20	**CP4HD361**	15	**CP4HD461**
60	50	**CP4HD362**	30	**CP4HD462**
100	75	**CP4HD363**	60	**CP4HD463**
200	100	**CP4HD364**	100	**CP4HD464**
400	350	**CP4HD365**	250	**CP4HD465**
600 ④	500	**CP4HD366**	400	**CP4HD466**

① Maximum hp ratings apply when time delay fuses are used.
② 120 – 208 volt hp ratings are based on 200 volt motor usage.
③ All units ship as 3-phase, 4-wire plugs.
④ Requires two adjacent plug-in outlets that do not span a busway joint.

Table 9-23. Plug-in Cable Tap Boxes — Plug into CP2, CP3 or CP4 Busway ⑤ — 600 and 800 Ampere Sizes Also Have Bolt-on Clips

Volts	Ampere Rating	Approximate Dimensions in Inches						Load Lugs Each Phase	Catalog Number
		Wide	High	Deep	Mounting Clearance		Conduit Sizes		
					Top	Front			
3-Phase, 3-Wire 600 Volt Maximum	225	15.5	8.1	6.9	6.3	10.5	1-1/2, 2, 2-1/2, 3	(1) #6 – 300 kcmil Al/Cu	**CP2SB34**
	400	22.3	8.1	7.9	7.0	11.3		(1) #1/0 – 750 kcmil Al/Cu ⑥	**CP2SB35**
	600	37.2	15.8	11.7	12.5	16.8		(2) #2 – 600 kcmil Al/Cu	**CP2SB36** ⑦
	800	37.2	15.8	11.7	12.5	16.8		(3) #2 – 600 kcmil Al/Cu	**CP2SB37** ⑦
3-Phase, 4-Wire 120/208 Volt or 277/480 Volt 100% Neutral	225	15.5	8.1	6.9	6.3	10.5	1-1/2, 2, 2-1/2, 3	(1) #6 – 300 kcmil Al/Cu	**CP2SB44**
	400	22.3	8.1	7.9	7.0	11.3		(1) #1/0 – 750 kcmil Al/Cu ⑥	**CP2SB45**
	600	37.2	15.8	11.7	12.5	16.8		(2) #2 – 600 kcmil Al/Cu	**CP2SB46** ⑦
	800	37.2	15.8	11.7	12.5	16.8		(3) #2 – 600 kcmil Al/Cu	**CP2SB47** ⑦

⑤ For ground stab to engage internal ground bus, add suffix "G" to Catalog Number.
⑥ Also accepts (2) #1 – 300 kcmil Al/Cu.
⑦ Requires two adjacent plug outlets that do not span a busway joint.

Replacement Capabilities (Continued)

