TRANSMITTAL OF SUBMITTAL

DATE: 3/3/23

то	Scott Miller	New X-Submittal Resubmittal		
10.	CMG – City of Atlanta 2528 Chattahoochee Circle	Project: East Area Water Quality Control Facility Improvements		
	Atlanta, GA 30318	Specification Section No. : 16160		
		Supplier/Vendor/Subcontractor: Contessa		
FRO	M: LAKESHORE ENGINEERING			
	1259 Ellsworth Drive	Manufacturer: EATON		
	Atlanta, GA 30318			

The following items are hereby submitted:

Number of Copies	Description of Item Submitted (Type, Size, Model Number, Etc.)Submittal numberSubmittal Typet		Conta Varia to Con	ains tion tract	
				No	Yes
Email	Panelboards	16160-57.00	Product Data	Х	

Comments/Variation:

CONTRACTOR hereby certifies that (i) CONTRACTOR has complied with the requirements of Contract Documents in preparation, review, and submission of designated Submittal and (ii) the Submittal is complete and in accordance with the Contract Documents and requirements of laws and regulations and governing agencies.

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By:____

Brandon Dow



Detail Bill of Material

Project Name: General Order No: MAT0011132

East Area Water Control Facility

Negotiation No: Alternate No:

AT130311X0K1 R003

Qty List of Materials

- Size 1 Freedom Starter NC Aux Contact 1
- 18 Pushbutton, 10250T NO Contact Block, 10250T 18
- AFD Part 1
- HFD, Series C Molded Case Circuit Breaker, 50A 1
- HFD, Series C Molded Case Circuit Breaker, 100A 1
- HJD, Series C Molded Case Circuit Breaker, 250A 1

Item No.	Qty	Product		Description
012	1	Drives - Enclosed		EGS 6-Pulse Enclosed Drive w/ 5% Dual DC Link Choke, 10 HP
				(7.5 KW) Low Overload (IL) Rated, 480VAC Three Phase Input,
				NEMA 4X Enclosure w/ Brake Chopper Circuit
			Catalog No	EGS0144B520BB10000*
			Designation	5 HP VFD sludge
		Qtv	List of Materials	
		1	Circuit Breaker	
		2	Clear Keypad Co	ver
		1	Engineered Optio	ns
		1	Voltage Indicator	
		1	>100KAIC Rate	d
		1	3% Output Filter	
		1	22mm Start (Gree	en) & Stop (Red) Buttons - M22 Series
		1	22mm Power On	(White), Drive Run (Green), & Drive Fault (Red) Light Kit -
			M22 Series	
		1	22mm HOA Swite	h - M22 Series
		1	22mm Speed Pot	- M22 Series
		6	Control Relay	
		1	Varnished Boards	s (Standard)
		1	Stainless Steel (3	04) with Air Conditioning
		1	Nameplates	

Item No. Qty Product 0131 1 Panelboards

Description

42 Circuits, 225A, Fully Rated, 120/240V 1Ph 3W, Aluminum Bus, 22kAIC, 150A, EDB Main Breaker[Top Fed], Surface Mounted

Catalog No P1C225BT42AH01 Designation LSDB

Qty List of Materials

- 150A, EDB Main Breaker 1
- 16 20A, 1P QBHW Branch Breaker
- 30A, 1P QBHW Branch Breaker 2
- 20A, 2P QBHW Branch Breaker 1
- 22 1P QBHW Branch Provision Only
- Surge Protective Device, 100 kA SPD Series Standard 1
- 1 Std. Bolted Al Ground Bar (Al/Cu Cable)
- Panel Nameplate White with Black Letters 1
- Type 1 Enclosure: EZB2060R 1
- EZ Trim, Door in Door, Concealed Hardware: EZT2060S 1

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P	owerin	g Busi	ness V	Vorldwide

Detail Bill of MaterialProject Name:
General Order No:East Area V
MAT001113

East Area Water Control Facility MAT0011132

Negotiation No: Alternate No:

Page 5 of 14 AT130311X0K1 R003

Item No.	Qtv	Product	Description
0141	1	Panelboards	42 Circuits, 250A, Fully Rated, 480Y/277V 3Ph 4W, Aluminum Bus, 25kAIC, 225A, FD 3P Main Breaker[Top Fed], Surface Mounted
		Catalog No Designation	P3D250BT48AH01 HSP.1
		QtyList of Materials1225A, FD 3P Ma720A, 3P FD Bran1220A, 1P HGHB E91P HGHB Brancl1Std. Bolted Al Gr1Panel Nameplate1Type 1 Enclosure1EZ Trim, Door in	in Breaker ch Breaker branch Breaker n Provision Only ound Bar (Al/Cu Cable) e - White with Black Letters e: EZB2072R Door, Concealed Hardware: EZT2072S
Item No	Qtv	Product	Description
0151	1	Panelboards	42 Circuits, 225A, Fully Rated, 208Y/120V 3Ph 4W, Aluminum Bus, 22kAIC, 100A, 3P QBHW-H Main Breaker[Top Fed], Surface Mounted
		Catalog No Designation	P1A225BT42AH01 LSP
		QtyList of Materials100A, 3P QBHW20A, 2P QBHW20A, 1P QBHW3220A, 1P QBHW130A, 1P QBHW140A, 1P QBHW150A170A180A190A <t< td=""><td>-H Main Breaker Branch Breaker Branch Breaker Branch Breaker Branch Breaker h Provision Only ound Bar (Al/Cu Cable) - White with Black Letters e: EZB2042R Door, Concealed Hardware: EZT2042S</td></t<>	-H Main Breaker Branch Breaker Branch Breaker Branch Breaker Branch Breaker h Provision Only ound Bar (Al/Cu Cable) - White with Black Letters e: EZB2042R Door, Concealed Hardware: EZT2042S
Item No	Otv	Product	Description
0161	1	Panelboards	42 Circuits, 250A, Fully Rated, 480Y/277V 3Ph 4W, Aluminum Bus, 25kAIC, 100A, FD 3P Main Breaker[Top Fed], Surface Mounted
		Catalog No Designation	P3D250BT42AH01 HSB
		Qty List of Materials 1 100A, FD 3P Ma	in Breaker

- 1
- 3
- 30
- 100A, 3P FD Branch Breaker 20A, 3P FD Branch Breaker 1P HGHB Branch Provision Only Std. Bolted Al Ground Bar (Al/Cu Cable) 1
- Panel Nameplate White with Black Letters Type 1 Enclosure: EZB2060R 1
- 1
- EZ Trim, Door in Door, Concealed Hardware: EZT2060S 1

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	Power	ing Busi	iness V	Vorldwide

Detail Bill of Material

Project Name:East Area Water Control FacilityGeneral Order No:MAT0011132

Negotiation No: Alternate No: Page 6 of 14 AT130311X0K1 R003

Item No.	Qtv	Product	Description
0171	1	Panelboards	42 Circuits, 100A, Fully Rated, 208Y/120V 3Ph 4W, Aluminum Bus, 18kAIC, 80A, 3P QBHW-H Main Breaker[Top Fed], Surface Mounted
		Catalog No Designation	P1A100BT42AH01 LSB
		Qty List of Materials	I Main Breaker
		5 20A, 1P QBHW E	Branch Breaker
		37 1P QBHW Brancl	n Provision Only
		1 Std. Bolted Al Gro	bund Bar (Al/Cu Cable)
		1 Type 1 Enclosure	: EZB2042R
		1 EZ Trim, Door in	Door, Concealed Hardware: EZT2042S
Item No.	Qty	Product	Description
0181	1	Panelboards	30 Circuits, 100A, Fully Rated, 240/120V 3Ph 4W B HiLeg,
			Surface Mounted
		Catalog No	P1F100BT30AH01
		Designation	SBCBP(FILTER BUILDING)
		Qty List of Materials	
		1 40A, 3P EHD Ma	in Breaker
		1 20A, 1P QBHW E	Branch Breaker
		17 1P QBHW Brand	n Provision Only
		1 Surge Protective	Device, 100 kA SPD Series - Standard
		1 Std. Bolted Al Gro	bund Bar (Al/Cu Cable)
		1 Panel Nameplate	- White with Black Letters
		1 EZ Trim. Door in	Door. Concealed Hardware: Trim. Refer To Factory
		,	
Item No.	Qtv	Product	Description
0191	1	Panelboards	30 Circuits, 225A, Fully Rated, 120/240V 1Ph 3W, Aluminum Bus, 18kAIC, 225A, Main Lugs Only[Top Fed], Surface Mounted
		Catalog No	P1C225LT30AH01
		Designation	SBCBP(SODIUM DOSING)

Qty List of Materials

- 1 225A, Main Lugs Only
- 1 30A, 1P QBHW Branch Breaker
- 12 20A, 1P QBHW Branch Breaker
- 17 1P QBHW Branch Provision Only
- 1 Surge Protective Device, 100 kA SPD Series Standard
- 1 Std. Bolted Al Ground Bar (Al/Cu Cable)
- 1 Panel Nameplate White with Black Letters
- 1 Type 1 Enclosure: EZB2042R
- 1 EZ Trim, Door in Door, Concealed Hardware: EZT2042S



Detail Bill of Material

 Project Name:
 East Area Water Control Facility

 General Order No:
 MAT0011132

Negotiation No: Alternate No:

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Itom No.	044	Draduat		Description
	QIY	Product		
0201	1	Panelboa	irds	24 Circuits, 250A, Fully Rated, 480V 3Ph 3W, Aluminum Bus,
				65kAIC, 225A, HFD 3P Main Breaker[Top Fed], Surface Mounted
			Catalog No	P3F250BT24AH4X
			Designation	DP-SB
			Designation	
		Qtv	l ist of Materials	
		1		nin Proeker
		1		
		1	100A, 3P HED BI	anch Breaker
		3	60A, 3P HFD Bra	nch Breaker
		4 20A, 3P HFD Bra		nch Breaker
		1 Surge Protective		Device. 120 kA SPD Series - Standard
		1 Std Bolted Al Gr		bund Bar (Al/Cu Cable)
		1	Panel Namenlate	White with Black Letters
				200 Staiploss Stail: NAY2449N
		I Type 4X Enclosu		e, 304 Stalliness Steel. 1147244011
Item No.	Qty	Product		Description
021	1	Aftermark	ket Panelboards	SWBD Retrofit Kit

Catalog NoKPRL4NGC31000SXXDesignation1600A

Qty List of Materials

 SWBD Retrofit Kit Retrofit Kit Catalog Number: KPRL4NGC31000SXX Circuit Breaker, NGC, 1000A X Space Required: 6 PRLC, Legacy Retrofit Kit
 N Frame Connector Kit

1 1000A, 3P NGC Breaker, [1200A Frame]

1 310+ ALSI Trip Unit, NG Frame, Included

3 Terminals, Mech. (4) 4/0-500 kcmil (Cu/Al)

Item No.	Qty	Product		Description
022	1	Aftermar	ket Panelboards	SWBD Retrofit Kit
			Catalog No Designation	KPRL4NGC3800SXX 1600A
		Qty 1	List of Materials SWBD Retrofit Ki	t Retrofit Kit Catalog Nu

