North Stonington School Modernization
297/298/311 Norwich-Westerly Road
North Stonington, CT 06359

DOWNES CONSTRUCTION COMPANY

DCC Job #: 25-01-0345

Date: 06/26/18

Architect: QA&M Architecture
MEP Engineer: RZ Design Associates, Inc.
Structural Engineer: Perrone & Zajda Engineers, LLC
Civil Engineer: CLA Engineers, Inc.
Landscape Architect: TO Design, LLC
Food Service Consultant: Crabtree McGrath Associates, Inc.

Subcontractor/ Vendor: Banton Construction Company

Submittal Description:

Downes Construction Company, LLC
P.O. Box 727
200 Stanley Street
New Britain, CT 06050
Attn: Travis Burton

Panelboards

Product Data, Shop Drawings & Manufacturer's Instructions

262416-001.2

Page: 495
Paragraph:

First Submission:
Resubmission #: 2

Submitted as Specified: X
Submitted as Substitution (As equal):

Elementary School:
High School/Middle School: X
Board of Education:

Provide submittal for EACH SCHOOL

Comments:

CONTRACTOR HAS DETERMINED AND VERIFIED MATERIALS, FIELD MEASUREMENTS AND FIELD CRITERIA AND HAS CHECKED AND COORDINATED THE INFORMATION CONTAINED IN THIS SUBMITTAL WITH THE REQUIREMENTS OF THE WORK AND OF THE CONTRACT DOCUMENTS AND RECOMMENDS APPROVAL BY THE CONSTRUCTION MANAGER / ARCHITECT / ENGINEER.

Construction Manager's Stamp Area:

SUBMITTAL REVIEW
DOWNES CONSTRUCTION COMPANY, LLC
X REVIEWED FOR SUBMISSION TO ARCHITECT / ENGINEER ☐ REJECTED
DOWNES CONSTRUCTION COMPANY'S REVIEW IS FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. MARKINGS AND/OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE TRADE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DOCUMENTS.
BY: TB DATE: 6/26/2018
SPECS SECTION: 262416 SUBMITTAL NUMBER: 001
CONTRACT DWG. NO.: 000 REVIEW NUMBER: 02

Architect's Stamp Area:

VERIFY BREAKER QUANTITIES WITH LATEST SCHEDULES

SEE RESPONSES ON COMMENTS SHEET

NO NEED TO RE-SUBMIT

☐ No Exception Taken ☒ Make Corrections Noted
☐ Rejected ☐ Revise and Resubmit
☐ Reviewed ☐ Provide Record Copy

Review is only for GENERAL COMPLIANCE with design and information given in contract documents. Any action shown is subject to the requirements of the PLANS and SPECIFICATIONS. Submitting contractor is responsible for, dimensions which shall be verified in the field fabrication processes, techniques of construction, coordination with other trades and satisfactory completions of his work in a safe manner.

Engineer's Stamp Area (As Required):

SHOP DRAWING REVIEW
REVIEW IS FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS
NO RESPONSIBILITY IS ASSUMED FOR CORRECTNESS OF DIMENSIONS OR DETAILS

_____ NO EXCEPTIONS TAKEN
X MAKE CORRECTIONS NOTED
_____ AMEND AND RESUBMIT
_____ REJECTED – SEE REMARKS

RZ Design Associates, Inc.

DATE 6/29/18 BY BJZ

Received Stamp Area:

QUISENBERRY ARCARI MALIK, LLC
DATE: 06-29-18 BY

RECEIVED
06-29-18
Quisenberry Arcari Architects, LLC

Yale Electric Supply
55 Shawmut Road
Canton, MA 02021

SUBMITTAL/DRAWING REVIEW COMMENT RESPONSES

Date: Tuesday, June 26, 2018

Project: North Stonington HS/MS

Equipment: Panelboards

RESPONSE(S):

1. On page 1 of the returned submittal there is a comment that HVB-1 and LVB-1 be 80" high max. I did not change these because 90" high panels are required. To get these down to a 72" box would require we delete (6) 1 pole breakers from HVB-1 and (8) 1 pole breakers from LVB-1. OK
2. All panels were changed to Aluminum bus per the comment on page 15 of returned submittal. NOT SURE WHAT THIS REFERENCE IS. PAGE 15 OF PREVIOUS SUBMISSION IS PANEL SBLVB-1
3. We meet the requirements listed on page 15 of the returned submittal for front trims, NEMA PB-1 & UL 67 and UL 50 enclosures. Refer to page 53 of the original submittal for standards and certifications. THIS SUBMISSION MUST PROVIDE ALL DATA REQUIRED. WE WILL NOT RELY UPON PREVIOUS SUBMISSIONS

- LVB-1 – Due to the style of panel 2 different Chassis Styles are required and with breakers shown the panel can only be provided as 42 poles. Panel can be provided as 30 CKT if you remove (7) spare single pole 20a breakers OK

- HV2-1 – added (1) more FD1020 to make 60 Circuits. Panel is sufficiently rated at 18Kaic per SCC & Arc Flash Studies OK
- LV1-2 – (3) Panel Schedules showing 60 Circuits shown on drawings. (1) Shown on drawing E6.2 & (2) shown on E6.3. I removed (60) BAB1020's from my 180 three tub panel to provide double tub panel
- HVB-1 – HFD3225, HFD3200, & HFD3175 are only available single/center mounted breakers, due to this the panel is provided with 54 poles. **OK**
- SBHV1-1 – Please see cut sheet that goes along with the panel. It is provided as noted on returned submittals **OK**
- HVDP1-1 – Due to the style of panel and the 600A center mounted breaker the panel has to be provided as a 48 Circuit panel **OK**
- SBLV1-1 – Due to the style of panel 2 different styles of chassis have to be provided. Panel is provided with 36 poles. (2) BAB1020's can be removed to provide a 30-circuit panel. Please advise. **OK**
- FPBSBLV1-1 – Panel revised to 30ckts **OK**
- LVDP-1 - Panel provided as 66 circuit due to 2 separate chassis - if we can remove 7 QBHW1020's we can get the panel to a 42 circuit panel

OK but no LV!-2 is not scheduled on drawing E6.2. verify you are using latest drawings.

Make panel 42-circuit.

Sean Govey
Switchgear Project Sales
D- (617-822-6185)
Email- Sgovey@yaleelectric.com

North Stonington School Modernization
297/298/311 Norwich-Westerly Road
North Stonington, CT 06359

DOWNES CONSTRUCTION COMPANY

DCC Job #: 25-01-0345

Date: 5/25/18

Architect: QA&M Architecture
MEP Engineer: RZ Design Associates, Inc.
Structural Engineer: Perrone & Zajda Engineers, LLC
Civil Engineer: CLA Engineers, Inc.
Landscape Architect: TO Design, LLC
Food Service Consultant: Crabtree McGrath Associates, Inc.

Subcontractor/ Vendor: Banton Construction Company

Submittal Description:
PANELBOARDS
PRODUCT DATA

Downes Construction Company, LLC
P.O. Box 727
200 Stanley Street
New Britain, CT 06050
Attn: Travis Burton

Construction Manager's Stamp Area:

SUBMITTAL REVIEW
DOWNES CONSTRUCTION COMPANY, LLC
X REVIEWED FOR SUBMISSION TO ARCHITECT / ENGINEER ☐ REJECTED
DOWNES CONSTRUCTION COMPANY'S REVIEW IS FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. MARKINGS AND/OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE TRADE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DOCUMENTS.
BY: TB DATE: 5/25/2018
SPECS SECTION: 262416 SUBMITTAL NUMBER: 001
CONTRACT DWG. NO.: 000 REVIEW NUMBER: 1

Spec. Section: 262416-001-002-A

Page: 495
Paragraph:

First Submission: ☐
Resubmission #: 1

Submitted as Specified: ☐
Submitted as Substitution (As equal): ☐

Elementary School: ☐
High School/Middle School: X
Board of Education: ☐

Provide submittal for EACH SCHOOL

Comments:

CONTRACTOR HAS DETERMINED AND VERIFIED MATERIALS, FIELD MEASUREMENTS AND FIELD CRITERIA AND HAS CHECKED AND COORDINATED THE INFORMATION CONTAINED IN THIS SUBMITTAL WITH THE REQUIREMENTS OF THE WORK AND OF THE CONTRACT DOCUMENTS AND RECOMMENDS APPROVAL BY THE CONSTRUCTION MANAGER / ARCHITECT / ENGINEER.

Architect's Stamp Area:

Coordinate branch breaker quantities and sizes with panel schedules on drawings.

See comments in red on individual data sheets.

Panels HVB-1 and LVB-1 to be provided with 80" max high enclosure.

Panel that are crossed out have not been reviewed.

Engineer's Stamp Area (As Required):

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_____ MAKE CORRECTIONS NOTED
X AMEND AND RESUBMIT
_____ REJECTED – SEE REMARKS

RZ Design Associates, Inc.

DATE 6/5/18 BY BJZ

☐ No Exception Taken ☐ Make Corrections Noted
☐ Rejected ☒ Revise and Resubmit
☐ Reviewed ☐ Provide Record Copy

Review is only for GENERAL COMPLIANCE with design and information given in contract documents. Any action shown is subject to the requirements of the PLANS and SPECIFICATIONS. Submitting contractor is responsible for, dimensions which shall be verified in the field fabrication processes, techniques of construction, coordination with other trades and satisfactory completions of his work in a safe manner.

QUISENBERRY ARCARI MALIK, LLC

DATE: 06-11-18 BY:

Received Stamp Area:

RECEIVED
06-05-18
Quisenberry Arcari Architects, LLC

North Stonington Schools

Submittal for Approval

Negotiation Number

V0880216X8K1

Volume 1 of 1

Equipment:

Panelboards

Date: 6/26/2018

Supersedes Selling Policy 25-000, Pages 1-4, dated **November 1, 2008**

DOMESTIC U.S.A. GENERAL TERMS AND CONDITIONS OF SALE

Distribution and Control Products and Services 25-000

TERMS AND CONDITIONS OF SALE

The Terms and Conditions of Sale set forth herein, and any supplements which may be attached hereto, constitute the full and final expression of the contract for the sale of products or services (hereinafter referred to as Product(s) or Services by Eaton Corporation (hereinafter referred to as Seller) to the Buyer, and supersedes all prior quotations, purchase orders, correspondence or communications whether written or oral between the Seller and the Buyer. Notwithstanding any contrary language in the Buyer's purchase order, correspondence or other form of acknowledgment, Buyer shall be bound by these Terms and Conditions of Sale when it sends a purchase order or otherwise indicates acceptance of this contract, or when it accepts delivery from Seller of the Products or Services. THE CONTRACT FOR SALE OF THE PRODUCTS OR SERVICES IS EXPRESSLY LIMITED TO THE TERMS AND CONDITIONS OF SALE STATED HEREIN. ANY ADDITIONAL OR DIFFERENT TERMS PROPOSED BY BUYER ARE REJECTED UNLESS EXPRESSLY AGREED TO IN WRITING BY SELLER. No contract shall exist except as herein provided.

Complete Agreement
No amendment or modification hereto nor any statement, representation or warranty not contained herein shall be binding on the Seller unless made in writing by an authorized representative of the Seller. Prior dealings, usage of the trade or a course of performance shall not be relevant to determine the meaning of this contract even though the accepting or acquiescing party had knowledge of the nature of the performance and opportunity for objection.

Quotations
Written quotations are valid for 30 days from its date unless otherwise stated in the quotation or terminated sooner by notice.

Verbal quotations, unless accepted, expire the same day they are made.

A complete signed order must be received by Seller within 20 calendar days of notification of award, otherwise the price and shipment will be subject to re-negotiation.

Termination and Cancellation

Products
Any order may be terminated by the Buyer only by written notice and upon payment of reasonable termination charges, including all progress billings and all incurred direct manufacturing costs.

Services
Any order may be terminated by the Buyer only by written notice and upon payment of reasonable termination charges including all costs plus profit.

Seller shall have the right to cancel any order at any time by written notice if Buyer breaches any of the terms hereof, becomes the subject of any proceeding under state or federal law for the relief of debtors, or otherwise becomes insolvent or bankrupt, generally does not pay its debts as they become due or makes an assignment for the benefit of creditors.

Prices
All prices are subject to change without notice. In the event of a price change, the effective date of the change will be the date of the new price or discount sheet, letter or telegram. All quotations made or orders accepted after the effective date will be on the new basis. For existing orders, the price of the unshipped portion of an order will be the price in effect at time of shipment.

Price Policy – Products and Services
When prices are quoted as firm for quoted shipment, they are firm provided the following conditions are met:

1. The order is released with complete engineering details.
2. Shipment of Products are made, and Services purchased are provided within the quoted lead time.
3. When drawings for approval are required for any Products, the drawings applicable to those Products must be returned within 30* calendar days from the date of the original mailing of the drawings by Seller. The return drawings must be released for manufacture and shipment and must be marked "APPROVED" or "APPROVED AS NOTED." Drawing re-submittals which are required for any other reason than to correct Seller errors will not extend the 30-day period.

If the Buyer initiates or in any way causes delays in shipment, provision of Services or return of approval drawings beyond the periods stated above, the price of the Products or Services will be increased 1% per month or fraction thereof up to a maximum of 18 months from the date of the Buyer's order. For delays resulting in shipment or provision of Services beyond 18 months from the date of the Buyer's order, the price must be renegotiated.

Price Policy – BLS
Refer to Price Policy 25-050.

Minimum Billing
Orders less than $1,000 will be assessed a shipping and handling charge of **5%** of the price of the order, with a minimum charge of $25.00 unless noted differently on Product discount sheets.

Taxes
The price does not include any taxes. Buyer shall be responsible for the payment of all taxes applicable to, or arising from, the transaction, the Products, its sale, value or use, or any Services performed in connection therewith regardless of the person or entity actually taxed.

TERMS OF PAYMENT

Products
Acceptance of all orders is subject to the Buyer meeting Seller's credit requirements. Terms of payment are subject to change for failure to meet such requirements. Seller reserves the right at any time to demand full or partial payment before proceeding with a contract of sale as a result of changes in the financial condition of the Buyer. Terms of Payment are either Net 30 days from the date of invoice of each shipment or carry a cash discount based on Product type. Specific payment terms for Products are outlined in the applicable Product discount schedules.

Services
Terms of payment are net within 30 days from date of invoice for orders amounting to less than $50,000.00.

* 60 days for orders through contractors to allow time for their review and approval before and after transmitting them to their customers.

Terms of payment for orders exceeding $50,000.00 shall be made according to the following:

1. Twenty percent (20%) of order value with the purchase order payable 30 days from date of invoice.
2. Eighty percent (80%) of order value in equal monthly payments over the performance period payable 30 days from date of invoice.

Except for work performed (i) under a firm fixed price basis or (ii) pursuant to terms of a previously priced existing contract between Seller and Buyer, invoices for work performed by Seller shall have added and noted on each invoice a charge of 3% (over and above the price of the work) which is related to Seller compliance with present and proposed environmental, health and safety regulations associated with prescribed requirements covering hazardous materials management and employee training, communications, personal protective equipment, documentation and record keeping associated therewith.

Adequate Assurances
If, in the judgment of Seller, the financial condition of the Buyer, at any time during the period of the contract, does not justify the terms of payment specified, Seller may require full or partial payment in advance.

Delayed Payment
If payments are not made in accordance with these terms, a service charge will, without prejudice to the right of Seller to immediate payment, be added in an amount equal to the lower of 1.5% per month or fraction thereof or the highest legal rate on the unpaid balance.

Freight
Freight policy will be listed on the Product discount sheets, or at option of Seller one of the following freight terms will be quoted.

F.O.B. – P/S – Frt./Ppd. and Invoiced
Products are sold F.O.B. point of shipment freight prepaid and invoiced to the Buyer.

F.O.B. – P/S – Frt./Ppd. and Allowed
Products sold are delivered F.O.B. point of shipment, freight prepaid and included in the price.

F.O.B. Destination – Frt./Ppd. and Allowed
At Buyer's option, Seller will deliver the Products F.O.B. destination freight prepaid and 2% will be added to the net price. The term "freight prepaid" means that freight charges will be prepaid to the accessible common carrier delivery point nearest the destination for shipments within the United States and Puerto Rico unless noted differently on the Product discount sheets. For any other destination, contact Seller's representative.

Shipment and Routing
Seller shall select the point of origin of shipment, the method of transportation, the type of carrier equipment and the routing of the shipment.

If the Buyer specifies a special method of transportation, type of carrier equipment, routing or delivery requirement, Buyer shall pay all special freight and handling charges.

When freight is included in the price, no allowance will be made in lieu of transportation if the Buyer accepts shipment at factory, warehouse or freight station or otherwise supplies its own transportation.

Risk of Loss
Risk of loss or damage to the Products shall pass to Buyer at the F.O.B. point.

Concealed Damage
Except in the event of F.O.B. destination shipments, Seller will not participate in any settlement of claims for concealed damage.

When shipment has been made on an F.O.B. destination basis, the Buyer must unpack immediately and, if damage is discovered, must:

1. Not move the Products from the point of examination.
2. Retain shipping container and packing material.
3. Notify the carrier in writing of any apparent damage.
4. Notify Seller representative within 72 hours of delivery.
5. Send Seller a copy of the carrier's inspection report.

Witness Tests/Customer Inspection
Standard factory tests may be witnessed by the Buyer at Seller's factory for an additional charge calculated at the rate of $2,500 per day (not to exceed eight (8) hours) per Product type. Buyer may final inspect Products at the Seller's factory for $500 per day per Product type.

Witness tests will add one (1) week to the scheduled shipping date. Seller will notify Buyer fourteen (14) calendar days prior to scheduled witness testing or inspection. In the event Buyer is unable to attend, the Parties shall mutually agree on a rescheduled date. However, Seller reserves the right to deem the witness tests waived with the right to ship and invoice Products.

Held Orders
For any order held, delayed or rescheduled at the request of the Buyer, Seller may, at its sole option, (1) require payment to be based on any reasonable basis, including but not limited to the contract price, and any additional expenses, or cost resulting from such a delay; (2) store Products at the sole cost and risk of loss of the Buyer; and/or (3) charge to the Buyer those prices under the applicable price policy. Payment for such price, expenses and costs, in any such event, shall be due by Buyer within thirty (30) days from date of Seller's invoice. Any order so held delayed or rescheduled beyond six (6) months will be treated as a Buyer termination.

Drawing Approval
Seller will design the Products in line with, in Seller's judgment, good commercial practice. If at drawing approval Buyer makes changes outside of the design as covered in their specifications, Seller will then be paid reasonable charges and allowed a commensurate delay in shipping date based on the changes made.

Drawing Re-Submittal
When Seller agrees to do so in its quotation, Seller shall provide Buyer with the first set of factory customer approval drawing(s) at Seller's expense. The customer approval drawing(s) will be delivered at the quoted delivery date. If Buyer requests drawing changes or additions after the initial factory customer approval drawing(s) have been submitted by Seller, the Seller, at its option, may assess Buyer drawing charges**.** Factory customer approval drawing changes required due to misinterpretation by Seller will be at Seller's expense. Approval drawings generated by Bid-Manager are excluded from this provision.

WARRANTY

Warranty For Products
Seller warrants that the Products manufactured by it will conform to Seller's applicable specifications and be free from failure due to defects in workmanship and material for one (1) year from the date of installation of the Product or eighteen (18) months from the date of shipment of the Product, whichever occurs first.