Originally a Cutler-Hammer Product

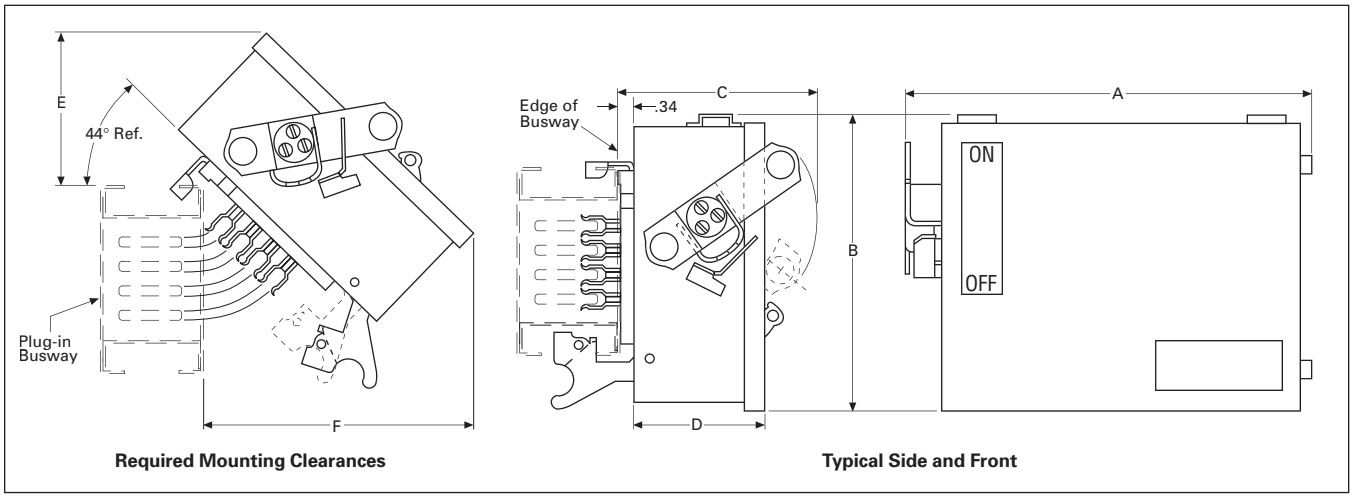


Figure 9-4. Approximate Dimensions

Table 9-24. Plug-in Units — May be Used with Either CP2, CP3 or CP4 Plug-in Busway Sections — Fusible Switch Type

Frame or Type	Maximum Ampere Rating	Dimensions in Inches							Wire Size Range Al/Cu
		A	B	C	D	E	F	Conduit Sizes Top, Bottom and Side	
CP4HD	30 60 100	19.3	11.5	8.8	5.2	7.0	9.0	1/2, 3/4, 1, 1-1/4, 1-1/2, 2	(1) #14 – 2 (1) #14 – 2 (1) #14 – 1/0
CP4HD	200	23.0	16.5	9.2	6.0	7.5	13.3	1-1/2, 2, 2-1/2, 3	(1) #6 – 300 kcmil
	400 ①②	45.6	24.3	15.8	13.1	14.0	20.5	1-1/2, 2, 2-1/2, 3	(1) #1/0 – 300 kcmil or (1) 750 kcmil
	600 ①②	45.6	24.3	15.8	13.1	14.0	20.5	1-1/2, 2, 2-1/2, 3	(2) #2 – 600 kcmil

① Provided with busway bolt-on clip and straps for 1/2-inch hanger rods.
② Unit extends 10-1/2 inches below busway.

Technology Upgrades

Clipper Power Systems, Busway TVSS Protection

The Low Voltage Busway aftermarket product offering includes Transient Voltage Surge Suppression (TVSS) which is ideal for busway fed distribution systems. Eaton has developed the Clipper Power System (CPS) family of products to ensure that the quality power required to maximize productivity in today's competitive environment is supplied to commercial, industrial, medical and institutional facilities. Without power protection devices, microprocessors and electronic based loads are not provided with the noise and disturbance-free power which they require. Since microprocessor-based loads are now common in every facility, engineers must ensure the ac power supply is properly filtered. The CPS busway family of products consists of transient voltage surge suppression and filter components (TVSS filter) integrated into a bus plug with a fusible disconnect. TVSS bus plugs are available for the following types of plug-in busway:

- Westinghouse Standard Plug-in.
- Westinghouse Low Impedance Plug-in.
- Westinghouse H5000 Plug-in.
- Cutler-Hammer CP2 Plug-in.
- Cutler-Hammer CP3 Plug-in.
- Cutler-Hammer CP4 Plug-in.
- Westinghouse Pow-R-Way.
- Westinghouse Pow-R-Way II.
- Cutler-Hammer Pow-R-Way III.

Significant performance advantages are achieved by integrating TVSS filters into busway systems. Since the TVSS unit is directly connected to the busway, the CPS minimizes let-through voltage, a significant performance advantage compared to cable-connected TVSS solutions. Due to the integrated design, the CPS bus plug also saves the user wall space and greatly reduces the installed project cost.