 SWBD Retrofit Kit Retrofit Kit Catalog Number: KPRL4NGC3800SXX Circuit Breaker, NGC, 800A X Space Required: 6 PRLC, Legacy Retrofit Kit
 N Frame Connector Kit
 800A, 3P NGC Breaker, [800A Frame]
 310+ LS Trip Unit, NG Frame, Included

3 Terminals, Mech. (4) 4/0-500 kcmil (Cu/Al)

Item No.	Qty	Product	Description
023	1	Aftermarket Panelboards	SWBD Retrofit Kit
		Catalog No Designation	KPRL4LDC3600SXX 1600A



Detail Bill of Material Project Name: East Area Water Control Facility

Negotiation No: Alternate No:

R003

General Order No: MAT0011132

Qty List of Materials 1 SWBD Retrofit Kit

1

- SWBD Retrofit Kit Retrofit Kit Catalog Number: KPRL4LDC3600SXX Circuit Breaker, LDC, 600A X Space Required: 6 PRLC, Legacy Retrofit Kit
- L Frame Connector Kit
- 1 600A, 3P LDC Breaker Frame
- 1 310+LS Trip Unit, L Frame
- 1 Fixed Rating Plug, L Frame, 600A
- 1 Terminals, Mech. (2) 400-500 kcmil (Cu/Al), 3 Pole Kit

Item No.	Qty	Product
0471	1	Panelboards

Description 42 Circuits, 400A, Fully Rated, 480Y/277V 3Ph 4W, Aluminum

Bus, 100kAIC, 400A, Main Lugs Only[Top Fed], Surface Mounted

Catalog No P3D400LT42AH01 Designation HSDB

Qty List of Materials

- 1 400A, Main Lugs Only
- 1 60A, 3P FDC Branch Breaker
- 7 20A, 3P FDC Branch Breaker
- 6 3P FDC Branch Provision Only
- 1 Std. Bolted Al Ground Bar (Al/Cu Cable)
- 1 Panel Nameplate White with Black Letters
- 1 Type 1 Enclosure: EZB2072R
- 1 EZ Trim, Door in Door, Concealed Hardware: EZT2072S

Item No.	Qty	Product		Description
024	1	Dry Type	e Transformers 3 Phase, 30 KVA, 1 K-Factor 480 Primary Volts 208Y/120 Second Temperature Rise Aluminum Winding Sound Reduction NEMA ST-20 Aud Efficiency : DOE 1 UL Listed : Y Enclosure Type: N Operating Frequent Catalog No Designation	Transformer Type: General Purpose Vented ary Volts 150C with 220C Insulation System g Material : 0 ible Sound Level: 45 10 CFR Part 431 (2016) NEMA 2 (for N3R, select Weather Shield in Mods tab) ncy: 60 HZ V48M28T3016 TX-LSP
		Qty 1	List of Materials 3 Phase, 30 KVA, 220C Insulation Sy HZ	480 Primary Volts, 208Y/120 Secondary Volts, 150C with /stem Temperature Rise, Aluminum Winding Material, 60
		I	TRANSFURINER	WEATHERSHIELD AT TTO FRAME FR940









Detail Bill of Material

Project Name:East Area Water Control FacilityGeneral Order No:MAT0011132

Negotiation No: Alternate No:

R003

Item No.	Qty	Product		Description
021	1	Aftermarke	t Panelboards	SWBD Retrofit Kit
			Catalog No Designation	KPRL4NGC31000SXX 1600A
		Qty I 1 5	L ist of Materials SWBD Retrofit Ki Circuit Breaker, N Kit	t Retrofit Kit Catalog Number: KPRL4NGC31000SXX IGC, 1000A X Space Required: 6 PRLC, Legacy Retrofit
		1 1	N Frame Connect	tor Kit
		1 1	1000A, 3P NGC E	3reaker, [1200A Frame]
		1 3	310+ ALSI Trip U	nit, NG Frame, Included
		3	Terminals, Mech.	(4) 4/0-500 kcmil (Cu/Al)
Itom No.	044	Draduat		Description

item No.	QUY	TTOULOL	Description	
022	1	Aftermarket Panelboards	SWBD Retrofit Kit	
		Catalog No	KPRL4NGC3800SXX	

Designation 1600A

Qty List of Materials

 SWBD Retrofit Kit Retrofit Kit Catalog Number: KPRL4NGC3800SXX Circuit Breaker, NGC, 800A X Space Required: 6 PRLC, Legacy Retrofit Kit
 N Frame Connector Kit

1 800A, 3P NGC Breaker, [800A Frame]

1 310+ LS Trip Unit, NG Frame, Included

3 Terminals, Mech. (4) 4/0-500 kcmil (Cu/Al)

Item No.	Qty	Product	Description
023	1	Aftermarket Panelboards	SWBD Retrofit Kit
		Catalog No Designation	KPRL4LDC3600SXX 1600A
		Qty List of Materials 1 SWBD Retrofit Ki	t Retrofit Kit Catalog Number: KPRL4LDC3600SXX Circuit

- Breaker, LDC, 600A X Space Required: 6 PRLC, Legacy Retrofit Kit
- 1 L Frame Connector Kit
- 1 600A, 3P LDC Breaker Frame

1 310+LS Trip Unit, L Frame

- 1 Fixed Rating Plug, L Frame, 600A
- 1 Terminals, Mech. (2) 400-500 kcmil (Cu/Al), 3 Pole Kit

Item No.	Qty	Product	Description
0131	1	Panelboards	42 Circuits, 225A, Fully Rated, 120/240V 1Ph 3W, Aluminum Bus, 22kAIC, 150A, EDB Main Breaker[Top Fed], Surface Mounted
		Catalog No	P1C225BT42AH01

Catalog No	P1C225BT42AH0
Designation	LSDB



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Detail Bill of Material Project Name: East Area V

General Order No:

East Area Water Control Facility MAT0011132 Negotiation No: Alternate No: AT130311X0K1 R003

Qty	List	of	Materials
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- 1 150A, EDB Main Breaker
- 16 20A, 1P QBHW Branch Breaker
- 2 30A, 1P QBHW Branch Breaker
- 1 20A, 2P QBHW Branch Breaker
- 22 1P QBHW Branch Provision Only
- 1 Surge Protective Device, 100 kA SPD Series Standard
- 1 Std. Bolted Al Ground Bar (Al/Cu Cable)
- 1 Panel Nameplate White with Black Letters
- 1 Type 1 Enclosure: EZB2060R 1 EZ Trim. Door in Door. Concea
 - EZ Trim, Door in Door, Concealed Hardware: EZT2060S

Item No.	Qty	Product		Description
0141	1	Panelboa	rds	42 Circuits, 250A, Fully Rated, 480Y/277V 3Ph 4W, Aluminum
				Bus, 25kAIC, 225A, FD 3P Main Breaker[Top Fed], Surface
				Mounted
			Catalog No	P3D250BT48AH01
			Designation	HSP.1
		Qty	List of Materials	
		1	225A, FD 3P Mair	ı Breaker
		7	20A, 3P FD Brand	h Breaker
		12	20A, 1P HGHB Br	anch Breaker
		•		

- 9 1P HGHB Branch Provision Only
- 1 Std. Bolted Al Ground Bar (Al/Cu Cable)
- 1 Panel Nameplate White with Black Letters
- 1 Type 1 Enclosure: EZB2072R
- 1 EZ Trim, Door in Door, Concealed Hardware: EZT2072S

Item No.	Qty	Product	Description
0151	1	Panelboards	42 Circuits, 225A, Fully Rated, 208Y/120V 3Ph 4W, Aluminum Bus, 22kAIC, 100A, 3P QBHW-H Main Breaker[Top Fed], Surface Mounted

Catalog No P1A225BT42AH01 Designation LSP

Qty List of Materials

- 1 100A, 3P QBHW-H Main Breaker
- 2 20A, 2P QBHW Branch Breaker
- 32 20A, 1P QBHW Branch Breaker
- 1 30A, 1P QBHW Branch Breaker
- 1 40A, 1P QBHW Branch Breaker
- 4 1P QBHW Branch Provision Only
- 1 Std. Bolted Al Ground Bar (Al/Cu Cable)
- 1 Panel Nameplate White with Black Letters
- 1 Type 1 Enclosure: EZB2042R
- 1 EZ Trim, Door in Door, Concealed Hardware: EZT2042S

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	Poweri	ng Busi	ness V	Vorldwide

Detail Bill of Material Project Name: East Area V General Order No: MAT001113 East Area Water Control Facility MAT0011132

Negotiation No: Alternate No:

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Itom No.	054	Droduct	Description
016I	1 1	Panelboards	42 Circuits, 250A, Fully Rated, 480Y/277V 3Ph 4W, Aluminum Bus, 25kAIC, 100A, FD 3P Main Breaker[Top Fed], Surface Mounted
		Catalog No Designation	P3D250BT42AH01 HSB
		QtyList of Materials1100A, FD 3P Maii1100A, 3P FD Brand320A, 3P FD Brand301P HGHB Branch1Std. Bolted Al Group1Panel Nameplate1Type 1 Enclosure1EZ Trim, Door in Line	n Breaker nch Breaker ch Breaker Provision Only ound Bar (Al/Cu Cable) - White with Black Letters : EZB2060R Door, Concealed Hardware: EZT2060S
Item No	Otv	Product	Description
0171	1	Panelboards	42 Circuits, 100A, Fully Rated, 208Y/120V 3Ph 4W, Aluminum Bus, 18kAIC, 80A, 3P QBHW-H Main Breaker[Top Fed], Surface Mounted
		Catalog No Designation	P1A100BT42AH01 LSB
		QtyList of Materials180A, 3P QBHW-F520A, 1P QBHW E371P QBHW Branch1Std. Bolted Al Gro1Panel Nameplate1Type 1 Enclosure1EZ Trim, Door in L	H Main Breaker irranch Breaker n Provision Only bund Bar (Al/Cu Cable) - White with Black Letters : EZB2042R Door, Concealed Hardware: EZT2042S
Item No.	Qtv	Product	Description
0181	1	Panelboards	30 Circuits, 100A, Fully Rated, 240/120V 3Ph 4W B HiLeg, Aluminum Bus, 18kAIC, 40A, 3P EHD Main Breaker[Top Fed], Surface Mounted
		Catalog No Designation	P1F100BT30AH01 SBCBP(FILTER BUILDING)
		QtyList of Materials140A, 3P EHD Mai120A, 1P QBHW E130A, 3P QBHW-F171P QBHW Branch17Surge Protective1Surge Protective1Std. Bolted AI Gro1Panel Nameplate1Type 1 Enclosure1EZ Trim, Door in 1	n Breaker Iranch Breaker I Branch Breaker I Provision Only Device, 100 kA SPD Series - Standard bund Bar (Al/Cu Cable) - White with Black Letters : Box, Refer To Factory Door, Concealed Hardware: Trim, Refer To Factory