In the event any Product fails to comply with the foregoing warranty Seller will, at its option, either (a) repair or replace the defective Product, or defective part or component thereof, F.O.B. Seller's facility freight prepaid, or (b) credit Buyer for the purchase price of the Product. All warranty claims shall be made in writing.

Seller requires all non-conforming Products be returned at Seller's expense for evaluation unless specifically stated otherwise in writing by Seller.

This warranty does not cover failure or damage due to storage, installation, operation or maintenance not in conformance with Seller's recommendations and industry standard practice or due to accident, misuse, abuse or negligence. This warranty does not cover reimbursement for labor, gaining access, removal, installation, temporary power or any other expenses, which may be incurred in connection with repair or replacement.

This warranty does not apply to equipment not manufactured by Seller. Seller limits itself to extending the same warranty it receives from the supplier.

Extended Warranty for Products
If requested by the Buyer and specifically accepted in writing by Seller, the foregoing standard warranty for Products will be extended from the date of shipment for the period and price indicated below:

24 months – 2% of Contract Price
30 months – 3% of Contract Price
36 months – 4% of Contract Price

Special Warranty (In and Out) for Products
If requested by the Buyer and specifically accepted in writing by Seller, Seller will, during the warranty period for Products, at an additional cost of 2% of the contract price, be responsible for the direct cost of:

1. Removing the Product from the installed location.
2. Transportation to the repair facility and return to the site.
3. Reinstallation on site.

The total liability of Seller for this Special Warranty for Products is limited to 50% of the contract price of the particular Product being repaired and excludes expenses for removing adjacent apparatus, walls, piping, structures, temporary service, etc.

Warranty For Services
Seller warrants that the Services performed by it hereunder will be performed in accordance with generally accepted professional standards.

The Services, which do not so conform, shall be corrected by Seller upon notification in writing by the Buyer within one (1) year after completion of the Services.

Unless otherwise agreed to in writing by Seller, Seller assumes no responsibility with respect to the suitability of the Buyer's, or its customer's, equipment or with respect to any latent defects in equipment not supplied by Seller. This warranty does not cover damage to Buyer's, or its customer's, equipment, components or parts resulting in whole or in part from improper maintenance or operation or from their deteriorated condition. Buyer will, at its cost, provide Seller with unobstructed access to the defective Services, as well as adequate free working space in the immediate vicinity of the defective Services and such facilities and systems, including, without limitation, docks, cranes and utility disconnects and connects, as may be necessary in order that Seller may perform its warranty obligations. The conducting of any tests shall be mutually agreed upon and Seller shall be notified of, and may be present at, all tests that may be made.

Warranty for Power Systems Studies
Seller warrants that any power systems studies performed by it will conform to generally accepted professional standards. Any portion of the study, which does not so conform, shall be corrected by Seller upon notification in writing by the Buyer within six (6) months after completion of the study. All warranty work shall be performed in a single shift straight time basis Monday through Friday. In the event that the study requires correction of warranty items on an overtime schedule, the premium portion of such overtime shall be for the Buyer's account.

Limitation on Warranties for Products, Services and Power Systems Studies
THE FOREGOING WARRANTIES ARE EXCLUSIVE EXCEPT FOR WARRANTY OF TITLE. SELLER DISCLAIMS ALL OTHER WARRANTIES INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

CORRECTION OF NON-CONFORMITIES IN THE MANNER AND FOR THE PERIOD OF TIME PROVIDED ABOVE SHALL CONSTITUTE SELLER'S SOLE LIABILITY AND BUYER'S EXCLUSIVE REMEDY FOR FAILURE OF SELLER TO MEET ITS WARRANTY OBLIGATIONS, WHETHER CLAIMS OF THE BUYER ARE BASED IN CONTRACT, IN TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY) OR OTHERWISE.

Asbestos
Federal Law requires that building or facility owners identify the presence, location and quantity of asbestos containing material (hereinafter "ACM") at work sites. Seller is not licensed to abate ACM. Accordingly, for any contract which includes the provision of Services, prior to (i) commencement of work at any site under a specific Purchase Order, (ii) a change in the work scope of any Purchase Order, the Buyer will certify that the work area associated with the Seller's scope of work includes the handling of Class II ACM, including but not limited to generator wedges and high temperature gaskets which include asbestos materials. The Buyer shall, at its expense, conduct abatement should the removal, handling, modification or reinstallation, or some or all of them, of said Class II ACM be likely to generate airborne asbestos fibers; and should such abatement affect the cost of or time of performance of the work then Seller shall be entitled to an equitable adjustment in the schedule, price and other pertinent affected provisions of the contract.

Compliance with Nuclear Regulation
Seller's Products are sold as commercial grade Products not intended for application in facilities or activities licensed by the United States Nuclear Regulatory Commission for atomic purposes. Further certification will be required for use of the Products in any safety-related application in any nuclear facility licensed by the U.S. Nuclear Regulatory Commission.

Returning Products
Authorization and shipping instructions for the return of any Products must be obtained from Seller before returning the Products. When return is occasioned due to Seller error, full credit including all transportation charges will be allowed.

Product Notices
Buyer shall provide the user (including its employees) of the Products with all Seller supplied Product notices, warnings, instructions, recommendations and similar materials.

Force Majeure
Seller shall not be liable for failure to perform or delay in performance due to fire, flood, strike or other labor difficulty, act of God, act of any governmental authority or of the Buyer, riot, embargo, fuel or energy shortage, car shortage, wrecks or delays in transportation, or due to any other cause beyond Seller's reasonable control. In the event of delay in performance due to any such cause, the date of delivery or time for completion will be extended by a period of time reasonably necessary to overcome the effect of such delay.

Liquidated Damages
Contracts which include liquidated damage clauses for failure to meet shipping or job completion promises are not acceptable or binding on Seller, unless such clauses are specifically accepted in writing by an authorized representative of the Seller at its headquarters office.

Patent Infringement
Seller will defend or, at its option, settle any suit or proceeding brought against Buyer, or Buyer's customers, to the extent it is based upon a claim that any Product or part thereof, manufactured by Seller or its subsidiaries and furnished hereunder, infringes any United States patent, other than a claim of infringement based upon use of a Product or part thereof in a process, provided Seller is notified in reasonable time and given authority, information and assistance (at Seller's expense) for the defense of same. Seller shall pay all legal and court costs and expenses and court-assessed damages awarded therein against Buyer resulting from or incident to such suit or proceeding. In addition to the foregoing, if at any time Seller determines there is a substantial question of infringement of any United States patent, and the use of such Product is or may be enjoined, Seller may, at its option and expense: either (a) procure for Buyer the right to continue using and selling the Product; (b) replace the Product with non-infringing apparatus; (c) modify the Product so it becomes non-infringing; or (d) as a last resort, remove the Product and refund the purchase price, equitably adjusted for use and obsolescence. In no case does Seller agree to pay any recovery based upon its Buyer's savings or profit through use of Seller's Products whether the use be special or ordinary. The foregoing states the entire liability of Seller for patent infringement.

The preceding paragraph does not apply to any claim of infringement based upon: (a) any modification made to a Product other than by Seller; (b) any design and/or specifications of Buyer to which a Product was manufactured; or (c) the use or combination of Product with other products where the Product does not itself infringe. As to the above-identified claim situations where the preceding paragraph does not apply, Buyer shall defend and hold Seller harmless in the same manner and to the extent as Seller's obligations described in the preceding paragraph. Buyer shall be responsible for obtaining (at Buyer's expense) all license rights required for Seller to be able to use software products in the possession of Buyer where such use is required in order to perform any Service for Buyer.

With respect to a Product or part thereof not manufactured by Seller or its subsidiaries, Seller will attempt to obtain for Buyer, from the supplier(s), the patent indemnification protection normally provided by the supplier(s) to customers.

Compliance with OSHA
Seller offers no warranty and makes no representation that its Products comply with the provisions or standards of the Occupational Safety and Health Act of 1970, or any regulation issued thereunder. In no event shall Seller be liable for any loss, damage, fines, penalty or expenses arising under said Act.

Limitation of Liability
THE REMEDIES OF THE BUYER SET FORTH IN THIS CONTRACT ARE EXCLUSIVE AND ARE ITS SOLE REMEDIES FOR ANY FAILURE OF SELLER TO COMPLY WITH ITS OBLIGATIONS HEREUNDER.

NOTWITHSTANDING ANY PROVISION IN THIS CONTRACT TO THE CONTRARY, IN NO EVENT SHALL SELLER BE LIABLE IN CONTRACT, IN TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY) OR OTHERWISE FOR DAMAGE TO PROPERTY OR EQUIPMENT OTHER THAN PRODUCTS SOLD HEREUNDER, LOSS OF PROFITS OR REVENUE, LOSS OF USE OF PRODUCTS, COST OF CAPITAL, CLAIMS OF CUSTOMERS OF THE BUYER OR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER, REGARDLESS OF WHETHER SUCH POTENTIAL DAMAGES ARE FORESEEABLE OR IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

THE TOTAL CUMULATIVE LIABILITY OF SELLER ARISING FROM OR RELATED TO THIS CONTRACT WHETHER THE CLAIMS ARE BASED IN CONTRACT, IN TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY) OR OTHERWISE, SHALL NOT EXCEED THE PRICE OF THE PRODUCT OR SERVICES ON WHICH SUCH LIABILITY IS BASED.

Eaton Corporation.
1000 Cherrington Parkway
Moon Township, PA 15108
United States
Tel: 1-800-525-2000
Eaton.com

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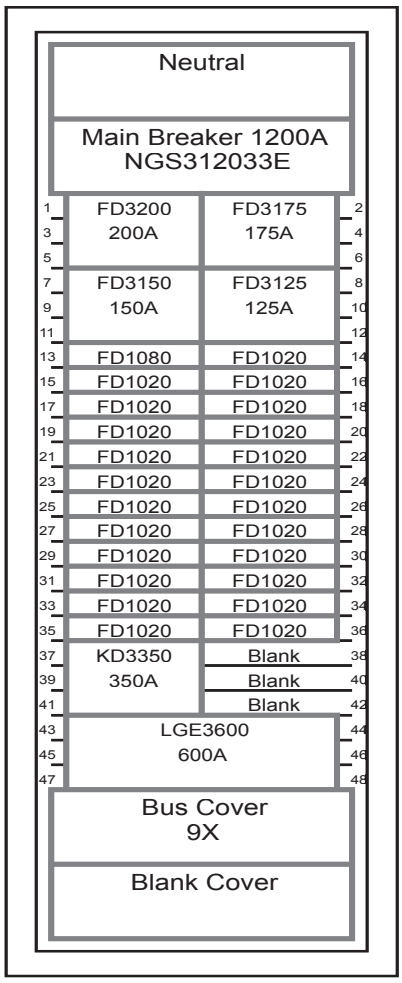
Panelboards

Drawings



General Information **(Section 1 of 1)**

Service Voltage:	480Y/277V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	1200A Aluminum	**Neutral Rating:**	1200A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	25k A.I.C. Fully Rated		

Main Device Type: Main Breaker - Top Cable Entry
Main Terminals: Mechanical - (4) 4/0-500 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (4) #2-500 kcmil (Cu/Al)
Box Catalog No.: BX4490P
Trim: Standard Covers
Surface Mounted

Box Dimensions: 90.00" [2286.0mm]H x 44.00" [1117.6mm]W x 10.4" [264.2mm]D
Min. Gutter Size: Top = 10.625" [269.9mm] Bottom = 10.625" [269.9mm]
Left = 8" [203.2mm] Right = 14" [355.6mm]

Panel ID Nameplate: **(1) HVDP1-1**
Type: Plastic, adhesive-backed **(2) 480Y/277V 3Ph 4W**
Color: White with Black Letters **(3)**

UL

Circuit Directory: Plastic Sleeve with Card
Painted Box: ANSI 61
Main Circuit Breaker Trip Type: 310+ LS.
Heat Loss - Watts (Est.) = 898
Verify neutral terminal provisions and quantity of branch devices.

Device Modifications:

These Circuits have Modifications:
Ckt #:37, 43Main
See Device Specifications page for details.
Main Device Mods:
310+ LS 310+LS Adj. Trip Unit, NG Frame, Included

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	600	LGE	600	25
1	3	350	KD	400	25
1	3	125	FD	225	25
1	3	150	FD	225	25
1	3	175	FD	225	25
1	3	200	FD	225	25
1	1	80	FD	100	25
23	1	20	FD	100	25

Main Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	1200	NGS	1200	25

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: HVDP1-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.	ITEM	SHEET: 1 of 4

Pow-R-Line4 Device Specifications

Ckt #s	Nameplate	Device	Trip	Terminal	Modifications
Main		NGS312033E	1200	(4) 4/0-500 kcmil (Cu/Al)	310+LS Adj. Trip Unit, NG Frame, Included
1,3,5		FD3200	200	(1) #4-4/0 (Cu/Al)	
2,4,6		FD3175	175	(1) #4-4/0 (Cu/Al)	
7,9,11		FD3150	150	(1) #4-4/0 (Cu/Al)	
8,10,12		FD3125	125	(1) #4-4/0 (Cu/Al)	
13		FD1080	80	(1) #14-1/0 (Cu/Al)	
14		FD1020	20	(1) #14-1/0 (Cu/Al)	
15		FD1020	20	(1) #14-1/0 (Cu/Al)	
16		FD1020	20	(1) #14-1/0 (Cu/Al)	
17		FD1020	20	(1) #14-1/0 (Cu/Al)	
18		FD1020	20	(1) #14-1/0 (Cu/Al)	
19		FD1020	20	(1) #14-1/0 (Cu/Al)	
20		FD1020	20	(1) #14-1/0 (Cu/Al)	
21		FD1020	20	(1) #14-1/0 (Cu/Al)	

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: HVDP1-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.	ITEM	SHEET: 2 of 4

Pow-R-Line4 Device Specifications

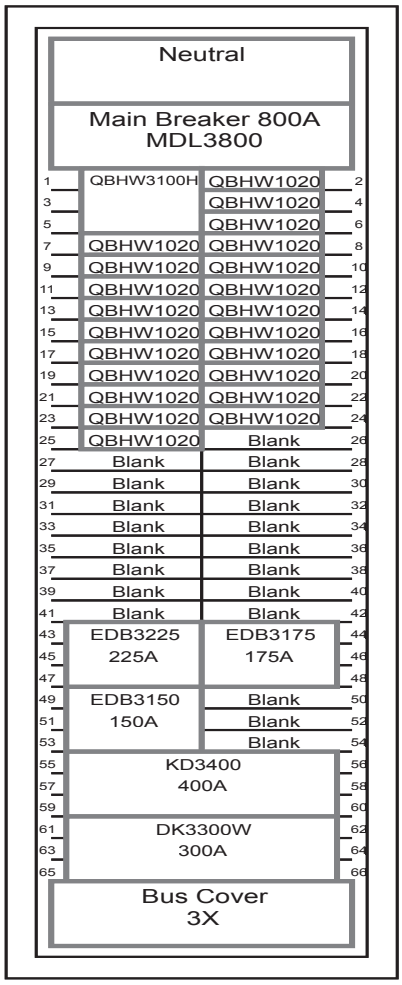
Ckt #s	Nameplate	Device	Trip	Terminal	Modifications
22		FD1020	20	(1) #14-1/0 (Cu/Al)	
23		FD1020	20	(1) #14-1/0 (Cu/Al)	
24		FD1020	20	(1) #14-1/0 (Cu/Al)	
25		FD1020	20	(1) #14-1/0 (Cu/Al)	
26		FD1020	20	(1) #14-1/0 (Cu/Al)	
27		FD1020	20	(1) #14-1/0 (Cu/Al)	
28		FD1020	20	(1) #14-1/0 (Cu/Al)	
29		FD1020	20	(1) #14-1/0 (Cu/Al)	
30		FD1020	20	(1) #14-1/0 (Cu/Al)	
31		FD1020	20	(1) #14-1/0 (Cu/Al)	
32		FD1020	20	(1) #14-1/0 (Cu/Al)	
33		FD1020	20	(1) #14-1/0 (Cu/Al)	
34		FD1020	20	(1) #14-1/0 (Cu/Al)	
35		FD1020	20	(1) #14-1/0 (Cu/Al)	

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: HVDP1-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 3 of 4

Pow-R-Line4 Device Specifications

Ckt #s	Nameplate	Device	Trip	Terminal	Modifications
36		FD1020	20	(1) #14-1/0 (Cu/Al)	
37,39,41		KD3350	350	(1) 250-500 kcmil (Cu/Al)	310+LSI Adj. Trip Unit, K Frame Fixed Rating Plug, K Frame, 350A
43,44,45 46,47,48		LGE3600	600	(2) #2-500 kcmil (Cu/Al)	600A 310 Plus LSI Trip Unit

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: HVDP1-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 4 of 4



General Information **(Section 1 of 1)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	800A Aluminum	**Neutral Rating:**	800A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	22k A.I.C. Fully Rated		

Main Device Type: Main Breaker - Top Cable Entry
Main Terminals: Mechanical - (2) 500-750 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (3) 1/0-750 kcmil (Cu/Al)
Box Catalog No.: BX3690P
Trim: Standard Covers
Surface Mounted

Box Dimensions: 90.00" [2286.0mm]H x 36.00" [914.4mm]W x 10.4" [264.2mm]D
Min. Gutter Size: Top = 10.625" [269.9mm] Bottom = 10.625" [269.9mm]
Left = 6" [152.4mm] Right = 8" [203.2mm]

Panel ID Nameplate: **(1) LVDP1-1**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL

Circuit Directory: Plastic Sleeve with Card
Painted Box: ANSI 61
Main Circuit Breaker Trip Type: Thermal-Magnetic.
Heat Loss - Watts (Est.) = 573
Verify neutral terminal provisions and quantity of branch devices.

Device Modifications:

These Circuits have Modifications:
Ckt #:55
See Device Specifications page for details.