Table 9-25. Visor Series Bus Plug Catalog Numbering System

P3BCPS 250 480Y S A

Bus Style	
P3BCPS	= Pow-R-Way
TAPCPS	= Std. Plug-in
ZTAPCPS	= Low Impedance
HTAPCPS	= H5000
CP4CPS	= CP2/CP3/CP4
ITAPCPS	= Pow-R-Way

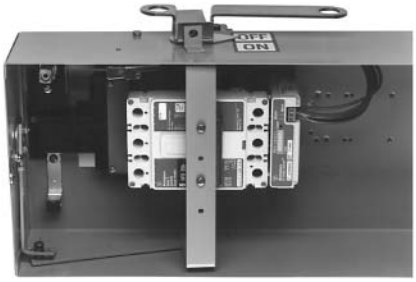
Surge Rating (kA/Phase)
100 = 100
120 = 120
160 = 160
200 = 200
250 = 250
300 = 300
400 = 400
500 = 500

Diagnostics Package
A = **AdVisor** complete with status indicator lights on each phase. Form C. Audible Alarm — Enable/Disable.
S = **SuperVisor** complete with status indicator lights on each phase, 1-Form C. Audible Alarm — Enable/Disable, Transient Counter, Push-to-Teat. PQ Meter (no date stamp).
N = **NetVisor** complete with status indicator lights on each phase. Form C. Audible Alarm — Enable/Disable, Transient Counter, Push to Test, PQ Meter (no date stamp). Modbus® and Ethernet Communications Port, % Life Remaining, % Voltage THD.

Voltage Code	Voltage Requirements			
	120/208 240 V	230/400 400 V	277/480 480 V	347/600 600 V
3-Phase Wye (4W+G)	**208Y**	**400Y**	**480Y**	**600Y**
3-Phase Delta (4W+G)	**240D**	—	**480D**	**600D**

Technology Upgrades (Continued)

IQ Energy Sentinel for Bus Plugs



Bus Plug with Energy Sentinel

The Cutler-Hammer IQ Energy Sentinel™ was designed as part of the PowerNet™ system and is a highly accurate, microprocessor-based submeter which monitors power and energy. It offers a centralized alternative to individually mounted wattmeters, watthour meters, and watt demand meters. Key advantages include unmatched savings in space, lower installation costs, and the capability to communicate data readings in a variety of ways. IQ Energy Sentinels with built-in Current Transformers (CTs) and communications have the added benefit of overall system accuracy. The IQ Energy Sentinel mounts on the load side of Cutler-Hammer F, J and K breakers within the bus-plug enclosure.

The IQ Energy Sentinel is also available with a universal mounting which utilizes external CTs and is offered for fusible bus plug applications. Submetering application examples for the IQ Energy Sentinel include energy monitoring and demand management, energy cost analysis/allocation and tenant or interdepartmental billing. To accomplish the communications system, the customer must provide a twisted pair communication cable in 1/2-inch conduit between the IQ Energy Sentinel bus plug and a Cutler-Hammer Central Energy Display, or customer computer to display the information. IQ Energy Sentinel bus plugs are available for Pow-R-Way, Pow-R-Way II and Pow-R-Way III busway.

Customer Required Information

If Originally a Westinghouse Product

1. Style number or shop order number from existing busway nameplate and complete nameplate information.
2. Height and width dimensions of housing from existing busway.
3. Order by Style Number on suffix Q77.

If Originally a Cutler-Hammer Product

1. Check Vista for pricing.
2. Order by catalog number on suffix Q73.

Further Information

Publication Number	Description
AD 30-560 AD 30-560 TD01701001E	Application Data for Pow-R-Way Application Data for Pow-R-Way II Technical Data for Pow-R-Way III
TD01701002E	Technical Data for 100-Ampere Busway

Pricing Information

Vista/VISTALINE™ Discount Symbols CE3 and CE4

Note: Contact your local Eaton Field Sales office.

Note: Additional information may be required for manufacturing.

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