Detail Bill of Material

Project Name:East Area Water Control FacilityGeneral Order No:MAT0011132

Negotiation No: Alternate No: Page 4 of 5 AT130311X0K1 R003

Item No.	Qtv	Product	Description
0191	1	Panelboards	30 Circuits, 225A, Fully Rated, 120/240V 1Ph 3W, Aluminum Bus, 18kAIC, 225A, Main Lugs Only[Top Fed], Surface Mounted
		Catalog Designati	No P1C225LT30AH01 on SBCBP(SODIUM DOSING)
		QtyList of Mater1225A, Main L130A, 1P QBH1220A, 1P QBH171P QBHW Bit17Surge Protect1Std. Bolted A1Panel Name;1Type 1 Enclot1EZ Trim, Doct	ials ugs Only IW Branch Breaker IW Branch Breaker ranch Provision Only tive Device, 100 kA SPD Series - Standard I Ground Bar (Al/Cu Cable) plate - White with Black Letters sure: EZB2042R r in Door, Concealed Hardware: EZT2042S
Item No.	Qty	Product	Description
0201	1	Panelboards	24 Circuits, 250A, Fully Rated, 480V 3Ph 3W, Aluminum Bus, 65kAIC, 225A, HFD 3P Main Breaker[Top Fed], Surface Mounted
		Catalog Designati	No P3E250BT24AH4X on DP-SB
		QtyList of Mater1225A, HFD 31100A, 3P HF360A, 3P HFD420A, 3P HFD1Surge Protect1Std. Bolted A1Panel Namer1Type 4X Enc	ials P Main Breaker D Branch Breaker Branch Breaker Branch Breaker I Ground Bar (Al/Cu Cable) Date - White with Black Letters Iosure, 304 Stainless Steel: N4X2448N
Item No.	Qtv	Product	Description
0471	1	Panelboards	42 Circuits, 400A, Fully Rated, 480Y/277V 3Ph 4W, Aluminum Bus, 100kAIC, 400A, Main Lugs Only[Top Fed], Surface Mounted
		Catalog Designati	No P3D400LT42AH01 on HSDB
		Qty List of Mater 1 400A, Main L 1 60A, 3P FDC 7 20A, 3P FDC 6 3P FDC Brar	ials ugs Only Branch Breaker Branch Breaker ch Provision Only

- 1 Std. Bolted Al Ground Bar (Al/Cu Cable)
- 1 Panel Nameplate White with Black Letters
- 1 Type 1 Enclosure: EZB2072R
- 1 EZ Trim, Door in Door, Concealed Hardware: EZT2072S

Eaton Selling Policy 25-000 applies.

All orders must be released for manufacture within 90 days of date of order entry. If approval drawings are required, drawings must be returned approved for release within 60 days of mailing. If drawings are not returned accordingly, and/or if shipment is delayed for any reason, the price of the order will increase by 1.0% per month or fraction thereof for the time the shipment is delayed.



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Project Name: East Area General Order No: MAT0011

East Area Water Control Facility MAT0011132 Negotiation No: Alternate No: Page 5 of 5 AT130311X0K1 R003

Seller shall not be responsible for any failure to perform, or delay in performance of, its obligations resulting from the COVID-19 pandemic or any future epidemic, and Buyer shall not be entitled to any damages resulting thereof.



		General Infor	mation		(Section 1 of 1)	
		Service Volta	nation 120/240\/	1Db 2\\/	(Section 1 of 1)	
Main Breaker 150A EDB3150, Vert Mto		Bus Rating & Ground Bar: S.C. Rating:	Type: 120/240V Type: 225A Alumir Std. Bolted J 22k A.I.C. F	num Aluminum, Al or C ully Rated	Neutral Rating: 225A Cu cable	
1 OBHW1030 OBHW1030	ted	Main Device T Main Termina Neutral Termi	Type:Main BreakIs:Mechanicalnals:Mechanical	er - Top Cable En - (1) #4-4/0 (Cu// - (1) #6-300 kcm	try - A & C Phase Connec Al) il (Cu/Al)	tion
3QBHW1020_QBHW1020 5QBHW1020_QBHW1020_	2 <u>4</u> 2 <u>4</u> 2 <u>6</u>	Box Catalog M Trim:	No.: EZB2060R EZ Trim, Do	or in Door, Conce	ealed Hardware (EZT2060	IS)
7 QBHW1020 QBHW1020	8		Surface Mo	unted		
⁹ QBHW1020 QBHW1020 11 QBHW2020 QBHW1020 13 QBHW1020)12)12)14	Box Dimensio Min. Gutter Si	bns: 60.00" [1524 ize: Top = 5.5" [Left = 6.0" [4.0mm]H x 20.00 139.7mm] Bottom 152.4mm] Right =	" [508.0mm]W x 5.75" [14) n = 5.5" [139.7mm] = 6.0" [152.4mm]	6.1mm]D
15QBHW1020_QBHW1020 17QBHW1020_QBHW1020 19QBHW1020_QBHW1020 21PPQVPPQV)16)18)20	Panel ID Nam Type: Plasti Color: White	eplate: ic, adhesive-backed e with Black Letters	(1) LSDB (2) 120/240V (3)	1Ph 3W	
23 PROV PROV	24	UL		***Non-Interch	angeable Main Device***	
25 PROV PROV 27 PROV PROV 29 PROV PROV 31 PROV PROV 33 PROV PROV 35 PROV PROV 37 PROV PROV 39 PROV PROV 41 PROV PROV	26 28 30 32 34 36 38 40 42	Trim Lock: Sta Circuit Directon Main Circuit Br Seismic Label Heat Loss - W Weight - Ibs (E Wire shall be b	ndard Lock & Key (Ke) ry: Plastic Sleeve with reaker Trip Type: Therr (IBC/CBC Seismic Qu atts (Est.) = 117 :st.) = 144 pased on the ampacity	yed WEM2) Card mal-Magnetic. alified). of 75°C rated cor	nductors unless otherwise	indicated.
8 inches						
Device Modifications: Ref # Description		Branch Devic Qty Poles 16 1 2 1 1 2 22 1 22 1	es Trip I 20 (0 30 (0 20 (0 6	Frame QBHW QBHW QBHW PROV	Amps 100 100 100	KAIC 22 22 22
		Main DevicesQtyPoles13	s Trip I 150 E	F rame EDB	Amps I 225	k AIC 22
Notes:						
The information on this document is	PREPARED BY	DATE				
created by Eaton Corporation. It is	NICHOLAS NATALE	2/16/2023	Eaton			
be used for the purpose in which it is supplied.	APPROVED BY	DATE J	JOB NAME DESIGNATION	East Area Wat LSDB	er Control Facility	
	VERS	SION 1	TYPE PRI 1a		DRAWING TYPE	
NEG-ALT Number	REVISION	DWG SIZE	G.O.			SHEET
AT130311X0K1-R003	0	A	MAT0011132		0131	1 of 1

		General Info	rmation		(Section 1 of 1)	
Main Breaker 225A FD3225, Vert Mtd.		Service Volta Bus Rating 8 Ground Bar: S.C. Rating:	age: 480Y/277V & Type: 250A Alumin Std. Bolted 25k A.I.C. F	3Ph_4W num Aluminum, Al or (ully Rated	Enclosure: Type 1 Neutral Rating: 250A Cu cable	
Imentifier Imentifier 1 HGHB1020 HGHB1020 3 HGHB1020 HGHB1020 5 HGHB1020 HGHB1020 7 HGHB1020 HGHB1020 9 HGHB1020 HGHB1020	2 4 6 8	Main Device Main Termina Neutral Term Box Catalog Trim:	Type: Main Break als: Mechanical inals: Mechanical No.: EZB2072R EZ Trim, Do	er - Top Cable Er - (1) #4-4/0 (Cu// - (1) #6-350 kcm por in Door, Conce	ntry Al) il (Cu/Al) ealed Hardware (EZT207:	2S)
9 HGHB1020 HGHB1020 11 HGHB1020 HGHB1020 13 PROVHGHB1 PROVHGHB1 15 PROVHGHB1 PROVHGHB1 17 PROVHGHB1 PROVHGHB1	10 12 14 16 18	Box Dimensi Min. Gutter S	Surface Mo Sons: 72.00" [182 Size: Top = 5.5" [Left = 4" [10	8.8mm]H x 20.00 139.7mm] Botton)1.6mm] Right = 4	" [508.0mm]W x 5.75" [14 1 = 5.5" [139.7mm] 4" [101.6mm]	6.1mm]D
19 PROVHGHB1 PROVHGHB1 19 PROVHGHB1 PROVHGHB1 21 PROVHGHB1 Blank 23 Blank Blank 25 FD3020 FD3020 27 20A 20A	20 22 24 26 28	Panel ID Nan Type: Plas Color: Whit UL	n eplate: tic, adhesive-backed e with Black Letters	(1) HSP.1 (2) 480Y/277V (3)	3Ph 4W	
29 31 FD3020 FD3020 33 20A 20A 35 37 FD3020 FD3020 39 20A 20A 41 43 FD3020 Blank 45 20A Blank 47 Bus Cover 6X	30 32 34 36 38 40 42 44 46 48	Trim Lock: Sta Circuit Directo Main Circuit E Seismic Labe Heat Loss - W Wire shall be	andard Lock & Key (Ke ony: Plastic Sleeve with Breaker Trip Type: Therr I (IBC/CBC Seismic Qu Vatts (Est.) = 126 based on the ampacity	yed WEM2) Card mal-Magnetic. alified). of 75°C rated co	nductors unless otherwise	indicated.
Device Modifications: Ref # Description		Branch Devie Qty Pole 7 3 12 1 9 1 Main Devices Qty Pole	ces s Trip 20 20 s s Trip 225	Frame FD HGHB PROVHGHB1 Frame	Amps 100 100 Amps 225	kAIC 25 25 kAIC
Notes:			223		223	20
		I				
The information on this document is created by Eaton Corporation. It is		DATE	Eaton			
disclosed in confidence and it is only to		2/16/2023		East Area M/-+	or Control Eccility	
be used for the purpose in which it is supplied.		DATE		∟ast Area Wat HSP.1	er Control Facility	
	VERS	SION	TYPE		DRAWING TYPE	
	1.0.0).48	PRL3a		Customer Approval	
NEG-ALT Number	REVISION	DWG SIZE	G.O.		ITEM	SHEET
AT130311X0K1-R003	0	А	MAT0011132		0141	1 of 1