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	225	EDB	225	22
1	3	300	DK	400	22
1	3	400	KD	400	22
1	3	150	EDB	225	22
1	3	175	EDB	225	22
1	3	100	QBHW	100	22
22	1	20	QBHW	100	22

Main Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	800	MDL	800	22

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LVDP1-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 1 of 4

Pow-R-Line4 Device Specifications

Ckt #s	Nameplate	Device	Trip	Terminal	Modifications
Main		MDL3800	800	(2) 500-750 kcmil (Cu/Al)	
1,3,5		QBHW3100H	100	(1) #8-1/0 (Cu/Al)	
2		QBHW1020	20	(1) #14-#4 (Cu/Al)	
4		QBHW1020	20	(1) #14-#4 (Cu/Al)	
6		QBHW1020	20	(1) #14-#4 (Cu/Al)	
7		QBHW1020	20	(1) #14-#4 (Cu/Al)	
8		QBHW1020	20	(1) #14-#4 (Cu/Al)	
9		QBHW1020	20	(1) #14-#4 (Cu/Al)	
10		QBHW1020	20	(1) #14-#4 (Cu/Al)	
11		QBHW1020	20	(1) #14-#4 (Cu/Al)	
12		QBHW1020	20	(1) #14-#4 (Cu/Al)	
13		QBHW1020	20	(1) #14-#4 (Cu/Al)	
14		QBHW1020	20	(1) #14-#4 (Cu/Al)	
15		QBHW1020	20	(1) #14-#4 (Cu/Al)	

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LVDP1-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 2 of 4

Pow-R-Line4 Device Specifications

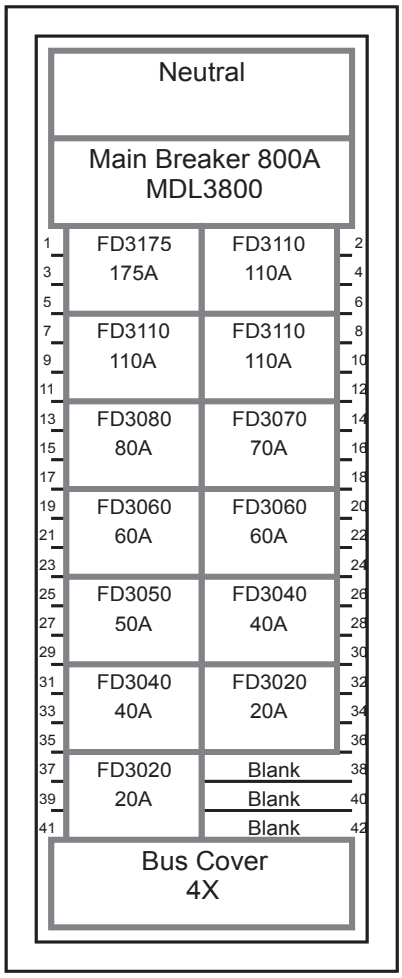
Ckt #s	Nameplate	Device	Trip	Terminal	Modifications
16		QBHW1020	20	(1) #14-#4 (Cu/Al)	
17		QBHW1020	20	(1) #14-#4 (Cu/Al)	
18		QBHW1020	20	(1) #14-#4 (Cu/Al)	
19		QBHW1020	20	(1) #14-#4 (Cu/Al)	
20		QBHW1020	20	(1) #14-#4 (Cu/Al)	
21		QBHW1020	20	(1) #14-#4 (Cu/Al)	
22		QBHW1020	20	(1) #14-#4 (Cu/Al)	
23		QBHW1020	20	(1) #14-#4 (Cu/Al)	
24		QBHW1020	20	(1) #14-#4 (Cu/Al)	
25		QBHW1020	20	(1) #14-#4 (Cu/Al)	
43,45,47		EDB3225	225	(1) #4-4/0 (Cu/Al)	
44,46,48		EDB3175	175	(1) #4-4/0 (Cu/Al)	
49,51,53		EDB3150	150	(1) #4-4/0 (Cu/Al)	
55,56,57 58,59,60		KD3400	400	(1) 2/0-500 kcmil (Cu/Al)	310+LSI Adj. Trip Unit, K Frame

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LVDP1-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 3 of 4

Pow-R-Line4 Device Specifications

Ckt #s	Nameplate	Device	Trip	Terminal	Modifications
61,62,63 64,65,66		DK3300W	300	(1) 250-500 kcmil (Cu/Al)	

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LVDP1-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 4 of 4



General Information **(Section 1 of 1)**

Service Voltage:	480Y/277V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	800A Aluminum	**Neutral Rating:**	800A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	25k A.I.C. Fully Rated		

Main Device Type: Main Breaker - Top Cable Entry
Main Terminals: Mechanical - (2) 500-750 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (3) 1/0-750 kcmil (Cu/Al)
Box Catalog No.: BX3673P
Trim: Standard Covers
Surface Mounted

Box Dimensions: 73.50" [1866.9mm]H x 36.00" [914.4mm]W x 10.4" [264.2mm]D
Min. Gutter Size: Top = 10.625" [269.9mm] Bottom = 10.625" [269.9mm]
Left = 6" [152.4mm] Right = 8" [203.2mm]

Panel ID Nameplate: **(1) SBHV1-1**
Type: Plastic, adhesive-backed **(2) 480Y/277V 3Ph 4W**
Color: White with Black Letters **(3)**

UL

Circuit Directory: Plastic Sleeve with Card
Painted Box: ANSI 61
Main Circuit Breaker Trip Type: Thermal-Magnetic.
Heat Loss - Watts (Est.) = 449

Device Modifications:

Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	175	FD	225	25
3	3	110	FD	225	25
2	3	40	FD	100	25
2	3	20	FD	100	25
2	3	60	FD	100	25
1	3	80	FD	100	25
1	3	70	FD	100	25
1	3	50	FD	100	25

Main Devices

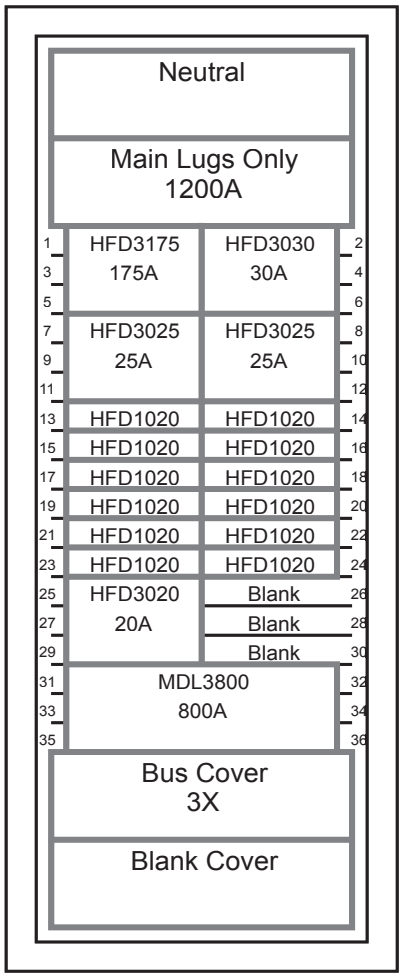
Qty	Poles	Trip	Frame	Amps	kAIC
1	3	800	MDL	800	25

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: SBHV1-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.	ITEM	SHEET: 1 of 2

Pow-R-Line4 Device Specifications

Ckt #s	Nameplate	Device	Trip	Terminal	Modifications
Main		MDL3800	800	(2) 500-750 kcmil (Cu/Al)	
1,3,5		FD3175	175	(1) #4-4/0 (Cu/Al)	
2,4,6		FD3110	110	(1) #4-4/0 (Cu/Al)	
7,9,11		FD3110	110	(1) #4-4/0 (Cu/Al)	
8,10,12		FD3110	110	(1) #4-4/0 (Cu/Al)	
13,15,17		FD3080	80	(1) #14-1/0 (Cu/Al)	
14,16,18		FD3070	70	(1) #14-1/0 (Cu/Al)	
19,21,23		FD3060	60	(1) #14-1/0 (Cu/Al)	
20,22,24		FD3060	60	(1) #14-1/0 (Cu/Al)	
25,27,29		FD3050	50	(1) #14-1/0 (Cu/Al)	
26,28,30		FD3040	40	(1) #14-1/0 (Cu/Al)	
31,33,35		FD3040	40	(1) #14-1/0 (Cu/Al)	
32,34,36		FD3020	20	(1) #14-1/0 (Cu/Al)	
37,39,41		FD3020	20	(1) #14-1/0 (Cu/Al)	

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: SBHV1-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.	ITEM	SHEET: 2 of 2



General Information **(Section 1 of 1)**

Service Voltage:	480Y/277V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	1200A Aluminum	**Neutral Rating:**	1200A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	50k A.I.C. Fully Rated		

Main Device Type: Main Lugs Only - Top Cable Entry
Main Terminals: Mechanical - (4) #2-500 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (4) #2-500 kcmil (Cu/Al)
Box Catalog No.: BX3673P
Trim: Standard Covers
Surface Mounted

Box Dimensions: 73.50" [1866.9mm]H x 36.00" [914.4mm]W x 10.4" [264.2mm]D
Min. Gutter Size: Top = 10.625" [269.9mm] Bottom = 10.625" [269.9mm]
Left = 6" [152.4mm] Right = 8" [203.2mm]

Panel ID Nameplate: **(1) SBHVB-1**
Type: Plastic, adhesive-backed **(2) 480Y/277V 3Ph 4W**
Color: White with Black Letters **(3)**

UL

Circuit Directory: Plastic Sleeve with Card
Painted Box: ANSI 61
Heat Loss - Watts (Est.) = 682
Verify neutral terminal provisions and quantity of branch devices.

Device Modifications:

Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	175	HFD	225	50
1	3	800	MDL	800	50
1	3	20	HFD	100	50
2	3	25	HFD	100	50
1	3	30	HFD	100	50
12	1	20	HFD	100	50

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: SBHVB-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 1 of 3

Pow-R-Line4 Device Specifications

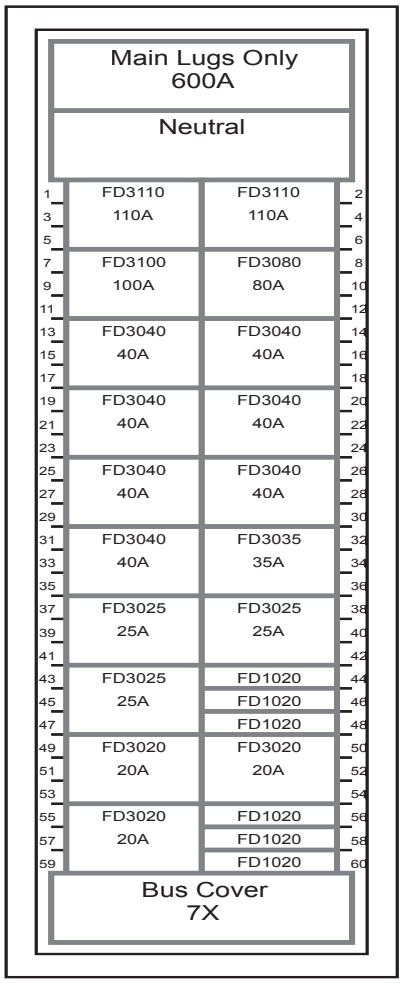
Ckt #s	Nameplate	Device	Trip	Terminal	Modifications
Main		1200A-MLO		(4) #2-500 kcmil (Cu/Al)	
1,3,5		HFD3175	175	(1) #4-4/0 (Cu/Al)	
2,4,6		HFD3030	30	(1) #14-1/0 (Cu/Al)	
7,9,11		HFD3025	25	(1) #14-1/0 (Cu/Al)	
8,10,12		HFD3025	25	(1) #14-1/0 (Cu/Al)	
13		HFD1020	20	(1) #14-1/0 (Cu/Al)	
14		HFD1020	20	(1) #14-1/0 (Cu/Al)	
15		HFD1020	20	(1) #14-1/0 (Cu/Al)	
16		HFD1020	20	(1) #14-1/0 (Cu/Al)	
17		HFD1020	20	(1) #14-1/0 (Cu/Al)	
18		HFD1020	20	(1) #14-1/0 (Cu/Al)	
19		HFD1020	20	(1) #14-1/0 (Cu/Al)	
20		HFD1020	20	(1) #14-1/0 (Cu/Al)	
21		HFD1020	20	(1) #14-1/0 (Cu/Al)	

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: SBHVB-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 2 of 3

Pow-R-Line4 Device Specifications

Ckt #s	Nameplate	Device	Trip	Terminal	Modifications
22		HFD1020	20	(1) #14-1/0 (Cu/Al)	
23		HFD1020	20	(1) #14-1/0 (Cu/Al)	
24		HFD1020	20	(1) #14-1/0 (Cu/Al)	
25,27,29		HFD3020	20	(1) #14-1/0 (Cu/Al)	
31,32,33 34,35,36		MDL3800	800	(2) 500-750 kcmil (Cu/Al)	

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: SBHVB-1			
VERSION: 1.0.0.22		TYPE: PRL4		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 3 of 3



General Information **(Section 1 of 1)**

Service Voltage: 480Y/277V 3Ph 4W **Enclosure:** Type 1
Bus Rating & Type: 600A Aluminum **Neutral Rating:** 600A
Ground Bar: Std. Bolted Aluminum, Al or Cu cable
S.C. Rating: 18k A.I.C. Fully Rated

Main Device Type: Main Lugs Only - Top Cable Entry
Main Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Box Catalog No.: EZB2090R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZTV2090S)

Surface Mounted

Box Dimensions: 90.00" [2286.0mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 4" [101.6mm] Right = 4" [101.6mm]

Panel ID Nameplate: **(1) HV2-1**
Type: Plastic, adhesive-backed **(2) 480Y/277V 3Ph 4W**
Color: White with Black Letters **(3)**

UL

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 417

Device Modifications:

Ref #	Description

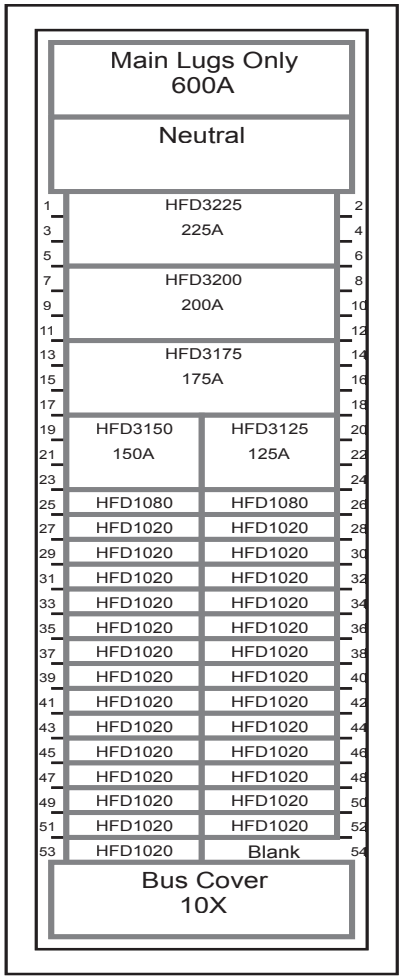
Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	100	FD	100	18
2	3	110	FD	225	18
6	1	20	FD	100	18
1	3	80	FD	100	18
3	3	25	FD	100	18
3	3	20	FD	100	18
1	3	35	FD	100	18
7	3	40	FD	100	18

PREPARED BY	DATE		
SEAN GOVEY	6/26/2018	**Eaton**	
APPROVED BY	DATE	JOB NAME	North Stonington Schools
		DESIGNATION	HV2-1
VERSION		TYPE	DRAWING TYPE
1.0.0.22		PRL3a	Customer Approval

NEG-ALT Number	REVISION	DWG SIZE	G.O.	ITEM	SHEET
V0880216X8K1-0006	0	A			1 of 1



General Information **(Section 1 of 1)**

Service Voltage:	480Y/277V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	600A Aluminum	**Neutral Rating:**	600A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	50k A.I.C. Fully Rated		

Main Device Type: Main Lugs Only - Top Cable Entry
Main Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Box Catalog No.: EZB2090R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZTV2090S)

Surface Mounted

Box Dimensions: 90.00" [2286.0mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 4" [101.6mm] Right = 4" [101.6mm]

Panel ID Nameplate: **(1) HVB-1**
Type: Plastic, adhesive-backed **(2) 480Y/277V 3Ph 4W**
Color: White with Black Letters **(3)**

UL

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 417

Device Modifications:

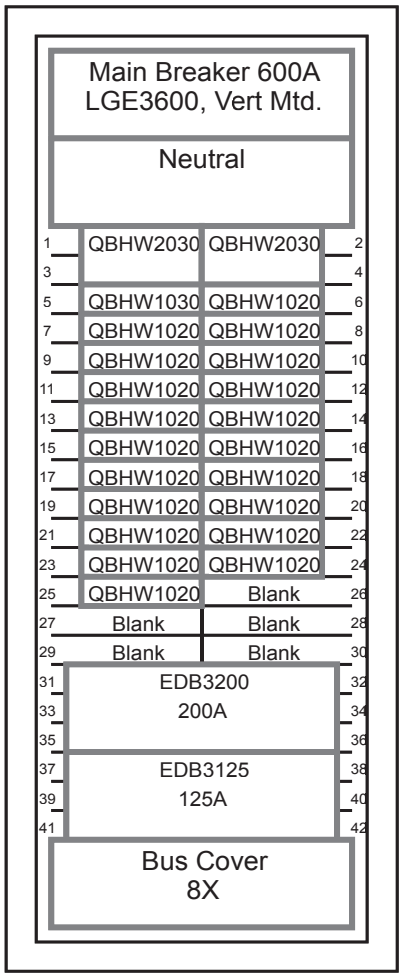
Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	225	HFD	225	50
1	3	150	HFD	225	50
1	3	175	HFD	225	50
1	3	125	HFD	225	50
1	3	200	HFD	225	50
2	1	80	HFD	100	50
27	1	20	HFD	100	50

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: HVB-1			
VERSION: 1.0.0.22		TYPE: PRL3a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.	ITEM	SHEET: 1 of 1



General Information **(Section 1 of 1)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	600A Aluminum	**Neutral Rating:**	600A
Ground Bar:	Std. Bolted Copper, Cu cable only		
S.C. Rating:	22k A.I.C. Fully Rated		

Main Device Type: Main Breaker - Top Cable Entry
Main Terminals: Mechanical - (2) #2-500 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Box Catalog No.: EZB2090R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZTV2090S)

Surface Mounted

Box Dimensions: 90.00" [2286.0mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 4" [101.6mm] Right = 4" [101.6mm]

Panel ID Nameplate: **(1) LVB-1**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Main Circuit Breaker Trip Type: Thermal-Magnetic.
Heat Loss - Watts (Est.) = 417

Device Modifications:

Ref #	Description

Notes:

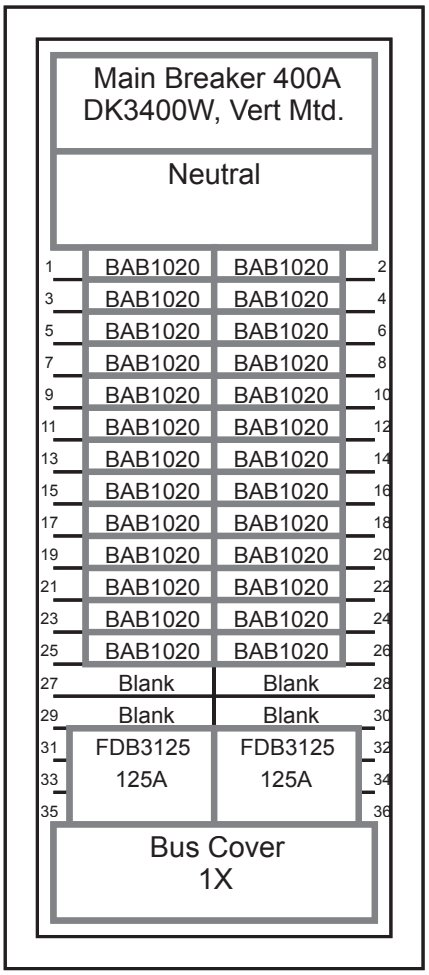
Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	200	EDB	225	22
1	3	125	EDB	225	22
2	2	30	QBHW	100	22
20	1	20	QBHW	100	22
1	1	30	QBHW	100	22

Main Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	600	LGE	600	22

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**	
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools	
		DESIGNATION: LVB-1	
VERSION: 1.0.0.22		TYPE: PRL3a	DRAWING TYPE: Customer Approval
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0 / DWG SIZE: A	G.O.	ITEM / SHEET: 1 of 1



General Information **(Section 1 of 1)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	400A Aluminum	**Neutral Rating:**	400A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	10k A.I.C. Fully Rated		

Main Device Type: Main Breaker - Top Cable Entry
Main Terminals: Mechanical - (1) 2/0-500 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Box Catalog No.: EZB2072R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2072S)

Surface Mounted

Box Dimensions: 72.00" [1828.8mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 4" [101.6mm] Right = 4" [101.6mm]

Panel ID Nameplate: **(1) SBLV1-1**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Main Circuit Breaker Trip Type: Thermal-Magnetic.
Heat Loss - Watts (Est.) = 242

Device Modifications:

Ref #	Description

Notes:

Branch Devices

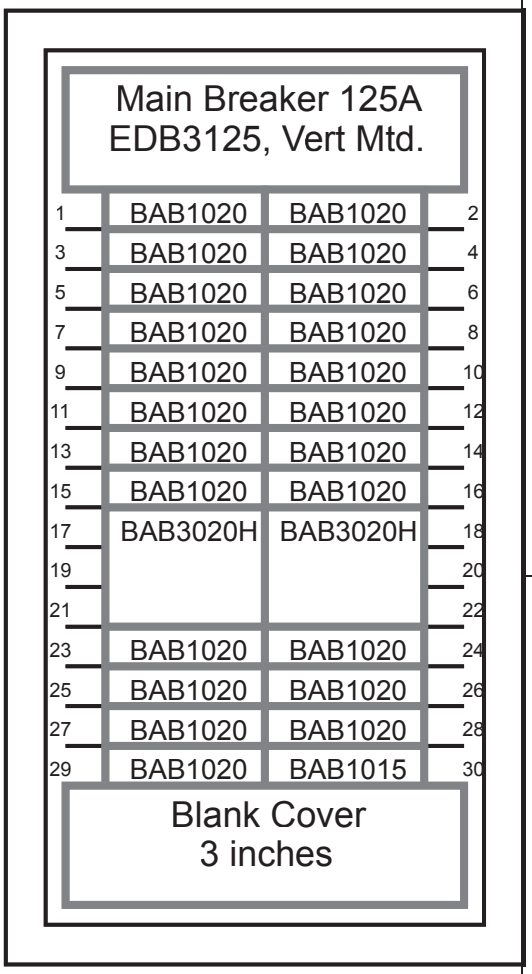
Qty	Poles	Trip	Frame	Amps	kAIC
2	3	125	FDB	150	10
26	1	20	BAB	100	10

Main Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	400	DK	400	10

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**	
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools	
		DESIGNATION: SBLV1-1	
VERSION: 1.0.0.22		TYPE: PRL3a	DRAWING TYPE: Customer Approval

NEG-ALT Number	REVISION	DWG SIZE	G.O.	ITEM	SHEET
V0880216X8K1-0006	0	A			1 of 1



General Information **(Section 1 of 1)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	225A Aluminum	**Neutral Rating:**	225A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	10k A.I.C. Fully Rated		

Main Device Type: Main Breaker - Top Cable Entry
Main Terminals: Mechanical - (1) #4-4/0 (Cu/Al)
Neutral Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Box Catalog No.: EZB2042R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2042S)

Surface Mounted

Box Dimensions: 42.00" [1066.8mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) FPBSBLV1-1**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Main Circuit Breaker Trip Type: Thermal-Magnetic.
Heat Loss - Watts (Est.) = 67
Weight - lbs (Est.) = 95

Device Modifications:

Ref #	Description

Branch Devices

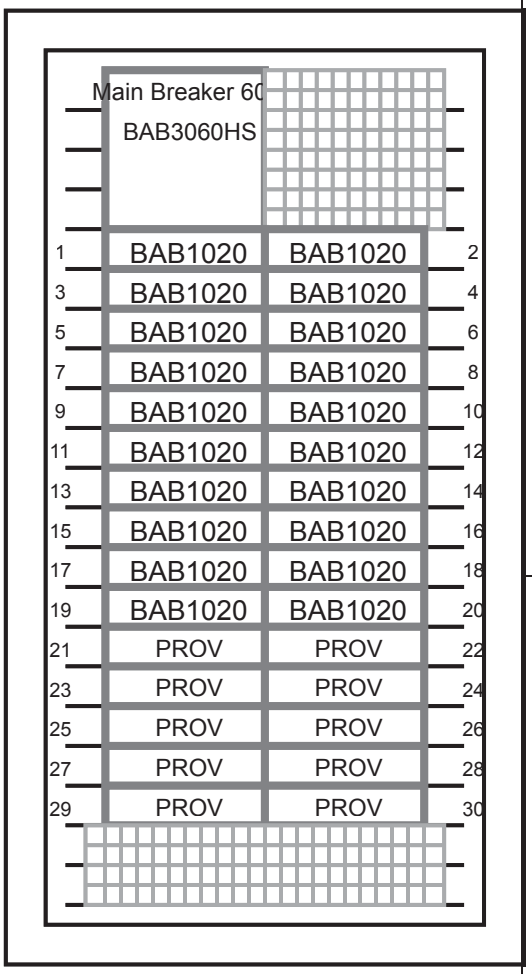
Qty	Poles	Trip	Frame	Amps	kAIC
23	1	20	BAB	100	10
2	3	20	BAB	100	10
1	1	15	BAB	100	10

Main Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	125	EDB	225	10

Notes:

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: FPBSBLV1-1			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 1 of 1



General Information **(Section 1 of 1)**

Service Voltage: 208Y/120V 3Ph 4W **Enclosure:** Type 1
Bus Rating & Type: 100A Aluminum **Neutral Rating:** 100A
Ground Bar: Std. Bolted Aluminum, Al or Cu cable
S.C. Rating: 10k A.I.C. Fully Rated

Main Device Type: Main Breaker - Top Cable Entry
Main Terminals: Mechanical - (1) #8-1/0 (Cu/Al)
Neutral Terminals: Mechanical - (1) #14-1/0 (Cu/Al)
Box Catalog No.: EZB2036R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2036F)

Flush Mounted

Box Dimensions: 36.00" [914.4mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LAB144**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Main Circuit Breaker Trip Type: Thermal-Magnetic.
Heat Loss - Watts (Est.) = 51
Weight - lbs (Est.) = 92

Device Modifications:

Ref #	Description
Main Device Mods:	
BAB Shunt Trip	****BAB Shunt Trip, Included

Branch Devices

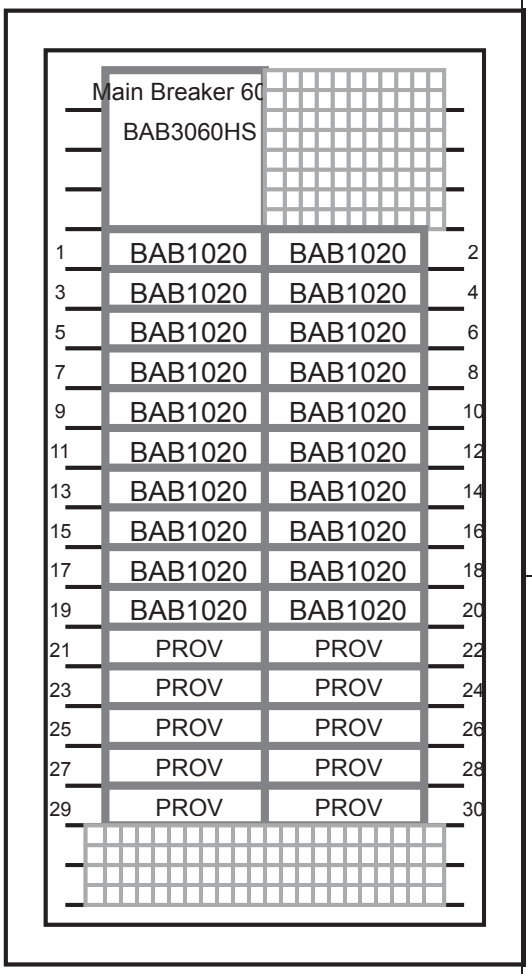
Qty	Poles	Trip	Frame	Amps	kAIC
20	1	20	BAB	100	10
10	1		PROV		

Main Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	60	BAB-H	100	10

Notes:

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LAB144			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.	ITEM	SHEET: 1 of 1



General Information **(Section 1 of 1)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	100A Aluminum	**Neutral Rating:**	100A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	10k A.I.C. Fully Rated		

Main Device Type: Main Breaker - Top Cable Entry
Main Terminals: Mechanical - (1) #8-1/0 (Cu/Al)
Neutral Terminals: Mechanical - (1) #14-1/0 (Cu/Al)
Box Catalog No.: EZB2036R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2036F)

Flush Mounted

Box Dimensions: 36.00" [914.4mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LAB209**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL ***Non-Interchangeable Main Device***

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Main Circuit Breaker Trip Type: Thermal-Magnetic.
Heat Loss - Watts (Est.) = 51
Weight - lbs (Est.) = 92

Device Modifications:

Ref #	Description
Main Device Mods:	
BAB Shunt Trip	****BAB Shunt Trip, Included

Branch Devices

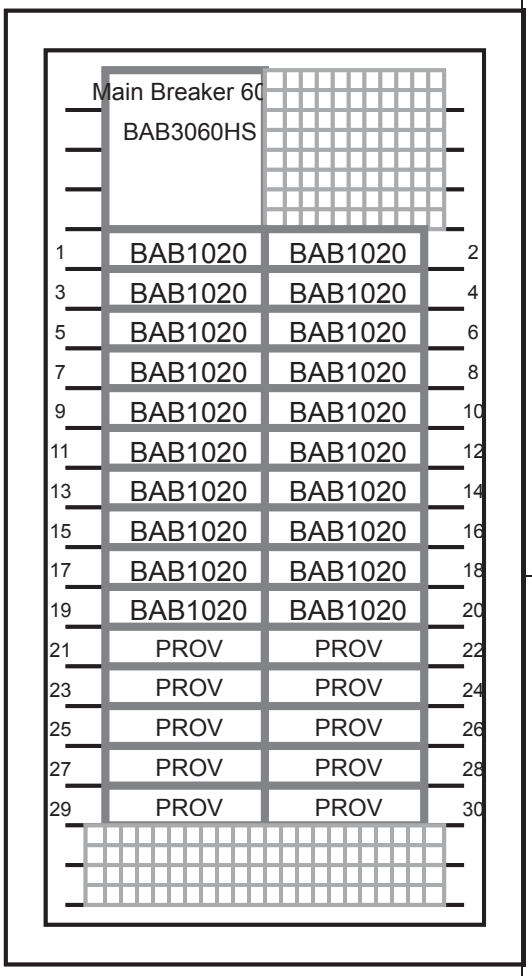
Qty	Poles	Trip	Frame	Amps	kAIC
20	1	20	BAB	100	10
10	1		PROV		

Main Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	60	BAB-H	100	10

Notes:

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LAB209			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.	ITEM	SHEET: 1 of 1



General Information **(Section 1 of 1)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	100A Aluminum	**Neutral Rating:**	100A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	10k A.I.C. Fully Rated		

Main Device Type: Main Breaker - Top Cable Entry
Main Terminals: Mechanical - (1) #8-1/0 (Cu/Al)
Neutral Terminals: Mechanical - (1) #14-1/0 (Cu/Al)
Box Catalog No.: EZB2036R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2036F)

Flush Mounted

Box Dimensions: 36.00" [914.4mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LAB211**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Main Circuit Breaker Trip Type: Thermal-Magnetic.
Heat Loss - Watts (Est.) = 51
Weight - lbs (Est.) = 92

Device Modifications:

Ref #	Description
Main Device Mods:	
BAB Shunt Trip	****BAB Shunt Trip, Included

Branch Devices

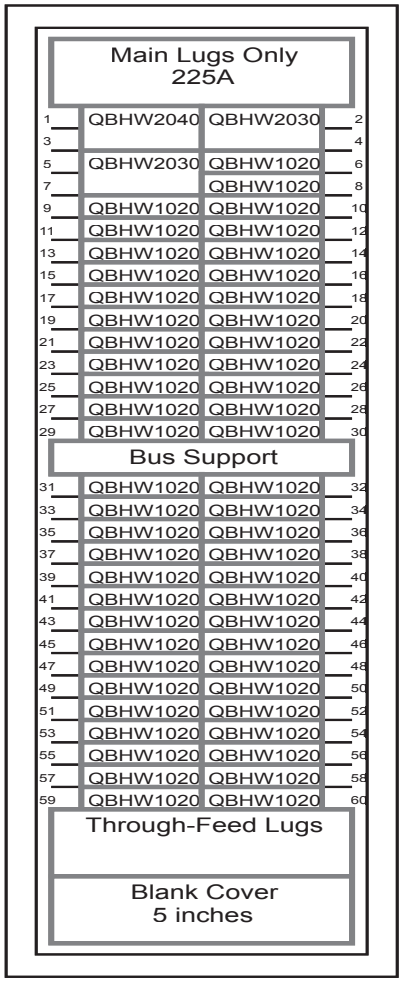
Qty	Poles	Trip	Frame	Amps	kAIC
20	1	20	BAB	100	10
10	1		PROV		

Main Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	60	BAB-H	100	10

Notes:

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LAB211			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.	ITEM	SHEET: 1 of 1



General Information **(Section 1 of 3)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	225A Aluminum	**Neutral Rating:**	225A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	22k A.I.C. Fully Rated		

Main Device Type:	Main Lugs Only - Top Cable Entry
Main Terminals:	Mechanical - (1) #6-300 kcmil (Cu/Al)
Neutral Terminals:	Mechanical - (1) #6-300 kcmil (Cu/Al)
Through-Feed Lugs:	Mechanical - (1) #6-300 kcmil (Cu/Al)
Box Catalog No.:	EZB2060R
Trim:	EZ Trim, Door in Door, Concealed Hardware (EZT2060S)
	Surface Mounted
Box Dimensions:	60.00" [1524.0mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size:	Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm] Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LV1-1**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 117
Weight - lbs (Est.) = 220

Device Modifications:

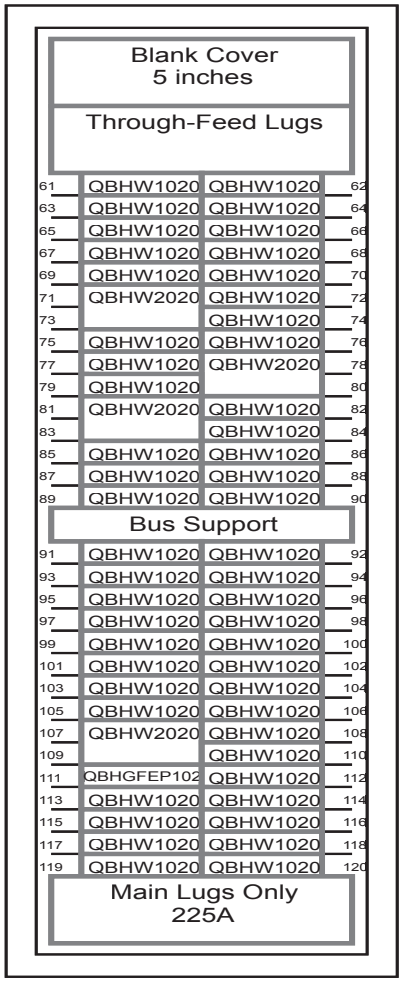
Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
2	2	30	QBHW	100	22
54	1	20	QBHW	100	22
1	2	40	QBHW	100	22

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LV1-1			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 1 of 1



General Information **(Section 2 of 3)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	225A Aluminum	**Neutral Rating:**	225A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	22k A.I.C. Fully Rated		

Main Device Type: Main Lugs Only - Bottom Cable Entry
Main Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Through-Feed Lugs: Mechanical - (1) #6-300 kcmil (Cu/Al)
Box Catalog No.: EZB2060R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2060S)

Surface Mounted

Box Dimensions: 60.00" [1524.0mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LV1-1 (sec 2)**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 117
Weight - lbs (Est.) = 219

Device Modifications:

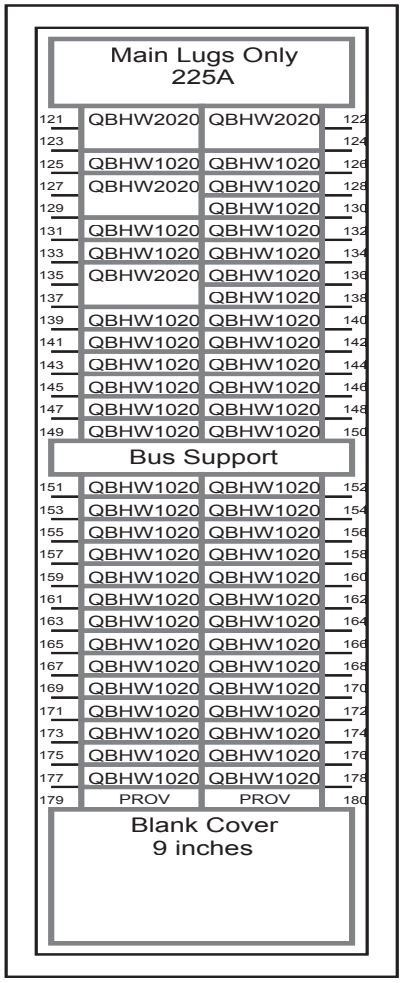
Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
51	1	20	QBHW	100	22
4	2	20	QBHW	100	22
1	1	20	QBHGFEP	100	22

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LV1-1			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 1 of 1



General Information **(Section 3 of 3)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	225A Aluminum	**Neutral Rating:**	225A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	22k A.I.C. Fully Rated		

Main Device Type: Main Lugs Only - Top Cable Entry
Main Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Box Catalog No.: EZB2060R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2060S)

Surface Mounted

Box Dimensions: 60.00" [1524.0mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LV1-1 (sec 3)**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 117
Weight - lbs (Est.) = 213

Device Modifications:

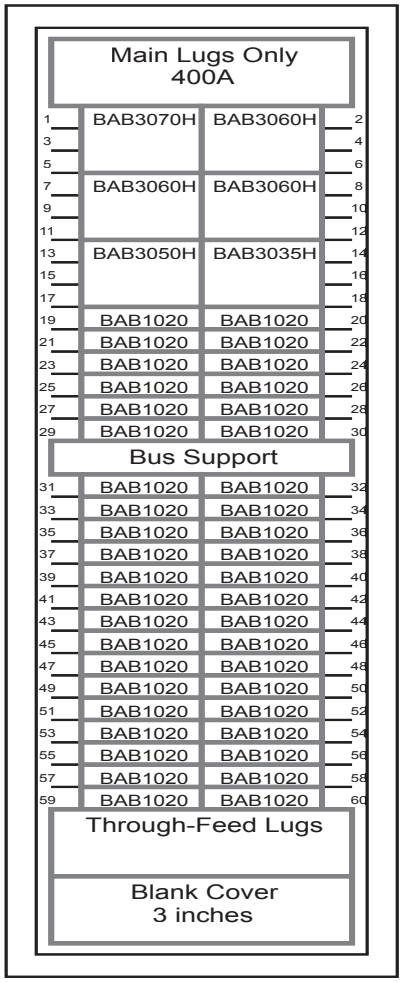
Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
4	2	20	QBHW	100	22
50	1	20	QBHW	100	22
2	1		PROV		

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LV1-1			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 1 of 1



General Information **(Section 1 of 2)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	400A Aluminum	**Neutral Rating:**	400A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	10k A.I.C. Fully Rated		

Main Device Type:	Main Lugs Only - Top Cable Entry
Main Terminals:	Mechanical - (2) #4-500 kcmil (Cu/Al)
Neutral Terminals:	Mechanical - (2) #4-500 kcmil (Cu/Al)
Through-Feed Lugs:	Mechanical - (2) #4-500 kcmil (Cu/Al)
Box Catalog No.:	EZB2072R
Trim:	EZ Trim, Door in Door, Concealed Hardware (EZT2072S)
	Surface Mounted
Box Dimensions:	72.00" [1828.8mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size:	Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm] Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LV1-2**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 252
Weight - lbs (Est.) = 254

Device Modifications:

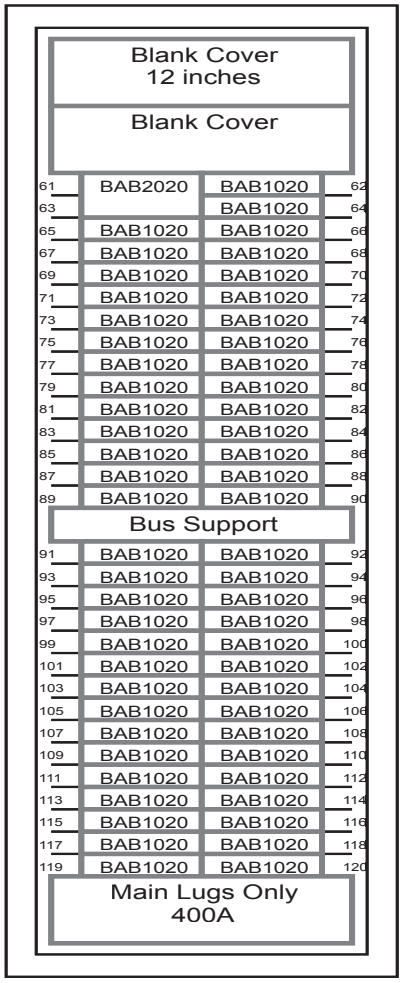
Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	70	BAB	100	10
42	1	20	BAB	100	10
3	3	60	BAB	100	10
1	3	50	BAB	100	10
1	3	35	BAB	100	10

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LV1-2			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 1 of 1



General Information **(Section 2 of 2)**

Service Voltage: 208Y/120V 3Ph 4W **Enclosure:** Type 1
Bus Rating & Type: 400A Aluminum **Neutral Rating:** 400A
Ground Bar: Std. Bolted Aluminum, Al or Cu cable
S.C. Rating: 10k A.I.C. Fully Rated

Main Device Type: Main Lugs Only - Bottom Cable Entry
Main Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Box Catalog No.: EZB2072R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2072S)

Surface Mounted

Box Dimensions: 72.00" [1828.8mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LV1-2 (sec 2)**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 252
Weight - lbs (Est.) = 257

Device Modifications:

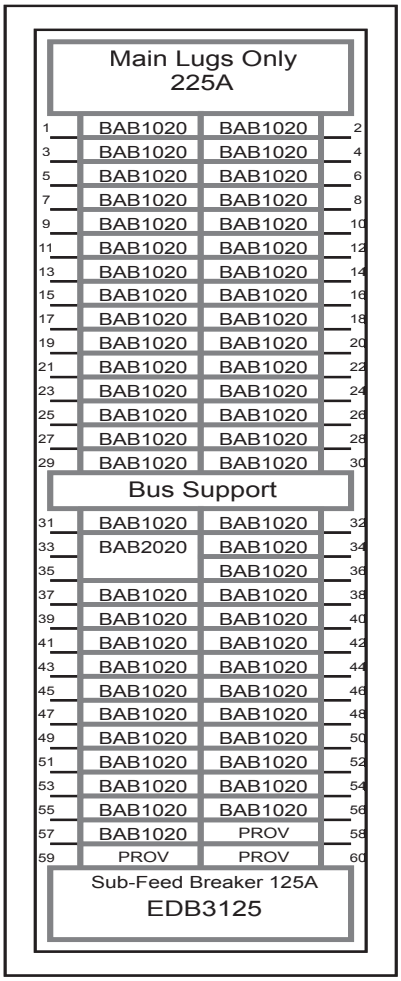
Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	2	20	BAB	100	10
58	1	20	BAB	100	10

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LV1-2			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 1 of 1



General Information **(Section 1 of 1)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	225A Aluminum	**Neutral Rating:**	225A
Ground Bar:	Std. Bolted Copper, Cu cable only		
S.C. Rating:	10k A.I.C. Fully Rated		

Main Device Type: Main Lugs Only - Top Cable Entry
Main Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Sub-Feed Breaker: Mechanical - (1) #4-4/0 (Cu/Al)
Box Catalog No.: EZB2060R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2060F)

Flush Mounted

Box Dimensions: 60.00" [1524.0mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LV1-3**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 117
Weight - lbs (Est.) = 221

Device Modifications:

Ref #	Description

Notes:

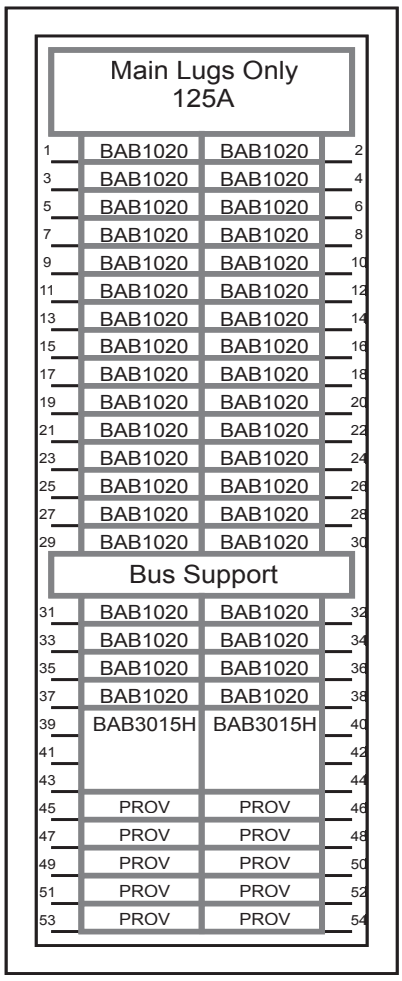
Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
55	1	20	BAB	100	10
1	2	20	BAB	100	10
3	1		PROV		

Sub-Feed Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	125	EDB	225	10

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**	
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools	
		DESIGNATION: LV1-3	
VERSION: 1.0.0.22		TYPE: PRL1a	DRAWING TYPE: Customer Approval
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0 / DWG SIZE: A	G.O.	ITEM / SHEET: 1 of 1



General Information **(Section 1 of 1)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	225A Aluminum	**Neutral Rating:**	225A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	10k A.I.C. Fully Rated		

Main Device Type: Main Lugs Only - Top Cable Entry
Main Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Box Catalog No.: EZB2048R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2048S)

Surface Mounted

Box Dimensions: 48.00" [1219.2mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LV1-4**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 68
Weight - lbs (Est.) = 175

Device Modifications:

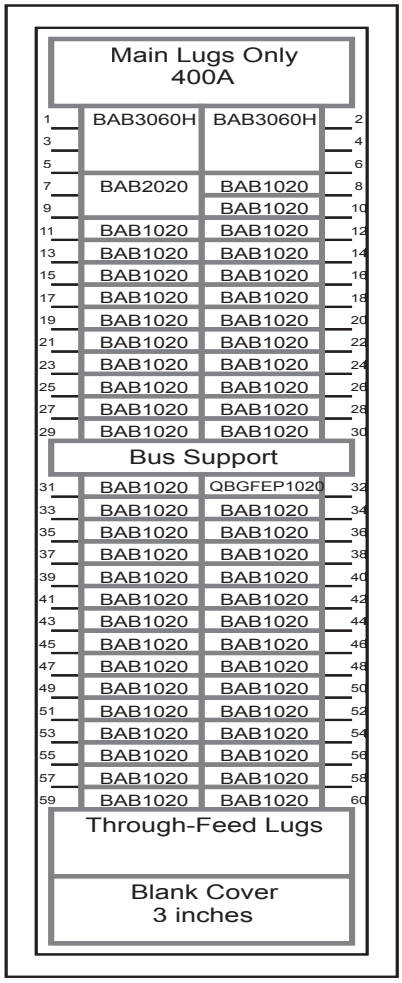
Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
2	3	15	BAB	100	10
38	1	20	BAB	100	10
10	1		PROV		

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**	
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools	
		DESIGNATION: LV1-4	
VERSION: 1.0.0.22		TYPE: PRL1a	DRAWING TYPE: Customer Approval
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0 / DWG SIZE: A	G.O.	ITEM / SHEET: 1 of 1



General Information **(Section 1 of 3)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	400A Aluminum	**Neutral Rating:**	400A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	10k A.I.C. Fully Rated		

Main Device Type: Main Lugs Only - Top Cable Entry
Main Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Through-Feed Lugs: Mechanical - (2) #4-500 kcmil (Cu/Al)
Box Catalog No.: EZB2072R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2072S)

Surface Mounted

Box Dimensions: 72.00" [1828.8mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LV2-1**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 252
Weight - lbs (Est.) = 261

Device Modifications:

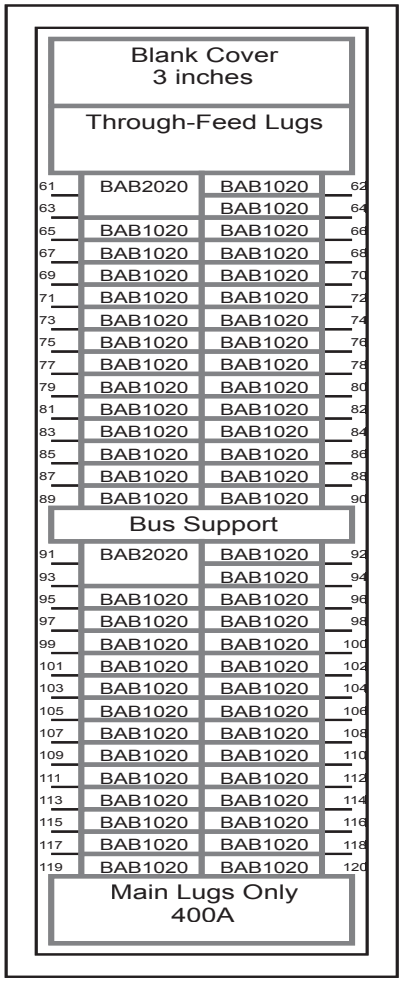
Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
51	1	20	BAB	100	10
1	1	20	QBGFEP	100	10
2	3	60	BAB	100	10
1	2	20	BAB	100	10

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LV2-1			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 1 of 1



General Information **(Section 2 of 3)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	400A Aluminum	**Neutral Rating:**	400A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	10k A.I.C. Fully Rated		

Main Device Type: Main Lugs Only - Bottom Cable Entry
Main Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Through-Feed Lugs: Mechanical - (2) #4-500 kcmil (Cu/Al)
Box Catalog No.: EZB2072R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2072S)

Surface Mounted

Box Dimensions: 72.00" [1828.8mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LV2-1 (sec 2)**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 252
Weight - lbs (Est.) = 264

Device Modifications:

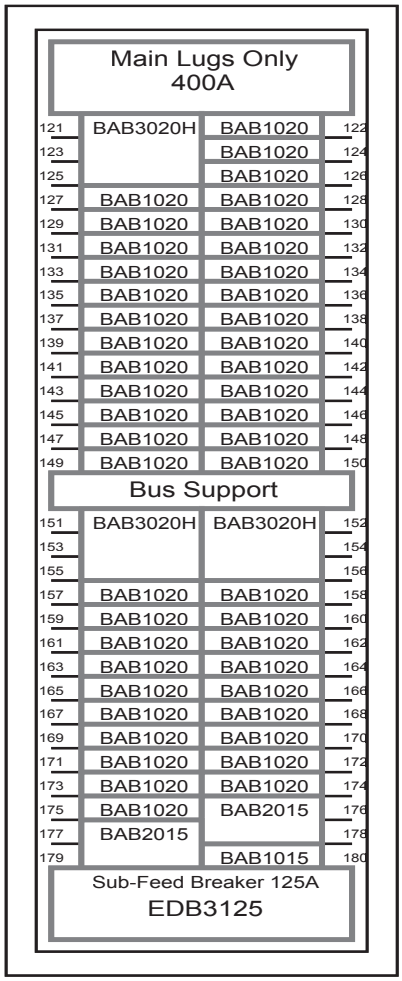
Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
56	1	20	BAB	100	10
2	2	20	BAB	100	10

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LV2-1			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 1 of 1



General Information **(Section 3 of 3)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	400A Aluminum	**Neutral Rating:**	400A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	10k A.I.C. Fully Rated		

Main Device Type: Main Lugs Only - Top Cable Entry
Main Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (2) #4-500 kcmil (Cu/Al)
Sub-Feed Breaker: Mechanical - (1) #4-4/0 (Cu/Al)
Box Catalog No.: EZB2072R
Trim: EZ Trim, Door in Door, Concealed Hardware (EZT2072S)

Surface Mounted

Box Dimensions: 72.00" [1828.8mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) LV2-1 (sec 3)**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Heat Loss - Watts (Est.) = 252
Weight - lbs (Est.) = 250

Device Modifications:

Ref #	Description

Notes:

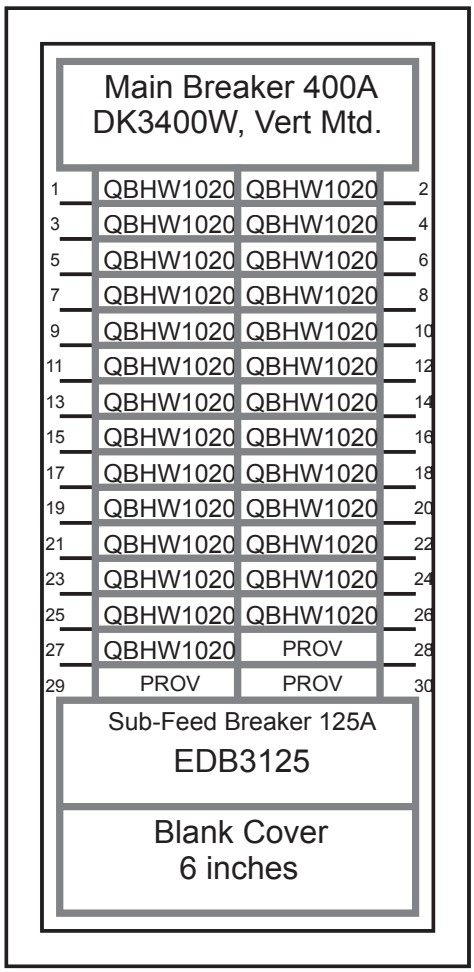
Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
46	1	20	BAB	100	10
3	3	20	BAB	100	10
1	1	15	BAB	100	10
2	2	15	BAB	100	10

Sub-Feed Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	125	EDB	225	10

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**			
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools			
		DESIGNATION: LV2-1			
VERSION: 1.0.0.22		TYPE: PRL1a		DRAWING TYPE: Customer Approval	
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0	DWG SIZE: A	G.O.:	ITEM:	SHEET: 1 of 1



General Information **(Section 1 of 1)**

Service Voltage:	208Y/120V 3Ph 4W	**Enclosure:**	Type 1
Bus Rating & Type:	400A Aluminum	**Neutral Rating:**	400A
Ground Bar:	Std. Bolted Aluminum, Al or Cu cable		
S.C. Rating:	22k A.I.C. Fully Rated		

Main Device Type:	Main Breaker - Top Cable Entry
Main Terminals:	Mechanical - (1) 2/0-500 kcmil (Cu/Al)
Neutral Terminals:	Mechanical - (2) #4-500 kcmil (Cu/Al)
Sub-Feed Breaker:	Mechanical - (1) #4-4/0 (Cu/Al)
Box Catalog No.:	EZB2072R
Trim:	EZ Trim, Door in Door, Concealed Hardware (EZT2072S)
	Surface Mounted
Box Dimensions:	72.00" [1828.8mm]H x 20.00" [508.0mm]W x 5.75" [146.1mm]D
Min. Gutter Size:	Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm] Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) SBLVB-1**
Type: Plastic, adhesive-backed **(2) 208Y/120V 3Ph 4W**
Color: White with Black Letters **(3)**

UL *****Non-Interchangeable Main Device*****

Trim Lock: Standard Lock & Key (Keyed WEM2)
Circuit Directory: Plastic Sleeve with Card
Main Circuit Breaker Trip Type: Thermal-Magnetic.
Heat Loss - Watts (Est.) = 252
Weight - lbs (Est.) = 182

Device Modifications:

Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
27	1	20	QBHW	100	22
3	1		PROV		

Sub-Feed Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	125	EDB	225	22

Main Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	400	DK	400	22

PREPARED BY: SEAN GOVEY	DATE: 6/26/2018	**Eaton**	
APPROVED BY:	DATE:	JOB NAME: North Stonington Schools	
		DESIGNATION: SBLVB-1	
VERSION: 1.0.0.22		TYPE: PRL1a	DRAWING TYPE: Customer Approval
NEG-ALT Number: V0880216X8K1-0006	REVISION: 0 / DWG SIZE: A	G.O.	ITEM / SHEET: 1 of 1

Technical Documents

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 baked-on 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 flush-mounted 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.

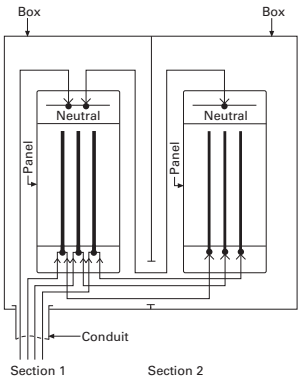
Note: Sub-feed or through-feed lugs cannot be used on any panelboard that is not protected by a single main overcurrent device either in the panelboard or immediately upstream, i.e., service entrance panelboards with main lugs only using the six disconnect rule.

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

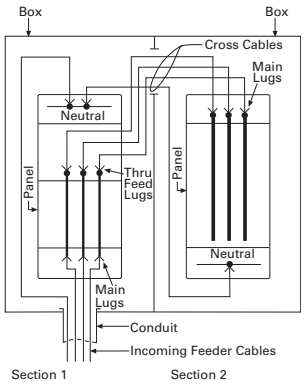


Through-Feed Lugs

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 through-feed 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.

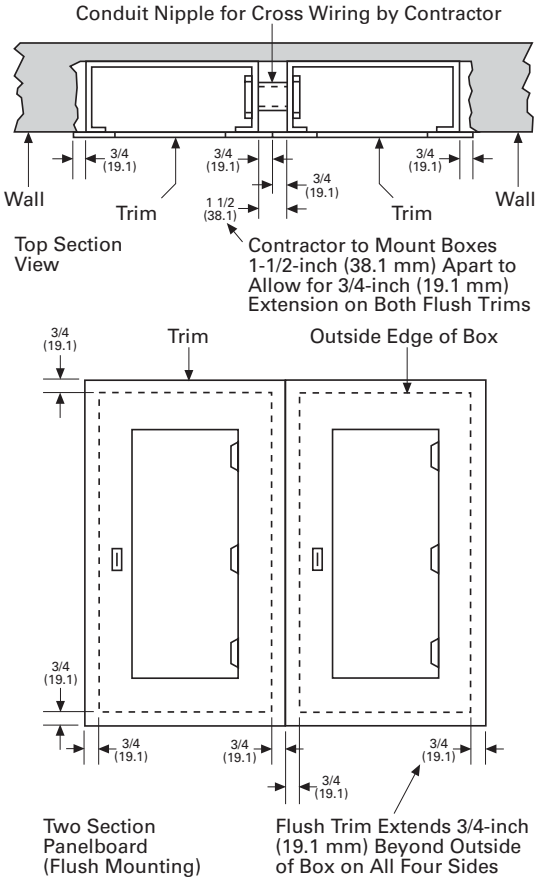
Through-Feed Lugs



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.

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.