		General Infor	mation		(Section 1 of 1)	
Main Breaker 10 QBHW3100H		Service Volta Bus Rating & Ground Bar: S.C. Rating:	oge: 208Y/120 Type: 225A Alu Std. Bolte 22k A.I.C	DV 3Ph 4W minum ed Aluminum, Al o Fully Rated	Enclosure: Type Neutral Rating: 225/ r Cu cable	∋ 1 Ą
1 QBHW1040 QBHW1030 3 QBHW2020 QBHW1020 5 QBHW1020 QBHW1020 7 QBHW1020 QBHW1020 9 QBHW1020 QBHW1020	02 04 06 08	Main Device Main Termina Neutral Term Box Catalog Trim:	Type: Main Bre als: Mechanic inals: Mechanic No.: EZB2042 FZ Trim	aker - Top Cable E cal - (1) #8-1/0 (Cu cal - (1) #6-300 kc 2R Door in Door, Cor	Entry µ/Al) mil (Cu/Al) pcealed Hardware (FZT2	20425)
⁹ QBHW1020 QBHW1020 11 QBHW1020 QBHW1020	010 012		Surface N	Vounted		
13QBHW1020_QBHW1020 15QBHW1020_QBHW1020 17QBHW1020_QBHW1020 Puio_Quantation	014 016 018	Box Dimensi Min. Gutter S	ons: 42.00" [1 bize: Top = 5.5 Left = 6.0	066.8mm]H x 20.0 5" [139.7mm] Botto)" [152.4mm] Righ	00" [508.0mm]W x 5.75" om = 5.5" [139.7mm] t = 6.0" [152.4mm]	[146.1mm]D
Bus Support 19 QBHW1020 QBHW1020 21 QBHW1020 QBHW1020	020 022	Panel ID Nam Type: Plast Color: White	heplate: tic, adhesive-backed e with Black Letters	(1) LSP (2) 208Y/120 (3)	V 3Ph 4W	
²³ QBHW1020 QBHW1020 25 QBHW1020 QBHW1020	024 026	UL		***Non-Inter	changeable Main Devic	ce***
27 QBHW1020 QBHW1020 29 QBHW1020 QBHW1020 31 QBHW1020 QBHW1020 33 QBHW1020 QBHW1020 35 QBHW1020 QBHW1020 37 QBHW2020 PROV 39 PROV PROV 41 PROV PROV Blank Cover 1 inches	0 28 0 30 0 32 0 34 0 36 40 42	Trim Lock: Sta Circuit Directo Main Circuit B Seismic Label Heat Loss - W Weight - Ibs (I Wire shall be	andard Lock & Key (l ory: Plastic Sleeve wi ireaker Trip Type: Th I (IBC/CBC Seismic I /atts (Est.) = 104 Est.) = 101 based on the ampac	Keyed WEM2) ith Card lermal-Magnetic. Qualified). city of 75°C rated o	conductors unless other	wise indicated.
Device Modifications: Ref # Description		Branch Devices Qty Pole 2 2 32 1 1 1 1 1 1 4 1 Main Devices Qty Pole	ces s Trip 20 20 30 40 s s Trip	Frame QBHW QBHW QBHW QBHW PROV Frame	Amps 100 100 100 100 100	KAIC 22 22 22 22 22 22 KAIC
Notes:		1 3	100	QBHW-H	100	22
The information on this document is created by Eaton Corporation. It is	PREPARED BY	DATE	Eaton			
disclosed in confidence and it is only to		2/16/2023		East Area M	latar Control Essilia	
be used for the purpose in which it is supplied.	STROVED DI	DATE	DESIGNATION	East Area W	ater Control Facility	
	VER	SION	TYPE		DRAWING TYPE	
	1.0.	0.48	PRL1a		Customer Approval	
NEG-ALT Number		DWG SIZE	G.O. MAT0011132		ITEM 015I	SHEET
/11100011/01(1-1000	1 ×	–			0.01	

		General Info	rmation		(Section 1 of 1)	
Main Breaker 10 FD3100, Vert Mt	DA d.	Service Volta Bus Rating 8 Ground Bar: S.C. Rating:	age: 480Y/277V & Type: 250A Alum Std. Bolted 25k A.I.C.	/ 3Ph 4W inum I Aluminum, Al or (Fully Rated	Enclosure: Type 1 Neutral Rating: 250A Cu cable	
Neutral		Main Device Main Termina Neutral Term	Type: Main Breal als: Mechanica ninals: Mechanica	ker - Top Cable En I - (1) #14-1/0 (Cu I - (1) #6-350 kcm	ntry //AI) il (Cu/AI)	
1 PROVHGHB1 PROVHG 3 PROVHGHB1 PROVHG	HB12 HB14	Trim:	EZ Trim, D	oor in Door, Conc	ealed Hardware (EZT2060)S)
5 PROVHGHB1 PROVHG	HB16		Surface Mo	ounted		
9 PROVHGHB1 PROVHG 9 PROVHGHB1 PROVHG 11 PROVHGHB1 PROVHG	HB110 HB110 HB112	Box Dimensi Min. Gutter S	ions: 60.00" [152 Size: Top = 5.5" Left = 4" [1	24.0mm]H x 20.00 [139.7mm] Botton 01.6mm] Right = 4	" [508.0mm]W x 5.75" [14 n = 5.5" [139.7mm] 4" [101.6mm]	6.1mm]D
13 PROVHGHB1 PROVHG	HB1 14	Panel ID Nan	nenlate:	(1) HSB		
15 PROVHGHB1 PROVHG	HB116	Type: Plas	tic, adhesive-backed	(2) 480Y/277V	3Ph 4W	
17 PROVHGHB1 PROVHG	HB118	Color: Whit	te with Black Letters	(3)		
19 PROVHGHB1 PROVHG	HB120	UL				
21 PROVHGHB1 PROVHG	HB122	Trim Lock: St	andard Lock & Key (Ke	eved WEM2)		
23 PROVHGHB1 PROVHG	HB1 24	Circuit Directo	ory: Plastic Sleeve with	n Card		
		Main Circuit E	Breaker Trip Type: The	rmal-Magnetic.		
29 PROVHGHB1 PROVHG	HB1 30	Heat Loss - W	Vatts (Est.) = 117	uaimeu).		
31 FD3100 FD302	20 32	Wire shall be	based on the ampacity	y of 75°C rated co	nductors unless otherwise	indicated.
33 100A 20A	34					
35	36					
37 FD3020 FD302	20 38					
³⁹ _ 20A 20A	_40					
41	42					
Device Modifications:		Branch Devi	ces	_		
Ref # Description		Qty Pole	es Trip 100	Frame FD	Amps 100	kAIC 25
		3 3	20	FD	100	25
		30 1 Main Devices	e	PROVHGHB1		
		Qty Pole	es Trip	Frame	Amps	kAIC
		1 3	100	FD	225	25
		_				
Notes:						
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be used for the purpose in which it is	APPROVED BY	DATE		East Area Wat	ter Control Facility	
	VERSIO	N		пов	DRAWING TYPE	
	1.0.0.4	8	PRL3a		Customer Approval	
NEG-ALT Number	REVISION	DWG SIZE	G.O.		ITEM	SHEET
AT130311X0K1-R003	0	А	MAT0011132		0161	1 of 1

		General Inform	nation		(Section 1 of 1)	
Main Breaker 80 QBHW3080H		Service Voltag Bus Rating & 1 Ground Bar: S.C. Rating:	e: 208Y/120V Type: 100A Alumi Std. Bolted 18k A.I.C. F	3Ph 4W num Aluminum, Al or Fully Rated	Enclosure: Type Neutral Rating: 100A Cu cable	1
1 QBHW1020 QBHW1020 3 QBHW1020 QBHW1020 5 QBHW1020 PROV 7 PROV PROV 0 PROV PROV	2 4 6 8 1 1 1 1 1 1 1 1 1 1 1 1 1	Main Device Ty Main Terminals Neutral Termin Box Catalog N Trim:	ype: Main Break S: Mechanica Mechanica S: Mechanica O.: EZB2042R EZ Trim Di	er - Top Cable Ei - (1) #8-1/0 (Cu/ - (1) #14-1/0 (Cu	ntry Al) J/Al) sealed Hardware (EZT20)428)
9 PROV PROV 11 PROV PROV	10 12		Surface Me			,420)
13 PROV PROV	14		Surface Mc	Junieu		
15PROVPROV17PROVPROV	16 18	Box Dimension Min. Gutter Siz	ns: 42.00" [106 e: Top = 5.5" Left = 6.0"	6.8mm]H x 20.00 [139.7mm] Bottor [152.4mm] Right)" [508.0mm]W x 5.75" [n = 5.5" [139.7mm] = 6.0" [152.4mm]	146.1mm]D
Bus Support 19 PROV PROV 21 PROV PROV	20	Panel ID Name Type: Plastic Color: White	plate: , adhesive-backed with Black Letters	(1) LSB (2) 208Y/120V (3)	3Ph 4W	
23 PROV PROV 25 PROV PROV	24	UL		***Non-Intercl	nangeable Main Device)***
27PROVPROV29PROVPROV31PROVPROV33PROVPROV35PROVPROV37PROVPROV39PROVPROV41PROVPROVBlank Cover11	28 30 32 34 36 38 40 42	Trim Lock: Stan Circuit Directory Main Circuit Bre Seismic Label (Heat Loss - Wa Weight - Ibs (Es Wire shall be ba	dard Lock & Key (Ke /: Plastic Sleeve with eaker Trip Type: The IBC/CBC Seismic Qu tts (Est.) = 52 st.) = 70 ased on the ampacity	eyed WEM2) Card mal-Magnetic. Jalified). v of 75°C rated co	onductors unless otherw	ise indicated.
Ref # Description		Qty Poles 5 1 37 1 Main Devices	S Trip 20	Frame QBHW PROV	Amps 100	kAIC 18
		Qty Poles 1 3	Trip 80	Frame QBHW-H	Amps 100	kAIC 18
Notes:						
ne information on this document is reated by Eaton Corporation. It is	NICHOLAS NATALE	2/16/2023 E	aton			
lisclosed in confidence and it is only to be used for the purpose in which it is supplied.	APPROVED BY	DATE JC	DB NAME ESIGNATION	East Area Wa LSB	ter Control Facility	
	VERSION	TY	(PE		DRAWING TYPE	
	1.0.0.48	PI	RL1a		Customer Approval	
EG-ALT Number	REVISION	DWG SIZE G.	0.		ITEM	SHEET
T130311X0K1-R003	U	A M	AT0011132		0171	1 of 1