Pow-R-Line 4

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 I Class I
  - Fusible Switch—Type II Class I

UL Listed

Technical Data and Specifications

Panelboard Selection Guide

Panelboard Type	Device Type	Maximum Voltage Rating AC	DC	Maximum Main Rating (Amperes) MLO	Main Device	Branch Circuits Ampere Range	Sub-Feed Breaker Maximum Amperes	AC Interrupting Capacity rms Symmetrical Amperes (kA) Fully Rated	Series Rated
PRL1a	Breaker	240	—	400	400	15–100	400	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	400	400	15–100	400	65	65–200
	Breaker	480Y/277	250	400	400	15–100	400	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	—
PRC100 PRC25	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.

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 Circuit Breaker Terminals

Breaker Type	Ampere Rating	Wire Range
BAB, QBHW, BABRSP, HQP, QPHW	15–70	#14–#4
	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, HFD, FDC, HFDDC ②	15–100	#14–1/0
	125–225	#4–4/0
FCL	15–100	#14–1/0
GHB, HGHB, GHQ, GHQRSP	15–20	#14–#10
	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, HKD, KDC, HKDDC, ② CKD, CHKD	225	(1) #3–350 kcmil
	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, LGU, LHH ①	250–400	(1) #2–500 kcmil
	500–600	(2) #2–500 kcmil
LD, HLD, LDC, HLDDC ② CLD, CHLD	300–500	(2) 250–350 kcmil
	600	(2) 400–500 kcmil
MDL, HMDL, HMDLDC ② CMDL, CHMDL	400–600	(2) #1–500 kcmil
	700–800	(3) 3/0–400 kcmil
ND, HND, CND, CHND, NDC, CNDC	800–1000	(3) 3/0–400 kcmil
	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

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

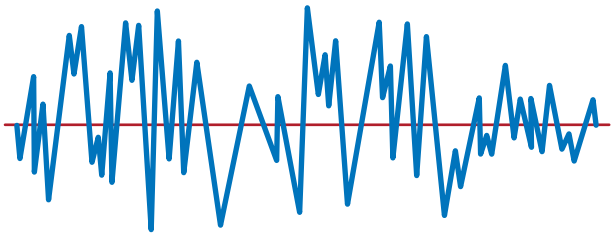
Notes

① LHH is 400A maximum.

② Suitable for DC applications only.

Powering Business Worldwide

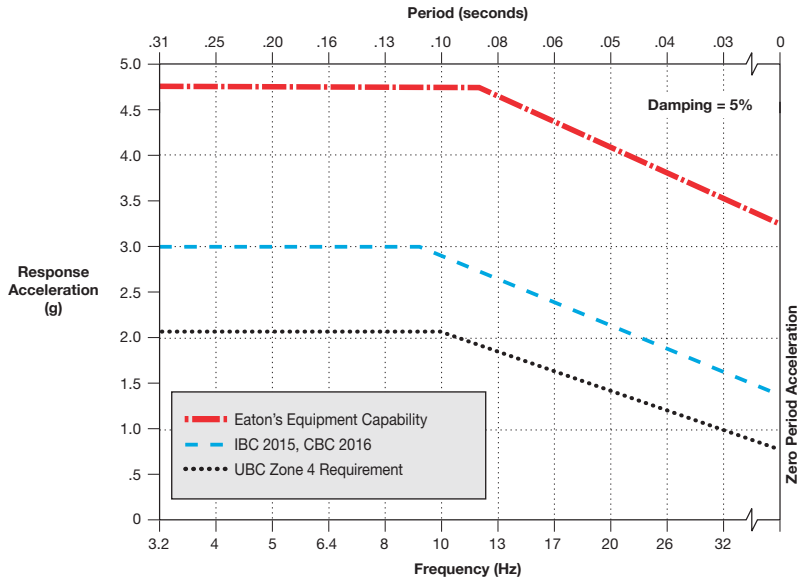
Seismic qualified



Eaton's equipment identified below was tested for seismic withstand capability and tested in accordance with the combined requirements specified in the International Building Code, the California Building Code, and the Uniform Building Code.

As required by the codes, the equipment demonstrated its ability to function after the seismic tests. The seismic capability of the equipment exceeds the worst-case required levels, as illustrated in the figure below.

Pow-R-Line® 1a, 1aF, 1a-LX, 2a, 2aF, 2a-LX, 3a, 3E, 4, 5P, and F-16 Panelboards



The frequency sweep tests revealed that the lowest equipment natural frequency is:

N/A (Wall-Mounted)

Drawing Number SA015002EN

William V. Joerger, S.E.
ISAT

3RD PARTY TEST ENGINEER IN CHARGE

TESTED BY
Wyle Laboratories
April, 2013–70566R12

For interpretation of testing data, refer to Eaton Publication SA12501SE

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Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

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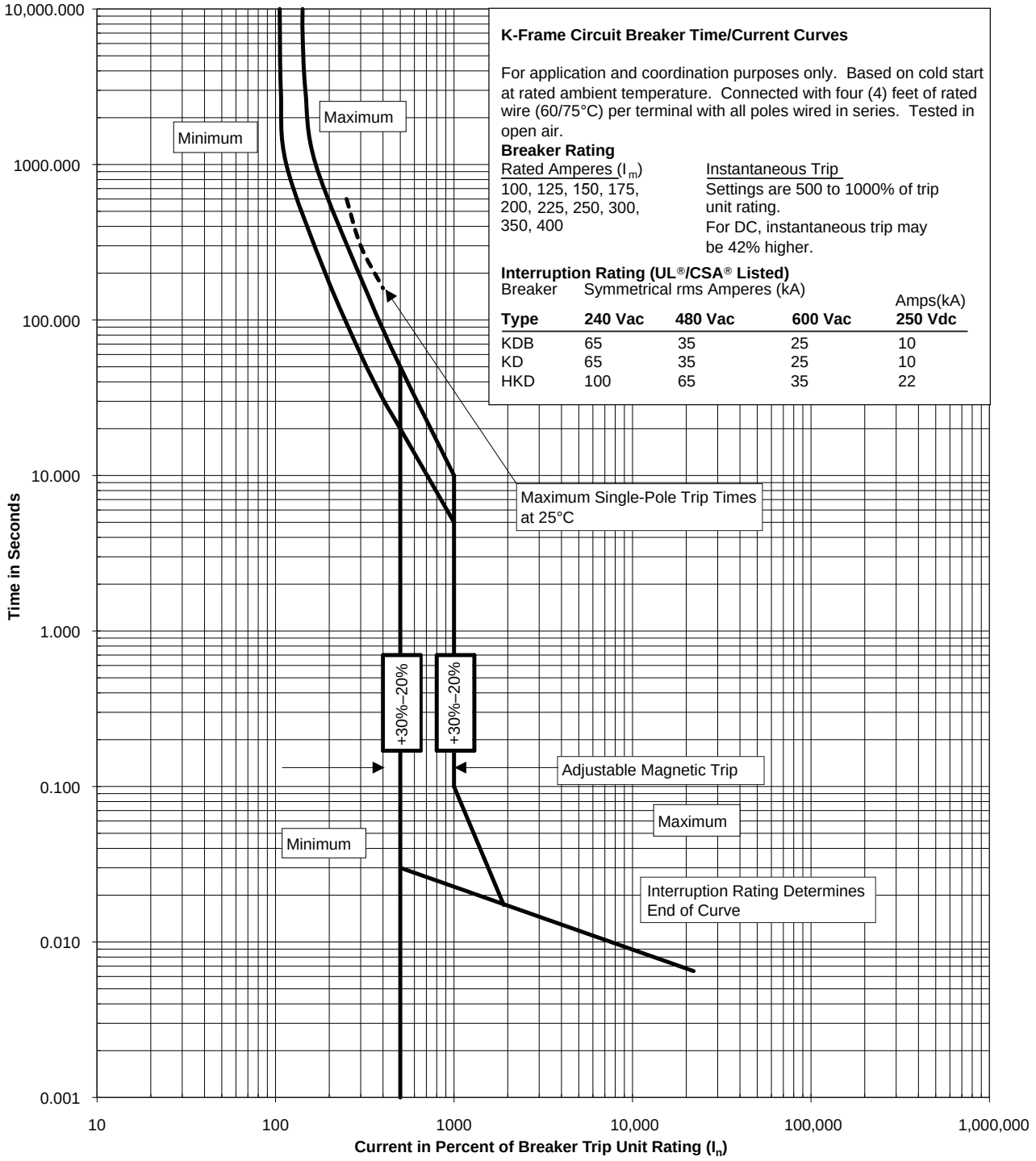

K-Frame Circuit Breaker Time/Current Curves

For application and coordination purposes only. Based on cold start at rated ambient temperature. Connected with four (4) feet of rated wire (60/75°C) per terminal with all poles wired in series. Tested in open air.

Breaker Rating

Rated Amperes (I_m)	Instantaneous Trip
100, 125, 150, 175, 200, 225, 250, 300, 350, 400	Settings are 500 to 1000% of trip unit rating. For DC, instantaneous trip may be 42% higher.

Interruption Rating (UL®/CSA® Listed)

Breaker	Symmetrical rms Amperes (kA)			Amps(kA)
Type	**240 Vac**	**480 Vac**	**600 Vac**	**250 Vdc**
KDB	65	35	25	10
KD	65	35	25	10
HKD	100	65	35	22

Figure 2. Series C Types KDB, KD, HKD Circuit Breakers Equipped with Type KT Thermal-Magnetic Trip Unit

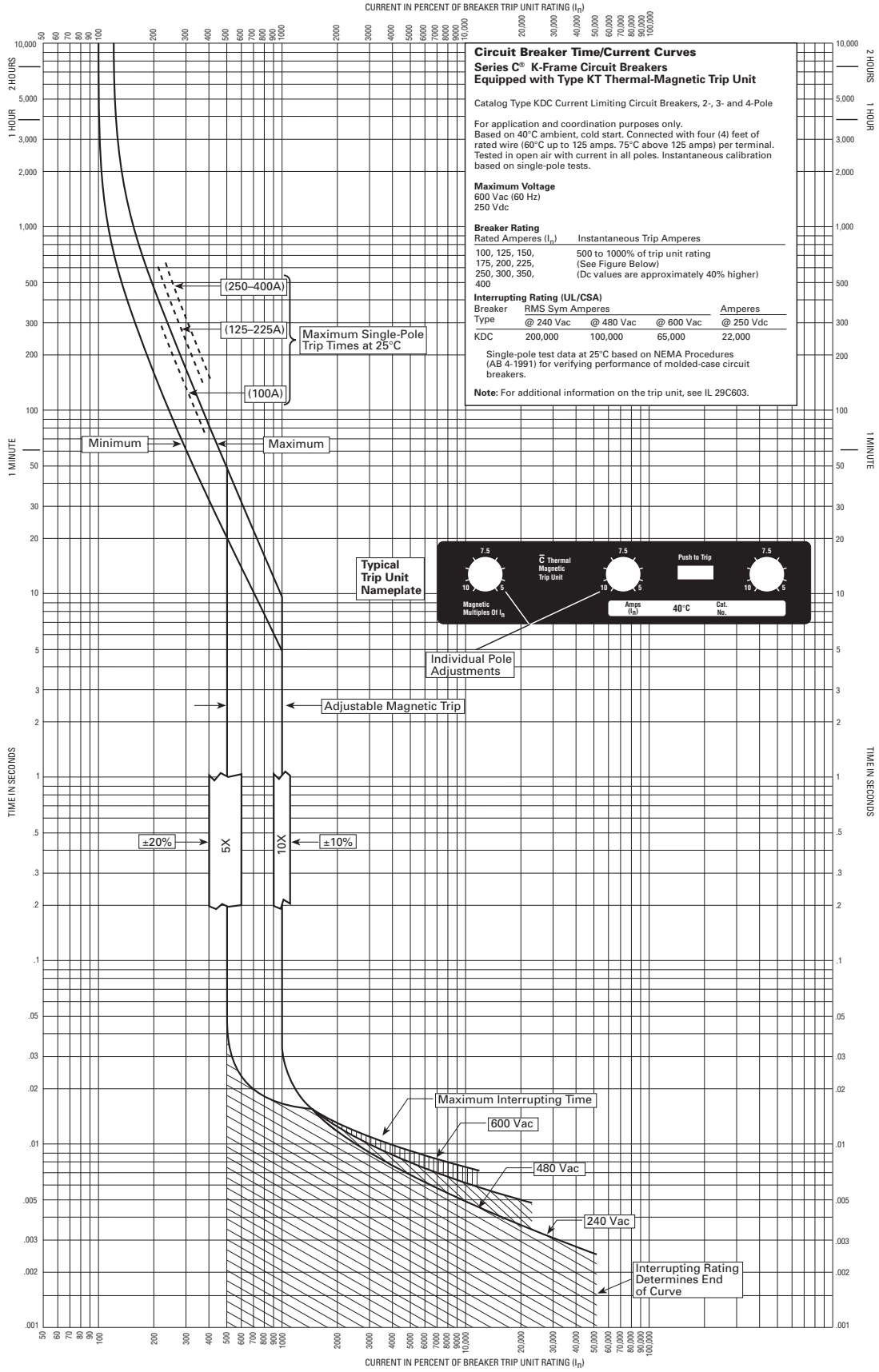

Figure 3. Series C Type KDC Circuit Breakers Equipped with Type KT Thermal-Magnetic Trip Unit

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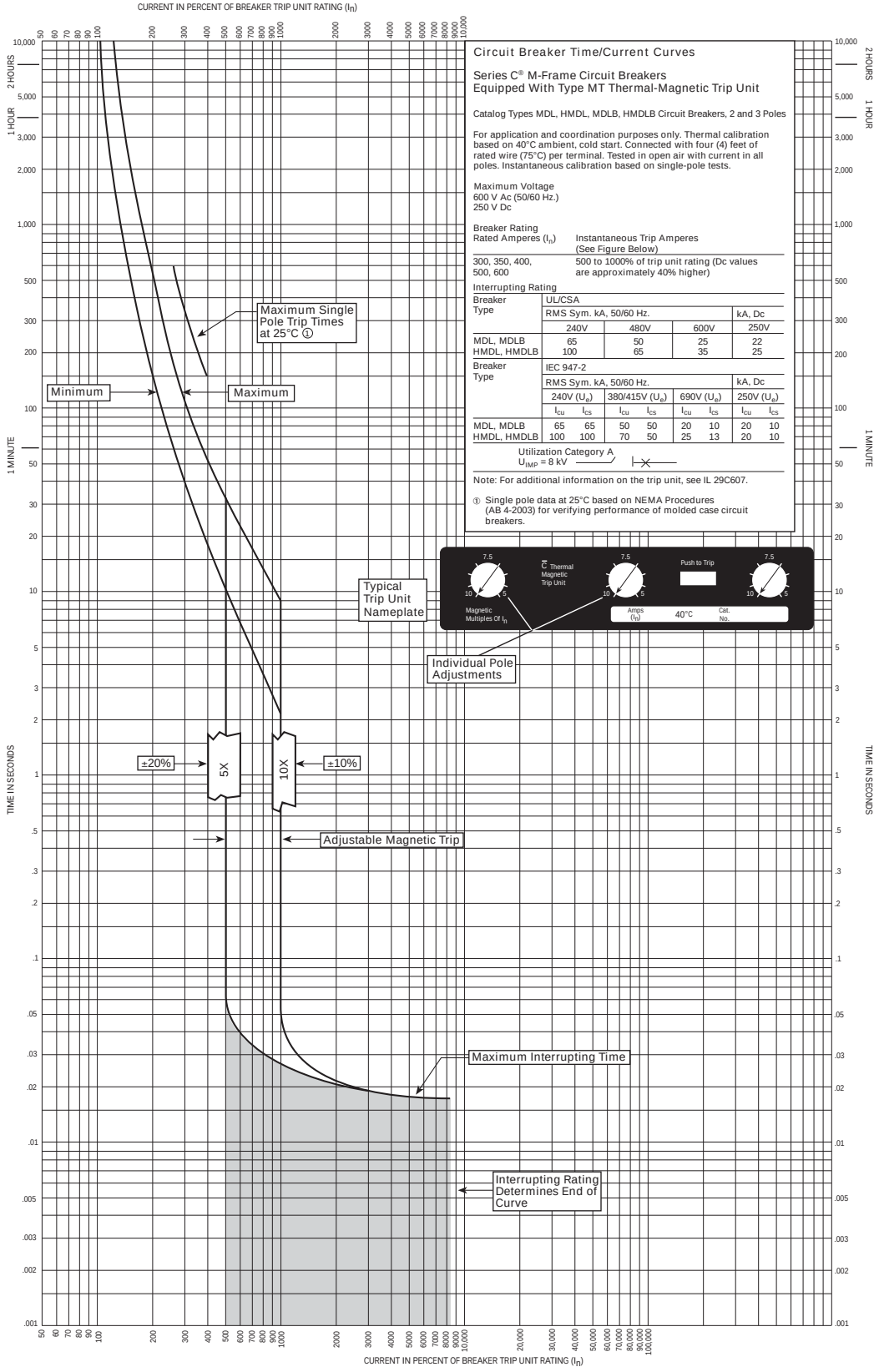
Types MDL, HMDL, MDLB, and HMDLB Equipped with Type MT Thermal-Magnetic Trip Unit, 300 to 600 Amperes



Circuit Breaker Time/Current Curves

Series C® M-Frame Circuit Breakers
Equipped With Type MT Thermal-Magnetic Trip Unit

Catalog Types MDL, HMDL, MDLB, HMDLB Circuit Breakers, 2 and 3 Poles

For application and coordination purposes only. Thermal calibration based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (75°C) per terminal. Tested in open air with current in all poles. Instantaneous calibration based on single-pole tests.

Maximum Voltage
600 V Ac (50/60 Hz.)
250 V Dc

Breaker Rating Rated Amperes (I_n)	Instantaneous Trip Amperes (See Figure Below)
300, 350, 400, 500, 600	500 to 1000% of trip unit rating (Dc values are approximately 40% higher)

Interrupting Rating

Breaker Type	UL/CSA							
	RMS Sym. kA, 50/60 Hz.						kA, Dc	
	240V		480V		600V		250V	
MDL, MDLB	65		50		25		22	
HMDL, HMDLB	100		65		35		25	
Breaker Type	IEC 947-2							
	RMS Sym. kA, 50/60 Hz.						kA, Dc	
	240V (U_e)		380/415V (U_e)		690V (U_e)		250V (U_e)	
	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
MDL, MDLB	65	65	50	50	20	10	20	10
HMDL, HMDLB	100	100	70	50	25	13	20	10

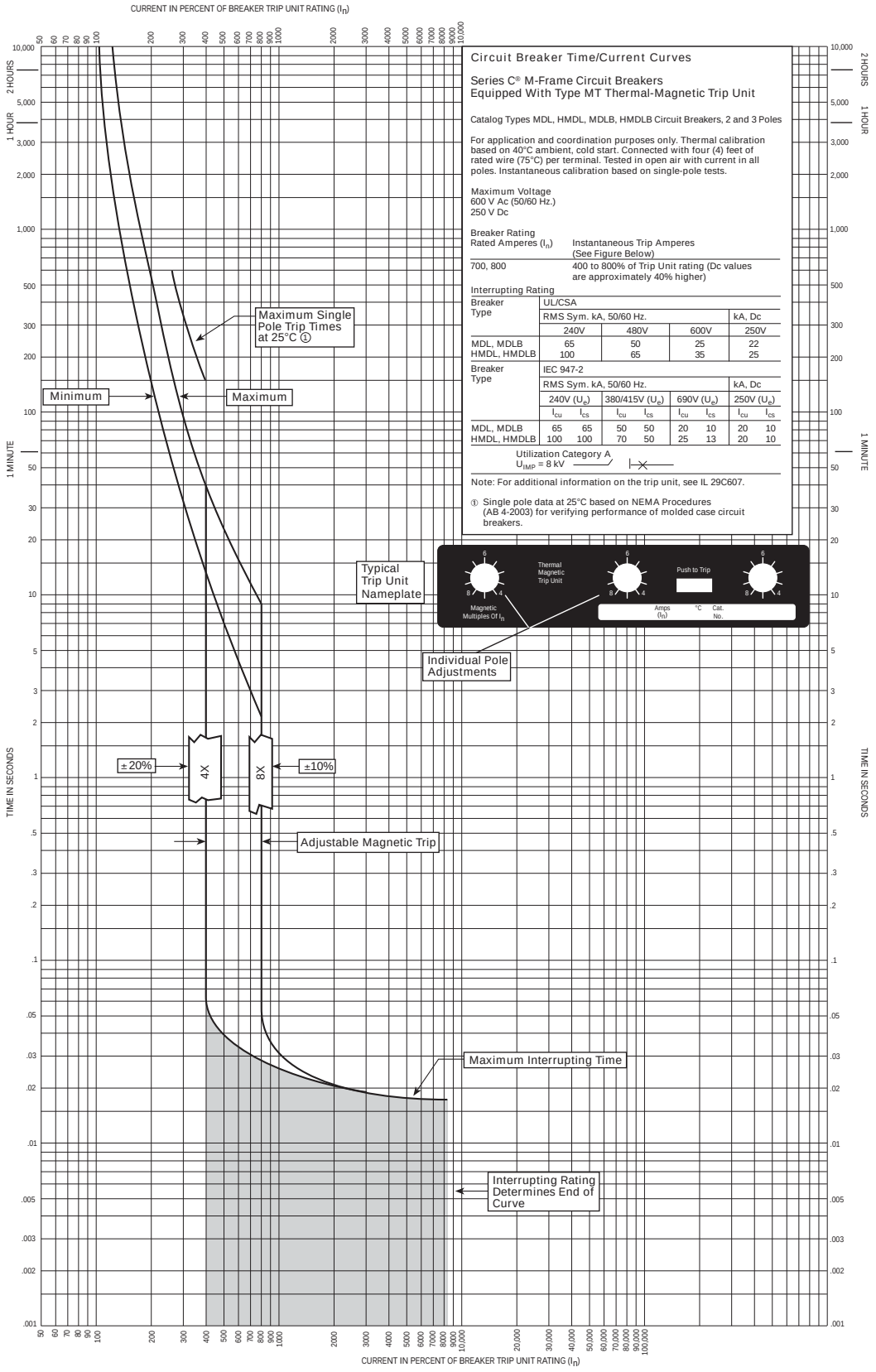
Utilization Category A
U_{IMP} = 8 kV

Note: For additional information on the trip unit, see IL 29C607.

① Single pole data at 25°C based on NEMA Procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Curve No. SC-6911-98

Types MDL, HMDL, MDLB, and HMDLB Equipped with Type MT Thermal-Magnetic Trip Unit, 700 and 800 Amperes



Circuit Breaker Time/Current Curves

Series C® M-Frame Circuit Breakers
Equipped With Type MT Thermal-Magnetic Trip Unit

Catalog Types MDL, HMDL, MDLB, HMDLB Circuit Breakers, 2 and 3 Poles

For application and coordination purposes only. Thermal calibration based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (75°C) per terminal. Tested in open air with current in all poles. Instantaneous calibration based on single-pole tests.

Maximum Voltage
600 V Ac (50/60 Hz.)
250 V Dc

Breaker Rating Rated Amperes (I_n)	Instantaneous Trip Amperes (See Figure Below)
700, 800	400 to 800% of Trip Unit rating (Dc values are approximately 40% higher)

Interrupting Rating

Breaker Type	UL/CSA							
	RMS Sym. kA, 50/60 Hz.						kA, Dc	
	240V		480V		600V		250V	
MDL, MDLB	65		50		25		22	
HMDL, HMDLB	100		65		35		25	
Breaker Type	IEC 947-2							
	RMS Sym. kA, 50/60 Hz.						kA, Dc	
	240V (U_e)		380/415V (U_e)		690V (U_e)		250V (U_e)	
	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
MDL, MDLB	65	65	50	50	20	10	20	10
HMDL, HMDLB	100	100	70	50	25	13	20	10

Utilization Category A
U_{IMP} = 8 kV

Note: For additional information on the trip unit, see IL 29C607.

① Single pole data at 25°C based on NEMA Procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Curve No. SC-6912-98

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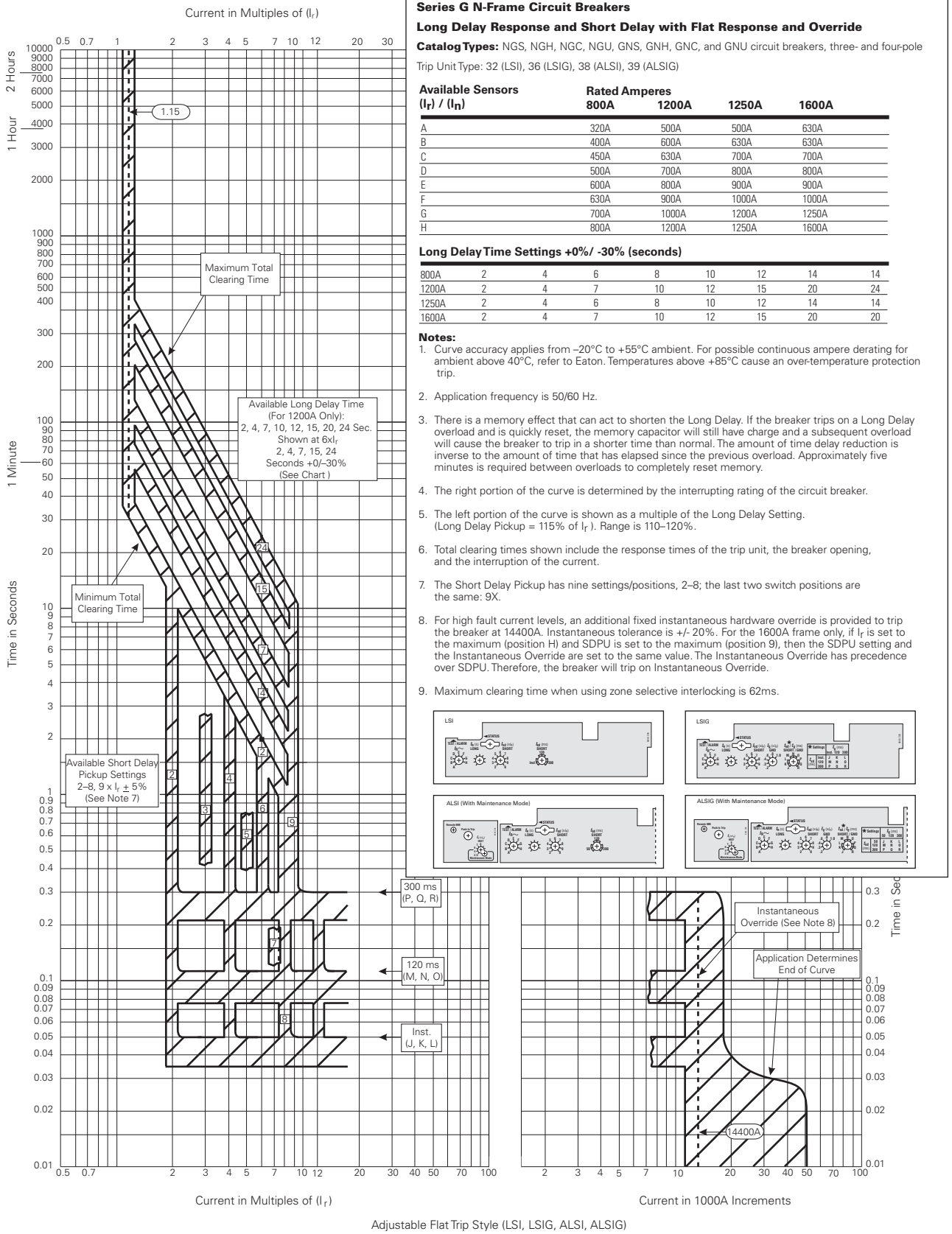


Digitrip 310+ Circuit Breaker Time/Current Curves (Phase Current)

Series G N-Frame Circuit Breakers

Long Delay Response and Short Delay with Flat Response and Override

Catalog Types: NGS, NGH, NGC, NGU, GNS, GNH, GNC, and GNU circuit breakers, three- and four-pole

Trip Unit Type: 32 (LSI), 36 (LSIG), 38 (ALSI), 39 (ALSIG)

Available Sensors (I_r) / (I_n)	Rated Amperes 800A	1200A	1250A	1600A
A	320A	500A	500A	630A
B	400A	600A	630A	630A
C	450A	630A	700A	700A
D	500A	700A	800A	800A
E	600A	800A	900A	900A
F	630A	900A	1000A	1000A
G	700A	1000A	1200A	1250A
H	800A	1200A	1250A	1600A

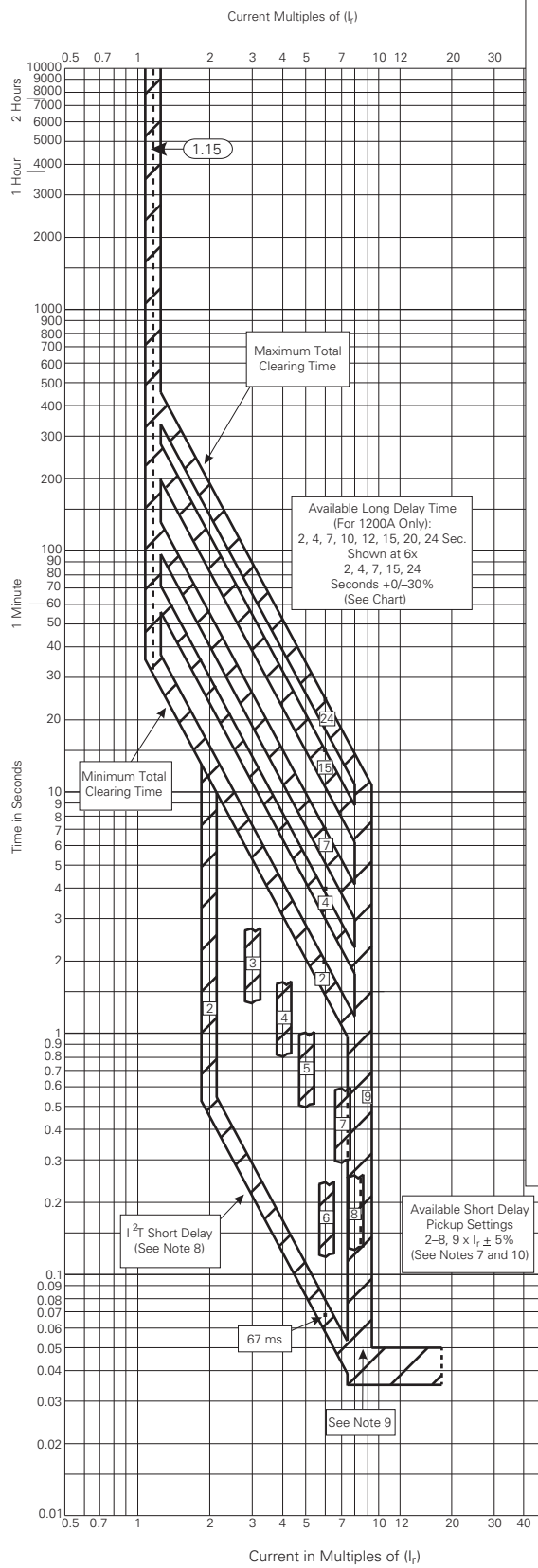
Long Delay Time Settings +0%/ -30% (seconds)

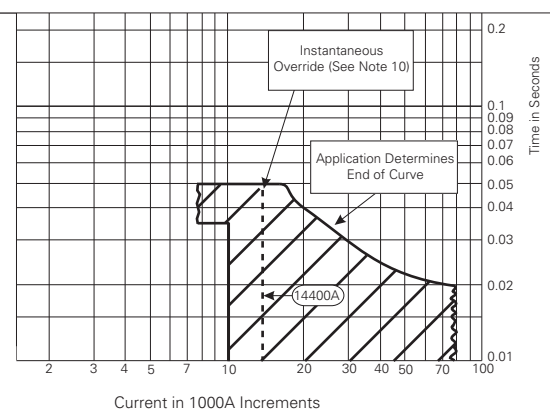
800A	2	4	6	8	10	12	14	14
1200A	2	4	7	10	12	15	20	24
1250A	2	4	6	8	10	12	14	14
1600A	2	4	7	10	12	15	20	20

Notes:

1. Curve accuracy applies from –20°C to +55°C ambient. For possible continuous ampere derating for ambient above 40°C, refer to Eaton. Temperatures above +85°C cause an over-temperature protection trip.
2. Application frequency is 50/60 Hz.
3. There is a memory effect that can act to shorten the Long Delay. If the breaker trips on a Long Delay overload and is quickly reset, the memory capacitor will still have charge and a subsequent overload will cause the breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately five minutes is required between overloads to completely reset memory.
4. The right portion of the curve is determined by the interrupting rating of the circuit breaker.
5. The left portion of the curve is shown as a multiple of the Long Delay Setting. (Long Delay Pickup = 115% of I_r). Range is 110–120%.
6. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
7. The Short Delay Pickup has nine settings/positions, 2–8; the last two switch positions are the same: 9X.
8. For high fault current levels, an additional fixed instantaneous hardware override is provided to trip the breaker at 14400A. Instantaneous tolerance is +/- 20%. For the 1600A frame only, if I_r is set to the maximum (position H) and SDPU is set to the maximum (position 9), then the SDPU setting and the Instantaneous Override are set to the same value. The Instantaneous Override has precedence over SDPU. Therefore, the breaker will trip on Instantaneous Override.
9. Maximum clearing time when using zone selective interlocking is 62ms.

Figure 2. Digitrip 310+ Long Delay Response and Short Delay with Flat Response and Override Curve (LSI, LSIG, ALSI, ALSIG) - Curve Number TC01210010E, March 2012





I^2T Trip Style (LS and LSG)

Digitrip 310+ Circuit Breaker Time/Current Curves (Phase Current)

Series G N-Frame Circuit Breakers

Long Delay Response and Short Delay with I^2T Response Curve and Override

Catalog Types: NGS, NGH, NGC, NGU, GNS, GNH, GNC, and GNU circuit breakers, three- and four-pole

Trip Unit Type: 33 (LS), 35 (LSG)

Available Sensors (I_r) / (I_n)	**Rated Amperes 800A**	**1200A**	**1250A**	**1600A**
A	320A	500A	500A	630A
B	400A	600A	630A	630A
C	450A	630A	700A	700A
D	500A	700A	800A	800A
E	600A	800A	900A	900A
F	630A	900A	1000A	1000A
G	700A	1000A	1200A	1250A
H	800A	1200A	1250A	1600A

Long Delay Time Settings +0%/ -30% (seconds)

800A	2	4	6	8	10	12	14	14
1200A	2	4	7	10	12	15	20	24
1250A	2	4	6	8	10	12	14	14
1600A	2	4	7	10	12	15	20	20

Notes:

1. Curve accuracy applies from –20°C to +55°C ambient. For possible continuous ampere derating for ambient above 40°C, refer to Eaton. Temperatures above +85°C cause an over-temperature protection trip.
2. Application frequency is 50/60 Hz.
3. There is a memory effect that can act to shorten the Long Delay. If the breaker trips on a Long Delay overload and is quickly reset, the memory capacitor will still have charge and a subsequent overload will cause the breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately five minutes is required between overloads to completely reset memory.
4. The right portion of the curve is determined by the interrupting rating of the circuit breaker.
5. The left portion of the curve is shown as a multiple of the Long Delay Setting. (Long Delay Pickup = 115% of I_r). Range is 110–120%.
6. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
7. The Short Delay Pickup has nine settings/positions, 2–8; the last two switch positions are the same: 9X.
8. Short Delay I^2T band has a tolerance of +15%.
9. Breakpoint back to FLAT response occurs @ 8x I_r for upper line of the I^2T curve.
10. For high fault current levels, an additional fixed instantaneous hardware override is provided to trip the breaker at 14400A. Instantaneous tolerance is +/- 20%. For the 1600A frame only, if I_r is set to the maximum (position H) and SDPU is set to the maximum (position 9), then the SDPU setting and the Instantaneous Override are set to the same value. The Instantaneous Override has precedence over SDPU. Therefore, the breaker will trip on Instantaneous Override.
11. Maximum clearing time when using zone selective interlocking is 62ms.

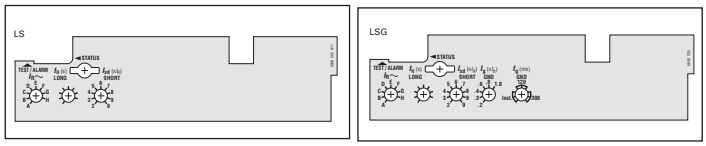
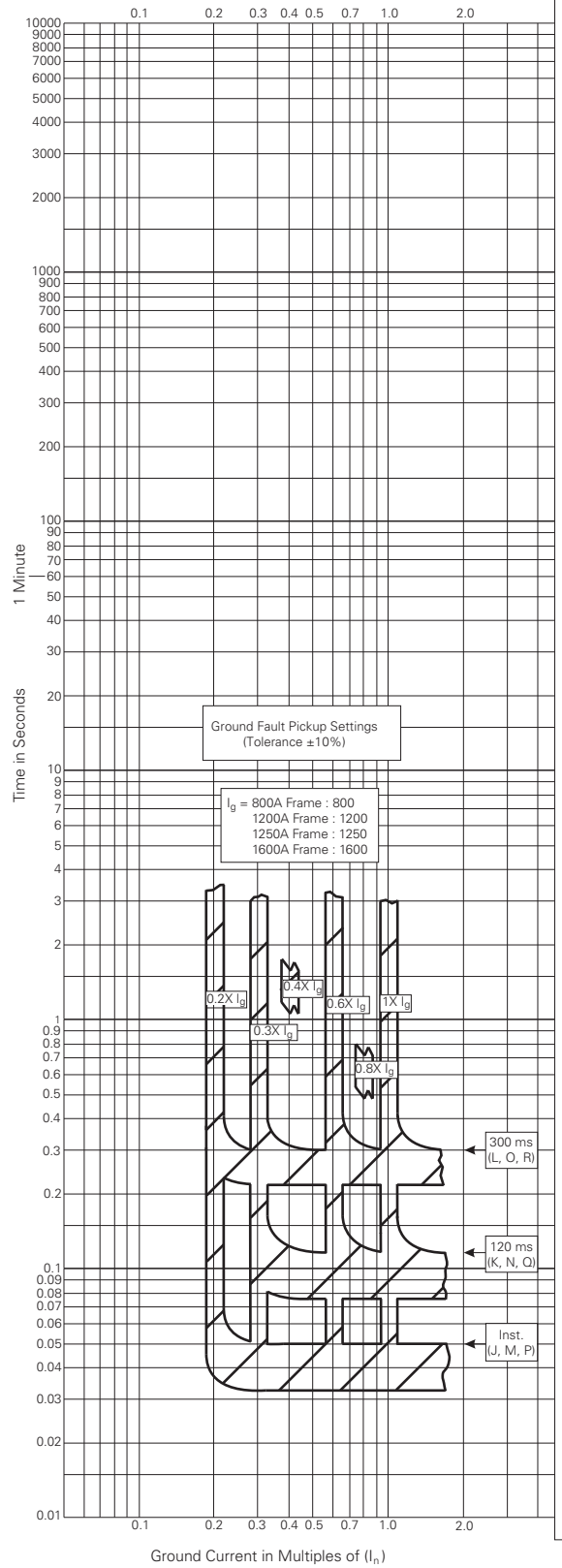


Figure 3. Digitrip 310+ Long Delay Response and Short delay with I^2T Response Curve (LS, LSG) - Curve Number TC01210011E, March 2012



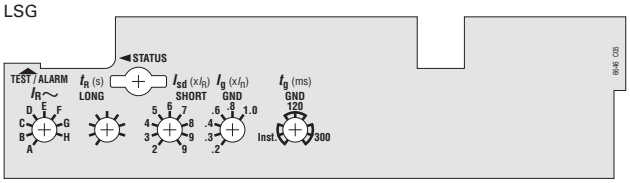
EATON

Digitrip 310+ Circuit Breaker Time/Current Curves (Ground Current)
Series G N-Frame Circuit Breakers
Ground Fault Delay Response Curve

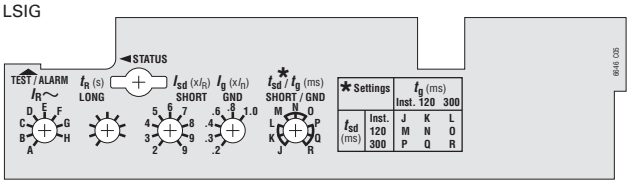
Catalog Types: NGS, NGH, NGC, NGU, GNS, GNH, GNC, and GNU circuit breakers, three- and four-pole

Trip Unit Type: 35 (LSG), 36 (LSIG), 39 (ALSIG)

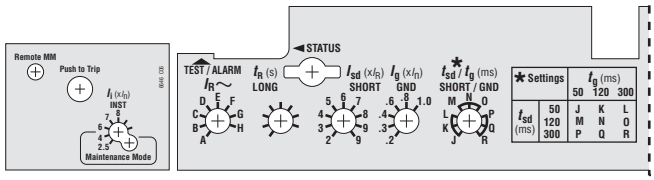
LSG



LSIG



ALSIG (With Maintenance Mode)



Note: Refer to table below for variations.