					Ganaral Info	rmation			(Caption 4 of 4)	
					Service Volta	age:	240/120V	3Ph 4W B HiLeo	(Section 1 of 1) Enclosure: Type 1 Neutral Pating: 1004	
	Main Brea EHD3040,	aker 4 Vert	40A Mtd.		Ground Bar: S.C. Rating:	x Type.	Std. Bolted 18k A.I.C. F	Aluminum, Al or C fully Rated	Cu cable	
	SPD St 100 kA SPD, B	anda Sus Cor	rd nnected		Main Device Main Termin Neutral Term Box Catalog Trim	Type: als: ninals: No.:	Main Break Mechanical Mechanical Box, Refer	er - Top Cable En - (1) #14-1/0 (Cu - (1) #14-1/0 (Cu To Factory	try /Al) /Al)	efer To Factory)
	QBHW3030H	PRO	2 DV				Surface Mo	unted		ier ier detery)
3					Box Dimono	lanai	Footony to a	ize		
7	QBHW1020	PRO	DV 8		Min. Gutter S	Size:	Top = 5.5" [Left = 6.0" [139.7mm] Bottom 152.4mm] Right =	n = 5.5" [139.7mm] = 6.0" [152.4mm]	
11	PROV	PRO	DV 12		Panel ID Nar Type: Plas	neplate: tic, adhesi te with Bla	ve-backed	(1) SBCBP(FIL (2) 240/120V	TER BUILDING) 3Ph 4W B HiLeg	
15								***Non-Interch	angeable Main Device**	*
17	PROV	PRC	DV18		Trim Look: St	andard La	ak 8 Kay (Ka			
19	PROV	PRC	OV20		Circuit Direct	ory: Plastic	Sleeve with	Card		
21	PROV	PRO	22 DV24		Main Circuit E Seismic Labe	Breaker Tri I (IBC/CB	p Type: Ther C Seismic Qı	mal-Magnetic. Ialified).		
25	PROV	PRC	DV 26		Heat Loss - V Weight - Ibs (Vatts (Est.) Est) = 106) = 53 5			
27			28		Wire shall be	based on	the ampacity	of 75°C rated co	nductors unless otherwise	e indicated.
29	PROV	PRC	OV 30							
	Blank (3 inc	Cove hes	r							
Device Mod Ref #	ifications: Descri	ption			Branch Devi Qty Pole 1 1 1 3 17 1 Main Device	ces es Trip 20 30		Frame QBHW QBHW PROV	Amps 100 100	kAIC 18 18
					Qty Pole	es Trip		Frame	Amps 100	kAIC 18
Notes:										
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be used for the	purpose in which it	tis	APPROVED BY		DATE	JOB NAME		East Area Wat	er Control Facility	
Subblied.		-		VERSION	l	DESIGNATIO	N	2BCBA(HITLE		
				1.0.0.48	3	PRL1a			Customer Approval	
NEG-ALT Number	2	1			DWG SIZE	G.O.	32		ITEM	SHEET
AT 1303 TAUK 1-R00	3		U		~		<i></i>		0101	

			-	General Info	rmation			(Section 1 of 1)	
	Main Lug 2254	s Only A		Service Volta Bus Rating & Ground Bar: S.C. Rating:	age: & Type:	120/240V 225A Alumir Std. Bolted . 18k A.I.C. F	1Ph 3W hum Aluminum, Al or (ully Rated	Enclosure: Type 1 Neutral Rating: 225A Cu cable	
	SPD Sta 100 kA SPD, Bu	ndard is Connected		Main Device Main Termin Neutral Term Box Catalog Trim:	Type: als: ninals: No.:	Main Lugs (Mechanical Mechanical EZB2042R EZ Trim, Do	Dnly - Top Cable - (1) #6-300 kcm - (1) #6-300 kcm or in Door, Conc	Entry - A & C Phase Conr il (Cu/Al) il (Cu/Al) ealed Hardware (EZT204:	nection 2S)
1	QBHW1030 Q	BHW1020 2				,	, -	Υ -	,
3	QBHW1020 Q	BHW1020 4				Surface Mo	unted		
57	QBHW1020 Q QBHW1020 Q	BHW10206 BHW10208		Box Dimens Min. Gutter S	ions: Size:	42.00" [106 Top = 5.5" [Left = 6.0" [6.8mm]H x 20.00 139.7mm] Bottom 152.4mm] Right :	" [508.0mm]W x 5.75" [14 n = 5.5" [139.7mm] = 6 0" [152 4mm]	6.1mm]D
9	QBHW1020 Q	BHW1020 10				Lon - 0.0 [192.4mmj Right	- 0.0 [132.4000]	
11	QBHW1020 Q	BHW1020 12		Panel ID Nar	neplate:	vo bookod	(1) SBCBP(SO	DIUM DOSING)	
13	QBHW1020	PROV 14		Color: Whit	te with Blad	ck Letters	(2) 120/240 (3)		
15	PROV	PROV 16							
17	PROV	PROV 18		UL			***Non-Interch	angeable Main Device**	*
19	PROV	PROV 20		Trim Lock: St	andard Loo	ck & Key (Ke	yed WEM2)		
21	PROV	PROV 22		Circuit Direct	ory: Plastic	Sleeve with	Card		
23	PROV	PROV 24		Heat Loss - V	Vatts (Est.)	= 104	aineu).		
25	PROV	PROV 26		Weight - Ibs (Est.) = 84	4			
27	PROV	PROV 28		wire shall be	based on	the ampacity	of 75 C faled co	nauciors unless otherwise	e indicated.
20	PROV	PROV 30							
25	Plank C								
		over							
	1 Inch	les							
Device Mod	ifications:	ion		Branch Devi	Ces Se Trip		Framo	Ampe	KAIC
Rei #	Descript			1 1	30	(QBHW	100	18
				12 1	20	(QBHW	100	18
				1/ 1		I	PROV		
Notes:									
The information	on this document is	PREPARED BY		DATE					
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be used for the	purpose in which it is	S APPROVED BY		DATE	JOB NAME		East Area Wat	er Control Facility	
supplied.					DESIGNATIO	N	SBCBP(SODI	UM DOSING)	
			VERSION		TYPE			DRAWING TYPE	
			1.0.0.48		PRL1a			Customer Approval	a=
AT130311X0K1 P00	3			DWG SIZE	G.U. MAT001113	32		019I	SHEET
	-	, v		••				1 · •·	

			General Info	rmation		(Section 1 of 1)	
	Main Brea	ker 225A	Service Volta Bus Rating & Ground Bar: S.C. Rating:	age: 480V 3F & Type: 250A Alumi Std. Bolted 65k A.I.C. F	Ph_3W num Aluminum, Al or C ully Rated	Enclosure: Type 4X Neutral Rating: None Cu cable	304 SST
	HFD3225, SPD Sta 120 kA SPD, B	vert Mtd. andard us Connected	Main Device Main Termin Neutral Term Box Catalog Trim:	Type: Main Break als: Mechanical ninals: None No.: N4X2448N Complete E	er - Top Cable En - (1) #4-4/0 (Cu// Inclosure (WP244	try N) 8AT)	
1 3 5 7	HFD3100 3 100A 5 HFD3060	HFD3060 _2 60A _4 HED3060 8	Box Dimens Min. Gutter S Panel ID Nar Type: Plas Color: Whit	ions: 48.00" [121 Size: Top = 5.5" [Left = 6" [15 neplate: tic, adhesive-backed te with Black Letters	9.2mm]H x 24.00 139.7mm] Bottorr 52.4mm] Right = 6 (1) DP-SB (2) 480V 3F (3)	" [609.6mm]W x 6" [152.4r 1 = 5.5" [139.7mm] 3" [152.4mm] Ph 3W	nm]D
د 1	960A	60A _1	UL Trim Lock: Pa	adlockable Hasp	Card		
1 1 1	3 HFD3020 5 20A 7	HFD3020 14 20A 10 18	Main Circuit E Seismic Labe Heat Loss - V Wire shall be	Breaker Trip Type: Ther I (IBC/CBC Seismic Qu Vatts (Est.) = 109 based on the ampacity	mal-Magnetic. alified). of 75°C rated col	nductors unless otherwise	indicated.
1 2 2	9 HFD3020 1 20A 3	HFD3020 22 20A 22 24	2				
			·				
Device Mo Ref #	odifications: Descriptior		Branch Devi Qty Pole 1 3 3 3 4 3 Main Device: Qty Pole 1 3	ces s Trip 100 60 20 s s Trip 225	Frame HFD HFD HFD Frame HFD	Amps H 100 6 100 6 100 6 Amps H 225 6	AIC 55 55 55 AIC 55
Notes:							
The informati	ion on this document is aton Corporation. It is		DATE	Faton			
disclosed in o	confidence and it is only to he purpose in which it is	APPROVED BY	2/16/2023 DATE	JOB NAME	East Area Wat	er Control Facility	
supplied.				DESIGNATION	DP-SB	-	
		VEF 1 0	0.48	TYPE PRL3a		DRAWING TYPE Customer Approval	
NEG-ALT Number	r	REVISION	DWG SIZE	G.O.		ITEM	SHEET
AT130311X0K1-R	R003	0	A	MAT0011132		0201	1 of 1

				-					
				General Info	rmation			(Section 1 of 1)	
	Main Lu 400	gs Only 0A		Service Volta Bus Rating & Ground Bar: S.C. Rating:	age: ≩ Type:	480Y/277V 400A Alumir Std. Bolted 100k A.I.C.	3Ph_4W num Aluminum, Al or (Fully Rated	Enclosure: Type 1 Neutral Rating: 400A Cu cable	
I I IL	Neu	tral		Main Device Main Termin	Type: als:	Main Lugs (Mechanical	Only - Top Cable - (2) #4-500 kcm	Entry il (Cu/Al)	
135	FDC3060 60A	FDC3020 20A	$-\frac{2}{4}$	Box Catalog Trim:	No.:	EZB2072R EZ Trim, Dc	oor in Door, Conce	ealed Hardware (EZT207	'2S)
7	FDC3020	FDC3020	8			Surface Mo	unted		
9 11 13	20A	20A	10 12 14	Box Dimens Min. Gutter S	ions: Size:	72.00" [182] Top = 5.5" [8.8mm]H x 20.00 139.7mm] Bottom	" [508.0mm]W x 5.75" [14 n = 5.5" [139.7mm] 1" [101.6mm]	46.1mm]D
1517	20A	20A		Panel ID Nar	neplate:	Leit – 4 [it	(1) HSDB		
19 21	FDC3020 20A	FDC3020 20A	_20 _22	Color: Whi	tic, adnesivite with Blac	ve-backed ck Letters	(2) 480 ¥/277 V (3)	3Ph 4W	
23 25	PROVFDC3	PROVFDC	24 2326	UL					
27 29	20A	20A	_28 _30	Trim Lock: St Circuit Direct Seismic Labe	andard Loc ory: Plastic el (IBC/CBC	ck & Key (Ke Sleeve with Seismic Qu	yed WEM2) Card ıalified).		
31	PROVFDC3	PROVFDC	3_32 34	Heat Loss - V Wire shall be	Vatts (Est.)	= 242	of 75°C rated co	nductors unless otherwis	e indicated
35	207	204	36	Wire shall be		the unpuolity			e maloatea.
37 39	PROVFDC3 20A	PROVFDC 20A	23 _38 _40 _42						
	Bus C	Cover							
	32	Х							
Device M Ref #	lodifications: D	escription		Branch Devi Qty Pole	ces es Trip	,	Frame	Amps	kAIC
				1 3 7 3	60 20	I	FDC FDC	100 100	100 100
				6 3	20	ľ	PROVFDC3		
Notes:									
The informa	ation on this docu	ument is	PREPARED BY	DATE					
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be used for supplied.	the purpose in w	hich it is	APPROVED BY	DATE		N	East Area Wat	er Control Facility	
			VER	SION	TYPE	11	טעטוי	DRAWING TYPE	
			1.0.	0.48	PRL3a			Customer Approval	
NEG-ALT Numb	P002			DWG SIZE	G.O.	32		ITEM 0471	SHEET
ALLOUGT AUK 1	1,000		5					•	1011



Panelboards and Lighting Control

Pow-R-Line C Panelboards

3.3

Pow-R-Line C Panelboards



Product Description

Lighting and Distribution Panelboards

Eaton's assembled panelboards are designed for sequence phase connection of branch circuit devices. This allows complete flexibility of circuit arrangement (single-, two- or three-pole) to allow balance of the electrical load on each phase.

Sturdy, rigid chassis assembly ensures accurate alignment of interior with panel front; prevents flexing and minimizes possibility of loosening or damage to current carrying parts during and after installation.

Four-point in-and-out adjustment of panel interior is provided to meet critical depth dimensions on flush installations. This compensates for possible misalignment of box at installation.

Main lugs are mechanical solderless type and approved for copper or aluminum conductors.

Enclosures

Boxes are code-gauge galvanized steel, which include a painted box finished in ANSI-61 light gray to match the trim.

Standard panelboard cabinets are designed for indoor use. Alternate types are available for indoor and special purpose applications.

All enclosures are furnished in accordance with Underwriters Laboratories standards and include wiring gutters with proper wire bending space. Special cabinets can be provided at an additional charge.

The box dimensions shown are inside dimensions. For outside dimensions, add 1/4-inch (6.4 mm).

Standard panelboard boxes are supplied without knockouts (blank endwalls).

Fronts

Fronts (trims) for all panelboards are made of code-gauge steel and have a high durability ANSI-61 light gray finish applied by a bakedon polyester powder coating paint system.

The fronts for lighting and appliance branch circuit panelboards and small power distribution panelboards include a door with rounded corners and concealed hinges. A flush-type latch and lock assembly is included. All locks are keyed alike. These trims are available in both surface- and flushmounted designs.



EZ Trim Features Standard Door-in-Door with No Exposed Hardware or Sharp Edges (no Tools are Required for Installation)



The Three-Piece Trim for Larger Power Distribution Panelboards Provides for Easy Handling and Installation

Fronts for power distribution panelboards utilize a unique breaker front cover design in which each device has a dedicated bolt-on steel cover. The individual covers form a single deadfront for the panelboard that is used in conjunction with two wiring gutter covers to complete the trim. A door is not finished as part of the standard offering on these panelboards but can be provided, for an additional charge, using a deeper than standard box.

Application Description

Panelboard Selection Factors

In selecting a panelboard, the following factors must be considered:

- Service (voltage and frequency)
- Interrupting capacity (fully or series rated)
- Ampere rating of main Ampere ratings of
- branches
- Environment

Panelboard Short-Circuit Rating

The short-circuit rating of Eaton's assembled panelboards are test verified by, and listed with, Underwriters Laboratories (UL). Generally, these ratings are that of the lowest interrupting rated device in the panel.

Certain exceptions to this rule exist where branch devices have been UL tested in combination with specific main devices having a higher interrupting rating. Where these defined main devices and branch breaker combinations are utilized, the series short-circuit rating of the assembled panelboard will be the same as the tested rating of the approved rated main device in series with the branches. Available main and branch breaker combinations are tabulated starting on Page V2-T3-16. All combinations shown are UL tested and listed.

These series ratings apply to panels having main devices, or main lug only panelboards fed remotely by the device listed in the series ratings chart as the main, for which UL listed tests were conducted.

Service Entrance Equipment

The National Electrical Code (NEC) requires that:

- A panel used as service entrance equipment must be located near the point where the supply conductors enter the building
- A panelboard having main lugs only shall have a maximum of six service disconnects to de-energize the entire panelboard from the supply conductors. Where more than six disconnects are required, a main service disconnect must be provided
- A disconnectable electrical bond must be provided between the neutral and ground
- A service entrance type UL label must be factory installed
- Ground fault protection of equipment shall be provided for each service disconnect rated 1000A or more if the electrical service is a solidly grounded wye system of more than 150V to ground, but not exceeding 600V phase-to-phase

Note: Service entrance panels must be identified as such on the order.

Panelboard Standards

In 2008, both the National Electrical Code (Article 408) and UL 67 were updated to remove the mandated 42-circuit limitation. Eaton offers panelboards with more than 42 circuits for those jurisdictions that have adopted the 2008 NEC or later.

For jurisdictions that have| not adopted the 2008 or later version of the National Electrical Code, the 42-circuit limitation for Lighting and Appliance Branch Panelboards remains in place. Check with your local code officials to determine specific jurisdiction status.

Panelboard Installation

NEC requires that the operating handle of the topmost mounted device be no more than 6 feet 7 inches (2006.6 mm) above the finished floor and should be installed per NEC and manufacturer's instructions.

Additional boxes and fronts are required when the components required for one panelboard exceed the standard box dimensions.

Multi-Section Panelboards

When two or more separate enclosures are required, separate fronts for each box are standard. A common front can be furnished at additional charge.

Interconnecting Multi-Section Panelboards

When a panelboard, for connection to one feeder, must be furnished in more than one section (Box), each section must be furnished with main bus and terminals of the same rating, unless a main overcurrent device is provided in each section.

Sub-feed or through-feed provisions must also be included (and priced) to provide connection capability to the second section.

Note: Sub-feed or through-feed lugs cannot be used on any panelboard that is not protected by a single main overcurrent device either in the panelboard or immediately upstream, i.e., service entrance panelboards with main lugs only using the six disconnect rule.

Sub-Feed Lugs

Sub-feed lugs (see figure below) are one means of interconnecting multi-section panels. The sub-feed (second set of) lugs are mounted directly beside the main lugs. These are required in each section except the last panel in the lineup. The feeder cables are brought into the wiring gutter of the first section and connected to the main lugs. Another set of the same size cables are connected to the sub-feed lugs (Section 1) and are carried over to the main lugs of the adjacent panel. Cross connection cables are not furnished by Eaton. Sub-feed lugs are only available on main lug only panels.

Note: Sub-feed lugs may not be used on main lug only (six disconnect rule) service entrance panels.

Sub-Feed Lugs



Through-Feed Lugs

Through-feed lugs (see figure below) are another method to interconnect multi-section panelboards. The incoming feeder cables are connected to the main lugs or main breaker at the bottom of panel (Section 1). Another set of lugs (through-feed) are located at the opposite end of the main bus. The interconnecting cables are connected to the throughfeed lugs in Section 1 and are carried over to the main lugs in Section 2. The connection arrangement could be reversed, i.e., main lugs at top; through-feed lugs at bottom end of panel. Cross cables are not furnished by Eaton.

Note: Through-feed lugs may not be used on main lug only (six disconnect rule) service entrance panels.

Through-Feed Lugs



Multiple Section Panelboard—Flush Mounted

Shown below is the standard method for flush mounting multiple section lighting and distribution panelboards using standard flush trims.

Multiple Section Panelboard Flush Mounted – Dimensions in Inches (mm)



Overcurrent Protection

The following requirements will be found in the NEC:

Each lighting and appliance branch circuit panelboard shall be individually protected on the supply side by not more than two main circuit breakers or two sets of fuses having a combined rating not greater than that on the panelboard.

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Panelboards and Lighting Control

Pow-R-Line C Panelboards

Branch Circuit Loading for Lighting Panels

The size of mains and branches should be selected based on the following:

- Motor circuits: NEC Article 430
- Diversity factor
- Provision for future loading

Exception Number 1:

Individual protection for a lighting panelboard is not required when the panelboard feeder has overcurrent protection not greater than that of the panelboard.

Exception Number 2:

For existing installations, individual protection for lighting panelboards is not required where such panelboards are used as service equipment in supplying an individual residential occupancy and where any bus supplying 15 or 20A circuits is protected on the supply side by an overcurrent device.

Ambient Temperatures

The primary function of an overcurrent device is to protect the conductor and its insulation against overheating. In selecting the size of the devices and conductors, consideration should be given to the ambient temperature surrounding the conductors within and external to the panelboard. Cumulative heating within the panelboard may cause premature operation of the overcurrent protective devices.

Underwriters Laboratories test procedures are based, in part, on 80% loading of panelboard branch circuit devices. The NEC limits the loading of overcurrent devices in panelboards to 80% of rating where in normal operation the load will continue for three hours or more. Further derating may be required, depending on such factors as ambient temperature, duty cycle, frequency or altitude.

Exception: There is one

exception to this rule in both UL and NEC. It applies to assemblies and overcurrent devices that have been listed for continuous duty at 100% of its rating.

Special Conditions

Standard panelboards, assembled with standard components, are adequate for most applications. However, special consideration should be given to those required for application under special conditions such as:

- Excessive vibration or shock
- Frequencies above 60 cycles
- Altitudes above 6600 feet (2011.7m)
- Damp environment (possible fungus growth)
- Compliance with federal, state and municipal electrical codes and standards

Seismic Considerations

The Uniform Building Code[®] and the International Building Code, as well as local and state building codes, place an emphasis on seismic building design requirements. Electrical distribution systems are treated as attachments to the building and therefore, fall into this category.

All Eaton panelboards are seismic qualified at the highest possible level, and have been tested in accordance with ANSI C37.81. This standard quantifies actual earthquake conditions, as well as equipment seismic capability.

Harmonic Currents

Standard panelboard neutrals are rated for 100% of the panelboard current. However, since harmonic currents can cause overheated neutrals, an option is provided for neutrals to be rated at 200% (1200A maximum neutral for 600A main bus) of the panelboard phase current.

Panelboards with the 200% rated neutral are UL listed as suitable for use with non-linear loads.

Prior to specifying the 200% rated neutral, Eaton recommends a harmonic survey be conducted of the distribution system, be it new or existing.

Surge Protective Devices

The quality of power feeding sensitive electronic loads is critical to the reliable operation of any facility. In modern offices, hospitals, and manufacturing facilities, the most frequent causes of microprocessor-based equipment downtime and damage are voltage transients and electrical noise.

Electrical loads and microprocessor-based equipment are highly susceptible to both high and low energy transients. High energy transients include lightning induced surges and power company switching. These high energy transients can destroy components instantly.

More frequently the electrical system experiences low energy transients and high frequency noise.

The effects of continual low energy transients and high frequency noise can cause erratic equipment performance or sudden failure of electronic circuit board components. Eaton can provide protective and diagnostic systems integral to panelboards. The surge protective device (SPD) is integrated into the panelboards using a "zero lead length" direct bus bar connection.



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The SPD protects sensitive electronic equipment from the damaging effects of high and low energy transients, as well as high frequency noise.

Standards and Certifications

Eaton's panelboards are designed to meet the following applicable industry standards, except where noted:

- Underwriters Laboratories:
 Panelboards: UL 67
 - Cabinets and Boxes: UL 50

Note: Only panelboards containing UL listed devices can be UL labeled.

- National Electrical Code
- NEMA Standards: PB 1
- Federal Specification W-P-115c:
 - Circuit Breakers— Type | Class |
 - Fusible Switch— Type II Class I



Pow-R-Line C Panelboards

Technical Data and Specifications

Panelboard Selection Guide

Maximu Voltage		Maximum Voltage Rat	Maximum Max /oltage Rating Rati		num Main J (Amperes)			AC Interrupting Capacity rms Symmetrical Amperes (kA)		
Panelboard Type	Device Type	AC	DC	MLO	Main Device	Branch Circuits Ampere Range	Sub-Feed Breaker Maximum Amperes	Fully Rated	Series Rated	
PRL1a	Breaker	240		600	600	15–100	600	10-22	22-100	
PRL1R	Breaker	240	_	225	225	15–100	_	10-22	22-100	
PRL1aF	Fusible	240	_	400	400	15–30	400	200	_	
PRL1a-LX	Breaker	240	_	225	225	15–100	_	10-22	22-100	
PRL2a	Breaker	240	250	600	600	15–100	600	65	65–200	
	Breaker	480Y/277	250	600	600	15–100	600	14	22-150	
PRL2R	Breaker	240	_	225	225	15–100	_	10-22	22–200	
	Breaker	480Y/277	_	225	225	15–100	_	14	22-100	
PRL2aF	Fusible	480Y/277	_	400	400	15–30	400	200	_	
PRL2a-LX	Breaker	240	250	225	225	15–100	_	65	65–200	
	Breaker	480Y/277	250	225	225	15–100	_	14	22-150	
PRL3a	Breaker	240	250	800	600	15–225	600	10-200	22–200	
	Breaker	480	250	800	600	15–225	600	14–100	22-150	
	Breaker	600	250	800	600	15–225	600	14–35	_	
PRL3E	Breaker	240	250	600	600	15–125	400	25-100	100-200	
	Breaker	480Y/277	250	600	600	15–125	400	18–65	65–100	
	Breaker	480	250	600	600	15–125	400	18–65	65–100	
PRL4B	Breaker	240	600	1200	1200	15-1200	_	10-200	22–200	
	Breaker	480	600	1200	1200	15-1200	_	14–200	22-150	
	Breaker	600	600	1200	1200	15-1200	_	14–200	_	
PRL4D	Breaker	240		1200	1200 1	600	_	65–200	_	
	Breaker	480	_	1200	1200 1	600	_	35–100	_	
	Breaker	600	_	1200	1200 1	600	_	18–50	_	
PRL4F	Fusible	240	250	1200	1200	30-1200	_	100-200	_	
	Fusible	600	250	1200	1200	30-1200	_	100-200	_	
PRL5P	Breaker	240	250	1200	1200	15-1200	_	10-200	22–200	
	Breaker	480	250	1200	1200	15-1200	_	14–200	22-150	
	Breaker	600	250	1200	1200	15-1200	_	14–200	_	
Pow-R-Command™	Breaker	240	_	400	400	15–225	_	10–65	22-100	
	Breaker	480Y/277	_	400	400	15–225	_	14	65–100	
Elevator Control	Fusible	240	_	800	800	15-200	_	200	_	
	Fusible	480Y/277	_	800	800	15–200	_	200	_	
	Fusible	480	_	800	800	15–200	_	200	_	

Note

^① Fixed mounted only.

Pow-R-Line C Panelboards

Terminal Wire Ranges, Pressure-Type Al/Cu Terminals Except as Noted

Note: All terminal sizes are based on wire ampacities corresponding to those shown in NEC Table 310.16 under the 75°C insulation columns (75°C wire). The use of smaller size, (in circular mills), regardless of insulation temperature rating, is not permitted. Where copper-aluminum terminals are supplied on designated panelboard types, best results are obtained if a suitable joint compound is applied when aluminum conductors are used. Check Eaton's standard terminal sizes versus customer requirements. In particular, 400 and 800A breakers often require nonstandard lugs. Optional 750 kcmil mechanical screw-type terminals are available upon request. Panelboard dimensions may be affected, refer to Eaton.

Standard Main Lug Terminals

	Wire Size Rar	iges for Ampere Capac	ity				
Panel Type	100 A	225 A	250 A	400 A	600 A	800 A	1200 A
PRL1a	#12-1/0	#6–300 kcmil	_	(2) #4–500 kcmil	(2) 4/0–500 kcmil	—	_
PRL2a	#12-1/0	#6-300 kcmil	_	(2) #4-500 kcmil	(2) 4/0–500 kcmil	_	_
PRL1R	#12-1/0	#6-300 kcmil	_	(2) #4-500 kcmil	_	_	_
PRL2R	#12-1/0	#6-300 kcmil	_	(2) #4–500 kcmil	_	_	_
PRL1aF	#12-1/0	#6-300 kcmil	_	(2) #4–500 kcmil	_	_	_
PRL2aF	#12-1/0	#6-300 kcmil	_	(2) #4–500 kcmil	_	_	_
PRL3a	#12-1/0	_	#6–350 kcmil	(2) #4–500 kcmil	(2) #4-500 kcmil	(3) #4–500 kcmil	_
PRL3E	#12-1/0	_	#6-350 kcmil	(2) #4–500 kcmil	(2) #4–500 kcmil	_	_
PRL4	_	_	#4–500 kcmil	(2) #4–500 kcmil	(2) #4–500 kcmil	(3) #4–500 kcmil	(4) #4–500 kcmil
PRL1a-LX	#12-1/0	#6-300 kcmil	_	_	_	_	_
PRL2a-LX	#12-1/0	#6–300 kcmil	_	_	_	_	_
PRCE	#12-1/0	#6-300 kcmil	_	(2) #4-500 kcmil	_	_	_
PRC100	#12-1/0	_	#6–350 kcmil	(2) #4–500 kcmil	_	_	_
PRC25	#12-1/0	#6–300 kcmil	_	(2) #4–500 kcmil	_	_	_
PRL5P				(1) #1/0–500 kcmil or (2) #1/0–250 kcmil	(2) #4–500 kcmil	(2) #2–500 kcmil or (3) #2–400 kcmil	(4) #4–750 kcmil
Elevator Control		_	#4–500 kcmil	(2) #4/0-500 kcmil	(2) #4/0-500 kcmil	(3) #4/0-500 kcmil	_

Panelboards and Lighting Control

Pow-R-Line C Panelboards

Standard Circuit Breaker Terminals

Breaker Type	Ampere Rating	Wire Range
BAB, QBHW, BABRSP,	15–70	#14#4
ΗΩΡ, ΩΡΗΨ	90–100	#8-1/0
EDB, EDS, ED, EDH, EDC	100-225	#4-4/0 or #6-300 kcmil
EGB, EGE, EGS, EGH	15–50	#14-3/0 AL/CU
	60–125	#6-3/0 AL/CU
EHD, FDB, FD,	15–100	#14-1/0
HFD, FDC, HFDDC (2)	125–225	#4-4/0
FCL	15–100	#14–1/0
GHB, HGHB, GHQ,	15–30	#14#10
GHURSP	25–100	#10—1/0
EGB, EGS, EGH	15–50	#14–1/0
	60–125	#6-2/0
JD, HJD, JDC, HJDDC ⁽²⁾	70–250	#4–350 kcmil
DK	250-350	250–500 kcmil
	400	(2) 3/0–250 kcmil or (1) 3/0–500 kcmil
KD,	225	(1) #3–350 kcmil
HKD, KDC, HKDDC, (2) CKD, CHKD	350	(2) 3/0-250 kcmil or
	400	(2) 3/0–250 kcmil or (1) 3/0–500 kcmil
LHH	150-400	#2–500 kcmil
	150-400	(2) #2–500 kcmil
	150-400	(1) 500–750 kcmil
LGE, LGH, LGC,	250-400	(1) #2–500 kcmil
LGU, LHH 🕚	500-600	(2) #2–500 kcmil
LD, HLD, LDC, HLDDC ⁽²⁾	300-500	(2) 250–350 kcmil
GLD, GHLD	600	(2) 400–500 kcmil
MDL, HMDL, HMDLDC 2	400-600	(2) #1–500 kcmil
	700–800	(3) 3/0–400 kcmil
ND, HND, CND, CHND, NDC,	800-1000	(3) 3/0–400 kcmil
UNDU	1200	(4) 4/0–500 kcmil
LCL	125–225	(1) #6–350 kcmil
	250-400	(1) #4–250 kcmil and (1) 3/0–600 kcmil
FB-P	15–100	#14-1/0
LA-P	70–225	#6–350 kcmil
	250-400	(1) #4–250 kcmil and (1) 3/0–600 kcmil
NB-P, NBDC ⁽²⁾	300-700	(2) #1–500 kcmil
	800	(3) 3/0–400 kcmil
NGS, NGH, NGC NGS-C, NGH-C, NGC-C	400-1200	(4) 4/0–500 kcmil (Cu/Al)

FDPW Switch Terminals

Ampere Rating	Wire Range	
30	#14–1/0	
60	#14–1/0	
100	#14–1/0	
200	#4–300 kcmil	
400	250–750 kcmil or (2) 3/0–250 kcmil	
600	(2) #4-600 kcmil or (4) 3/0-250 kcmil	
800	(3) 250–750 kcmil or (6) 3/0–250 kcmil	
1200	(4) 250–750 kcmil or (8) 3/0–250 kcmil	

Elevator Control Panel Feeder Terminals

Ampere Rating	Wire Range
30	#14–1/0
60	#14–1/0
100	#14–1/0
200	#4-300 kcmil

Notes

① LHH is 400A maximum.

⁽²⁾ Suitable for DC applications only.



Eaton's SPD Series for integration into electrical distribution equipment



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Eaton's SPD Series for integration into electrical distribution equipment

Introduction

Eaton's SPD Series surge protective devices

Eaton's SPD Series surge protective devices are the latest and most advanced UL® 1449 3rd Edition certified surge protectors. Units are available integrated within Eaton electrical assemblies, including panelboards, switchboards, motor control centers, switchgear, and bus plugs. Side-mount versions of the SPD Series are also available for installation external to an electrical assembly. Application of SPD Series units throughout a facility will ensure that equipment is protected with the safest and most reliable surge protective devices available.

SPD Series units are available in all common voltages and configurations and also in a variety of surge current capacity ratings from 50 through 400 kA. Three feature package options are also available to choose from. The breadth of the SPD Series' features, options, and configurations ensures that the correct unit is available for all electrical applications, including service entrances, distribution switchboards, panelboards, and point-of-use applications.

Applications

The SPD Series is available as an integrated device within the following Eaton electrical assemblies:

- Panelboards
- Switchboards
- Motor control centers
- Switchgear
- Automatic transfer switches
- Bus plugs

Features

- Uses thermally protected metal oxide varistor (MOV) technology
- 20 kA nominal discharge current (I_n) rating (maximum rating assigned by UL)
- 50 through 400 kA surge current capacity ratings
- Three feature package options
- 200 kA short circuit current rating (SCCR)
- 10-year warranty

Standards and certifications



• UL 1449 3rd Edition recognized component for the United States and Canada, covered by Underwriters Laboratories certification and follow-up service



SPD Series Unit Integrated Within an Eaton Panelboard

Feature package options

The SPD Series provides users with the option of selecting between three feature packages. These feature packages are the basic, standard, and standard with surge counter. The proper feature package can be selected based on the requirements of the application or specification.

Table 1. Feature Package Comparison

Feature	Basic	Standard	Standard with Surge Counter
Surge protection using thermally protected MOV technology	~	~	v
Dual-colored protection status indicators for each phase	~	~	V
Dual-colored protection status indicators for the neutral-ground protection mode	~	~	v
Audible alarm with silence button		~	 ✓
Form C relay contact		v	~
EMI/RFI filtering, providing up to 50 dB of noise attenuation from 10 kHz to 100 MHz		v	~
Surge counter with reset button			v

Remote display mounting option

The SPD Series offers the option of mounting its display remotely from the device. This is useful for applications where OEMs or other integrators would like to embed the unit within a piece of equipment and still be able to view its display.

SPD Series unit catalog numbers ending with 'B' (refer to catalog number configuration on Page 7) should be ordered for applications where the display is to be mounted remotely. These units include the SPD Series unit and the remote display panel.

In addition to the unit itself, a remote display cable will have to be purchased. Remote display cables are available in 4, 8, and 12 foot lengths.

Table 2. Remote Display Cables

Description	Catalog Number
4 ft remote display cable	SPDRDCAB04
8 ft remote display cable	SPDRDCAB08
12 ft remote display cable	SPDRDCAB12

Note: Integrated units factory-installed with Eaton switchgear assemblies do not require the purchase of a remote display cable. The cable is provided and all required mounting is performed at the factory.

Existing SPD Series units previously installed without a remote display also have the capability of mounting their displays remotely from the device. Complete remote display kits are available that contain all items required to mount the display remotely, including the remote display cable. Remote display kits are available in 4, 8, and 12 foot cable length options.

Table 3. Remote Display Kits

Description

Description	Catalog Number
Remote display kit with 4 ft remote display cable	SPDRDKIT04
Remote display kit with 8 ft remote display cable	SPDRDKIT08
Remote display kit with 12 ft remote display cable	SPDRDKIT12

For the dimensions of the cutout required to accommodate the remote display panel, see Figure 1 below.

Dimensions



Figure 1. Dimensions of the Cutout Required to Accommodate the Optional Remote Display Panel

Technical Data **TD01005006E** Effective August 2009

Dimensions (continued)



Figure 2. Dimensions of 50 through 200 kA Integrated Units



Figure 3. Dimensions of 250 through 400 kA Integrated Units

Performance data

ANSI/UL 1449 3rd Edition voltage protection ratings

Voltage protection rating (VPR) data is included for both direct bus mounted units (catalog number ending with 'A') and units interfaced to the electrical assembly via a circuit breaker (catalog number ending with 'B,' 'C,' or 'J'). Direct bus mounted units are available for installation within Eaton PRL1a, 2a, 3a, and 3E panelboards only.

Table 4. 50 kA Direct Bus Mounted Integrated Unit VPR

Table 8. 50 kA Circuit Breaker Interfaced Integrated Unit VPR

	Protection Mode			
Voltage Code	L-N	L-G	N-G	L-L
240S	500	1000	500	1000
208Y and 220Y 400Y and 480Y 600Y	500 1000 1200	1000 2000 2500	500 1000 1200	1000 2000 2500
240D 480D 600D	N/A N/A N/A	1000 2000 2500	N/A N/A N/A	900 2000 2500
240H	500	1000	500	1000

	Protection Mode			
Voltage Code	L-N	L-G	N-G	L-L
240S	700	1200	700	1200
208Y and 220Y 400Y and 480Y 600Y	700 1200 1500	1200 2000 2500	700 1200 1500	1200 2000 2500
240D 480D 600D	N/A N/A N/A	1200 2000 2500	N/A N/A N/A	1200 2000 2500
240H	700	1200	700	1200

Table 5. 80–100 kA Direct Bus Mounted Integrated Unit VPR

	Protection Mode				
Voltage Code	L-N	L-G	N-G	L-L	
240S	500	600	500	900	
208Y and 220Y 400Y and 480Y 600Y	500 1000 1200	600 1200 1500	500 1000 1200	900 1800 2500	
240D 480D 600D	N/A N/A N/A	1000 1800 2500	N/A N/A N/A	900 1800 2500	
240H	500	600	500	900	

Table 9. 80–100 kA Circuit Breaker Interfaced Integrated Unit VPR

	Protection Mode				
Voltage Code	L-N	L-G	N-G	L-L	
240S	700	700	700	1000	
208Y and 220Y 400Y and 480Y 600Y	700 1200 1500	700 1200 1500	700 1200 1500	1000 1800 2500	
240D 480D 600D	N/A N/A N/A	1200 2000 2500	N/A N/A N/A	1200 2000 2500	
240H	700	700	700	1000	

Table 6. 120–200 kA Direct Bus Mounted Integrated Unit VPR

	Protection Mode			
Voltage Code	L-N	L-G	N-G	L-L
240S	500	600	500	800
208Y and 220Y 400Y and 480Y 600Y	500 900 1200	600 1000 1200	500 900 1200	800 1800 2500
240D 480D 600D	N/A N/A N/A	900 1800 2500	N/A N/A N/A	900 1800 2500
240H	500	600	500	800

Table 10. 120–200 kA Circuit Breaker Interfaced Integrated Unit VPR

	Protection Mode			
Voltage Code	L-N	L-G	N-G	L-L
240S	700	700	600	1000
208Y and 220Y 400Y and 480Y 600Y	700 1000 1500	700 1200 1500	600 1000 1200	1000 1800 2500
240D 480D 600D	N/A N/A N/A	1000 2000 2500	N/A N/A N/A	1000 1800 2500
240H	700	700	600	1000

Table 7. 250–300 kA Circuit Breaker Interfaced Integrated Unit VPR Table 11. 400 kA Circuit Breaker Interfaced Integrated Unit VPR

	Protection Mode				
Voltage Code	L-N	L-G	N-G	L-L	
240S	600①	700	600	1000	
208Y and 220Y 400Y and 480Y 600Y	600 ① 1000 1500	700 1200 1500	600 900 1200	1000 1800 2500	
240D 480D 600D	N/A N/A N/A	1000 1800 2500	N/A N/A N/A	1000 1800 2500	
240H	6000	700	600	1000	

① L-N VPR for 250-300 kA units containing the standard and standard with surge counter feature packages is 600V. L-N VPR for units containing the basic feature package is 700V.

All other VPR numbers reported in all tables represent the VPR for all feature packages.

	Protection Mode				
Voltage Code	L-N	L-G	N-G	L-L	
240S	700	700	600	1000	
208Y and 220Y 400Y and 480Y 600Y	700 1000 1500	700 1200 1500	600 900 1200	1000 1800 2500	
240D 480D 600D	N/A N/A N/A	1000 1800 2500	N/A N/A N/A	1000 1800 2500	
240H	700	700	600	1000	

Specifications

Table 12. SPD Series Specifications

Description	Specification
Surge capacity ratings available	50, 80, 100, 120, 160, 200, 250, 300, 400 kA per phase
Nominal discharge current (In)	20 kA
Short circuit current rating (SCCR)	200 kA
SPD type	Basic feature package = Type 1 (can also be used in Type 2 applications) Standard and Standard with Surge Counter feature packages = Type 2
Single split phase voltages available	120/240
Three-phase Wye system voltages available	120/208, 127/220, 230/400, 277/480, 347/600
Three-phase Delta system voltages available	240, 480, 600
Input power frequency	50/60 Hz
Power consumption (basic units): 208Y, 220Y, 240S, 240D, and 240H voltage codes 400Y, 480Y, and 480D voltage codes 600Y and 600D voltage codes	0.5W 1.1W 1.3W
Power consumption (standard and standard with surge counter units): 208Y, 220Y, 240S, 240D, and 240H voltage codes 400Y, 480Y, and 480D basic voltage codes 600Y and 600D voltage codes	0.6W 1.7W 2.1W
Protection modes	Single split phaseL-N, L-G, N-G, L-L Three-phase WyeL-N, L-G, N-G, L-L Three-phase DeltaL-G, L-L Three-phase high-leg DeltaL-N, L-G, N-G, L-L
Maximum continuous operating voltage (MCOV): 240S, 208Y, 220Y, and 240H MCOV 400Y and 480Y MCOV 600Y MCOV 240D MCOV 480D MCOV 600D MCOV	150 L-N, 150 L-G, 150 N-G, 300 L-L 320 L-N, 320 L-G, 320 N-G, 640 L-L 420 L-N, 420 L-G, 420 N-G, 840 L-L 320 L-G, 320 L-L 640 L-G, 640 L-L 840 L-G, 840 L-L
Ports	1
Operating temperature	–4°F through 122°F (–20°C through 50°C)
Operating humidity	5% through 95%, noncondensing
Operating altitude	Up to 16,000 ft (5000m)
Seismic withstand capability	Meets or exceeds the requirements specified in IBC® 2006, CBC 2007, and UBC® Zone 4
Weight	50–200 kA units approximately 3.5 lbs (1.6 kg) 250–400 kA units approximately 7.0 lbs (3.2 kg)
Form C relay contact ratings	150 Vdc or 125 Vac, 1A maximum
Form C relay contact logic	Power ON, normal state—NO contact = open, NC contact = closed Power OFF or fault state—NO contact = closed, NC contact = open
EMI/RFI filtering attenuation	Up to 50 dB from 10 kHz to 100 MHz
Agency certifications and approvals	UL 1449 3rd Edition recognized component for the U.S. and Canada UL 1283 (Type 2 SPDs only)
Warranty	10 years

Catalog number selection

Table 13. SPD Series Catalog Number Configuration for Units Integrated into Electrical Distribution Equipment



Example: SPD250480D2J = SPD Series, 250 kA per phase, 480D voltage, standard feature package, motor control center application

O Please consult the factory for 240 high-leg Delta (4W+G) applications with high leg on 'C' phase.

② Units used in PRL1a, 2a, 3a, and 3E panelboard applications are available in 50–200 kA ratings only.

Use the 'C' option for PRL1a, 2a, 3a, and 3E panelboard applications when unit is connected through a circuit breaker.

Technical support information

If you have any questions or need additional information, please contact the Eaton Technical Resource Center at 800-809-2772, option 4, option 2. You may also submit inquiries via e-mail: surgeprotection@eaton.com.

Eaton Corporation Electrical Sector 1111 Superior Ave. Cleveland, OH 44114 United States 877-ETN-CARE (877-386-2273) Eaton.com

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