SD/ GF Delay Settings Table

✱ Settings		t_g (ms) Inst.	120	300
t_{sd} (ms)	Inst.	J	K	L
	120	M	N	O
	300	P	Q	R

Ground Fault Delay Response Notes:

1. Curve accuracy applies from –20°C to +55°C ambient. For possible continuous ampere derating for ambient above 40°C, refer to Eaton. Temperatures about +85°C cause an overtemperature protection trip.
2. Application frequency is 50/60 Hz.
3. Trip units are suitable for functional field testing with test kit style # 70C1056G52.
4. For LD response and SD with flat responses curve, see TC01210010E.
5. For LD responses and SD with I^2T response curve, see TC01210011E.
6. For testing information, please contact Eaton.

Figure 4. Ground Fault Delay Reponse Curve (LSG, LSIG, ALSIG) Curve Number TC01210012E, March 2012

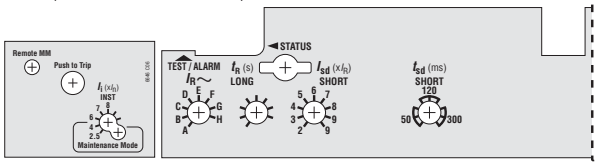
Digitrip 310+ Circuit Breaker Time/Current Curves

Maintenance Mode/Instantaneous Setting

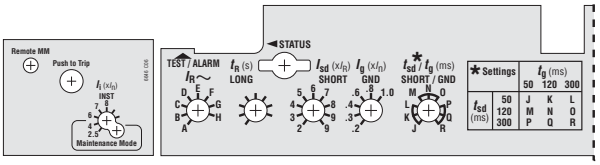
Series G N-Frame Trip Unit Nameplates

Trip Unit Type: 38 (ALSI), 39 (ALSIG)

ALSI (With Maintenance Mode)

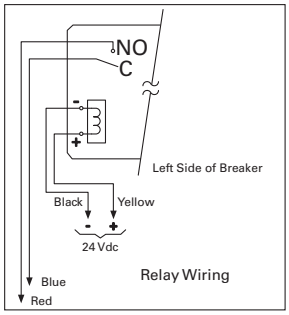


ALSIG (With Maintenance Mode)



Notes:

1. The maintenance mode feature must be ENABLED for these curves to apply. The LED indicator is blue when in maintenance mode.
2. The end of the curve is determined by the interrupting rating of the circuit breaker.
3. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
4. Available pickup settings (x I_n) (tolerance is ±15%) 2.5, 4, 6, 7, 8, 10.
5. The Maintenance Mode consists of the two lowest settings of the INST switch: 2.5x and 4.0x.
6. The Remote Maintenance Mode is enabled by applying 24 VDC to the two wire cable that exists the left side of the breaker. The wires are color coded as follows: Yellow = +24 V and Black = common ground. A blue colored LED, on the left side of the breaker is the Maintenance Mode section of the trip unit, will light. The lighted blue LED indicates that the lowest setting of the Maintenance Mode is enabled. This setting corresponds to 2.5x of In. Turning the adjustable switch on the trip unit has no affect on either the Maintenance Mode or the INST Mode settings while the blue LED is lit. In addition to the blue colored LED, a relay contact (C, NO) is available. The wires for this contact exit the left hand side of the breaker and are color coded as follows: Blue = C, and Red = NO.
7. Contact Eaton for additional information.



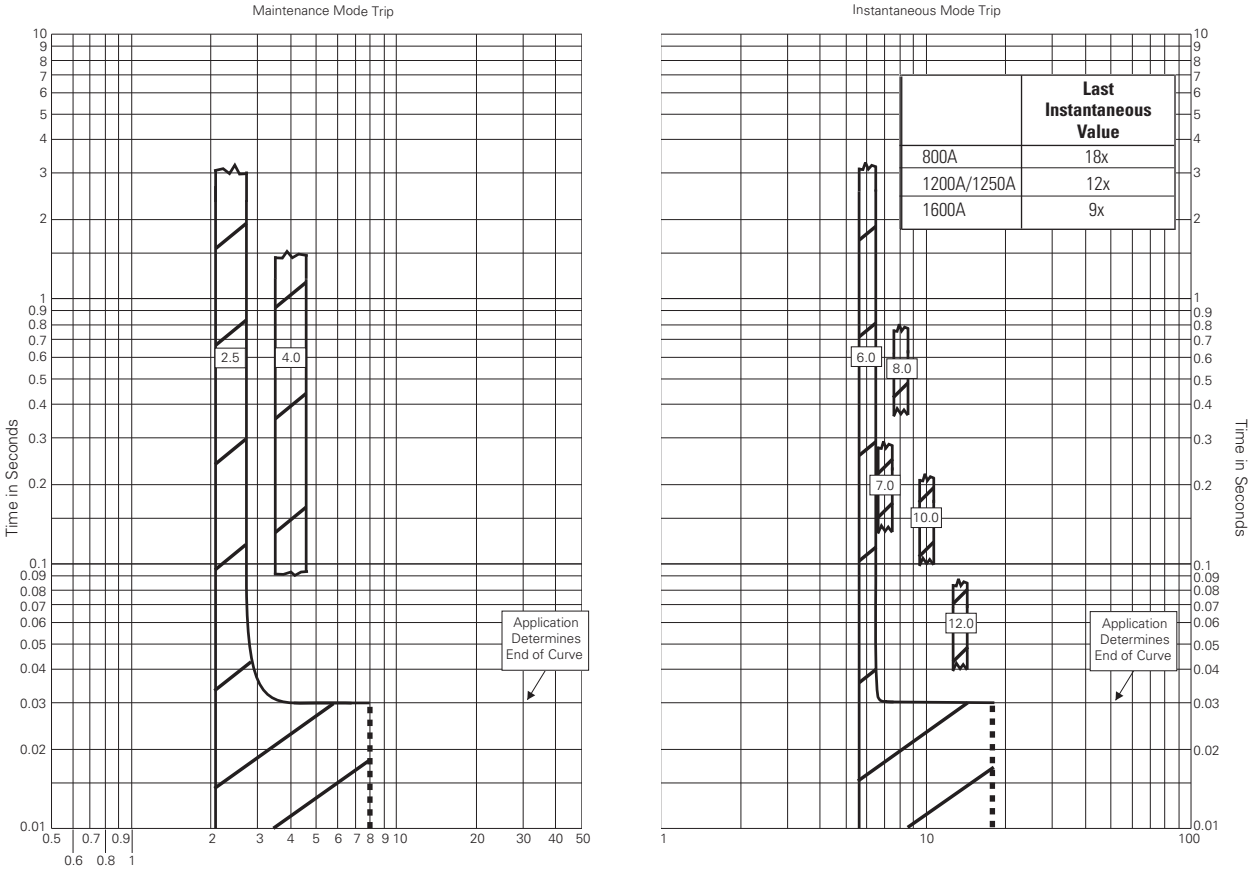


Figure 5. Maintenance Mode/Instantaneous Setting (ALSI, ALSIG) Curve Number TC01210016E ,TC01210017E, and TC 01210018E, March 2012

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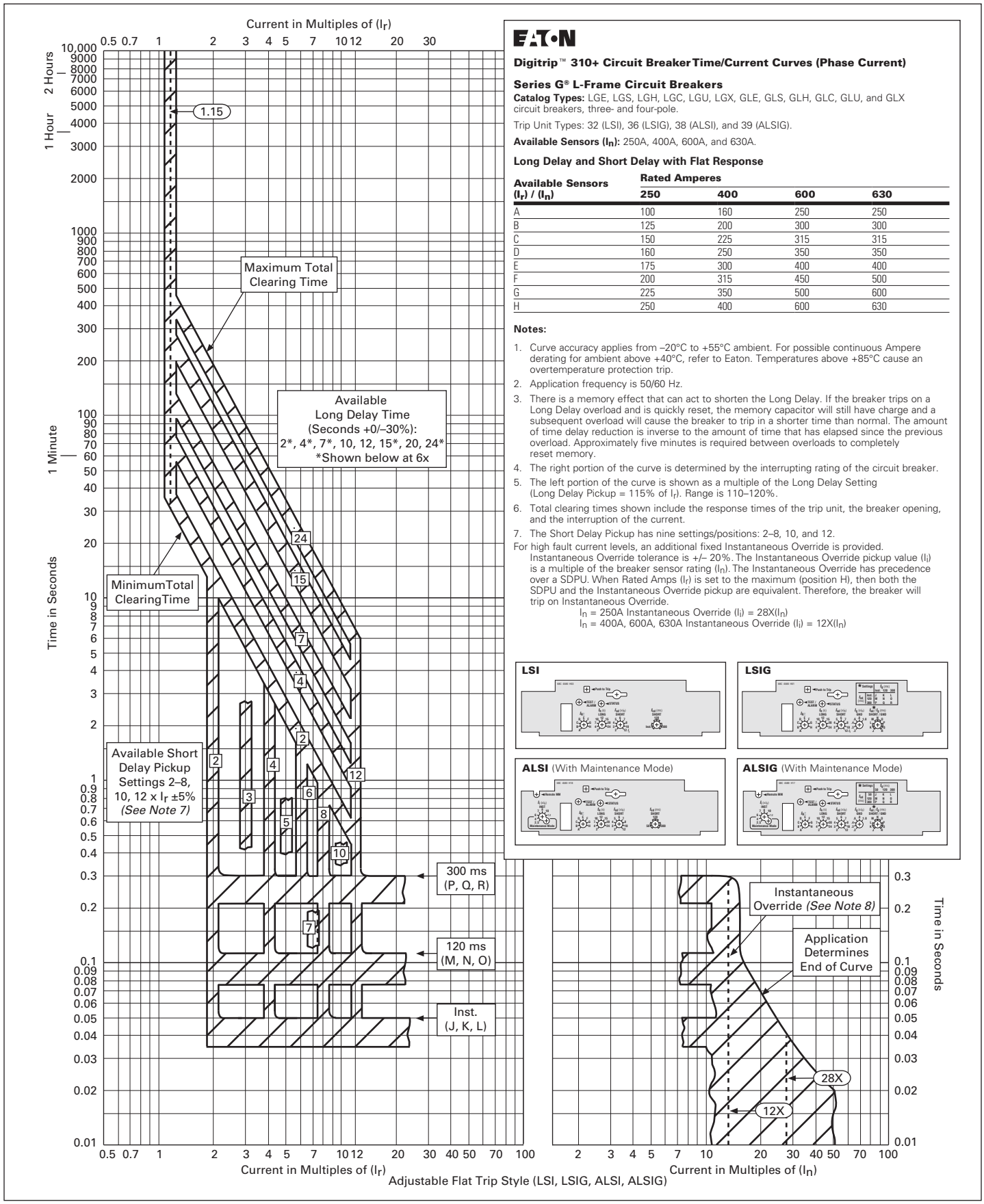


Digitrip™ 310+ Circuit Breaker Time/Current Curves (Phase Current)

Series G® L-Frame Circuit Breakers

Catalog Types: LGE, LGS, LGH, LGC, LGU, LGX, GLE, GLS, GLH, GLC, GLU, and GLX circuit breakers, three- and four-pole.

Trip Unit Types: 32 (LSI), 36 (LSIG), 38 (ALSI), and 39 (ALSIG).

Available Sensors (I_n): 250A, 400A, 600A, and 630A.

Long Delay and Short Delay with Flat Response

Available Sensors (I_r) / (I_n)	Rated Amperes 250	400	600	630
A	100	160	250	250
B	125	200	300	300
C	150	225	315	315
D	160	250	350	350
E	175	300	400	400
F	200	315	450	500
G	225	350	500	600
H	250	400	600	630

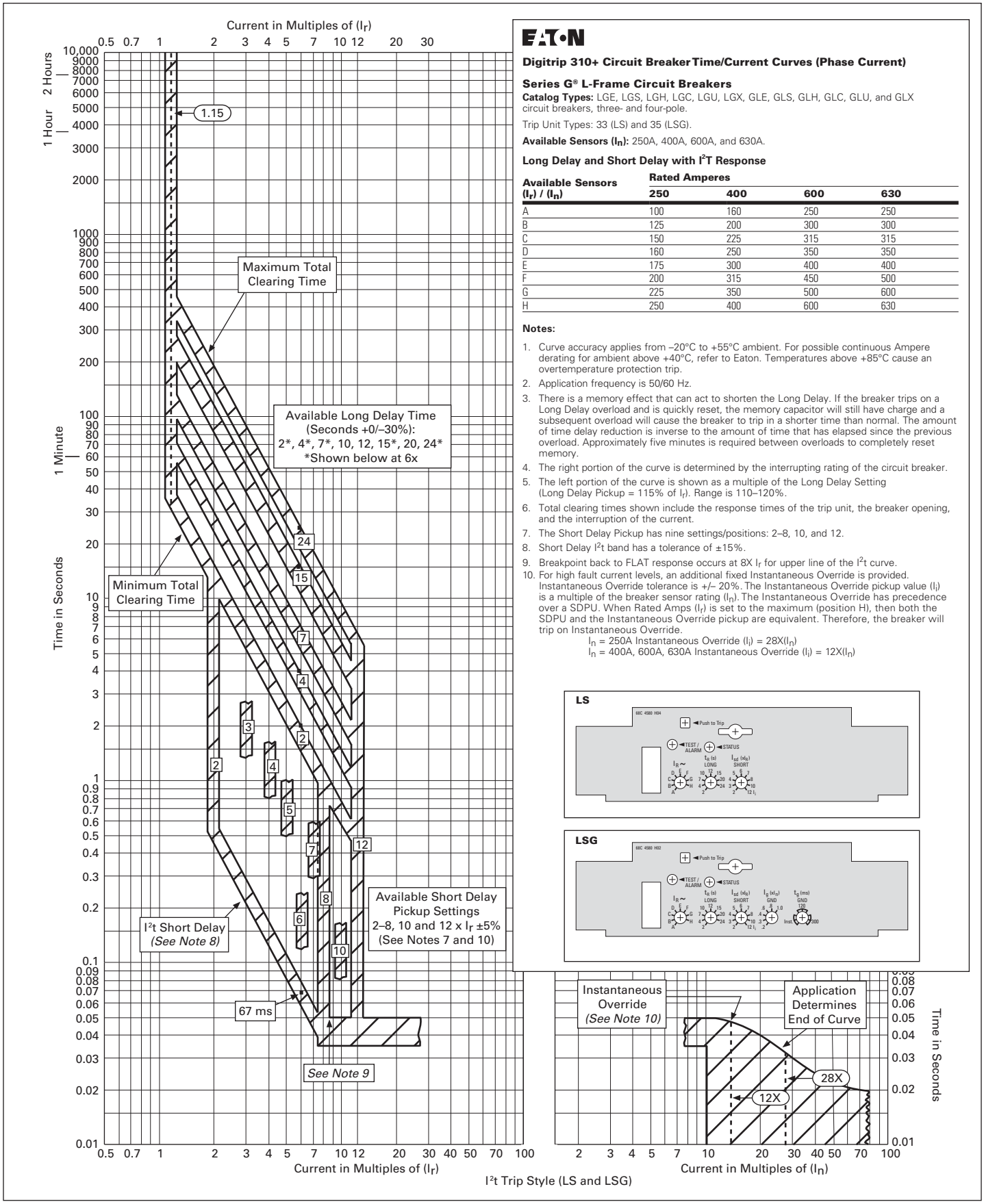
Notes:

1. Curve accuracy applies from –20°C to +55°C ambient. For possible continuous Ampere derating for ambient above +40°C, refer to Eaton. Temperatures above +85°C cause an overtemperature protection trip.
2. Application frequency is 50/60 Hz.
3. There is a memory effect that can act to shorten the Long Delay. If the breaker trips on a Long Delay overload and is quickly reset, the memory capacitor will still have charge and a subsequent overload will cause the breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately five minutes is required between overloads to completely reset memory.
4. The right portion of the curve is determined by the interrupting rating of the circuit breaker.
5. The left portion of the curve is shown as a multiple of the Long Delay Setting (Long Delay Pickup = 115% of I_r). Range is 110–120%.
6. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
7. The Short Delay Pickup has nine settings/positions: 2–8, 10, and 12.

For high fault current levels, an additional fixed Instantaneous Override is provided. Instantaneous Override tolerance is +/– 20%. The Instantaneous Override pickup value (I_i) is a multiple of the breaker sensor rating (I_n). The Instantaneous Override has precedence over a SDPU. When Rated Amps (I_r) is set to the maximum (position H), then both the SDPU and the Instantaneous Override pickup are equivalent. Therefore, the breaker will trip on Instantaneous Override.

I_n = 250A Instantaneous Override (I_i) = 28X(I_n)
I_n = 400A, 600A, 630A Instantaneous Override (I_i) = 12X(I_n)

Figure 2. Digitrip 310+ Long Delay Response and Short Delay with Flat Response Curve (LSI, LSIG, ALSI, ALSIG)—Curve Number TC01207004E, May 2008



Digitrip 310+ Circuit Breaker Time/Current Curves (Phase Current)

Series G® L-Frame Circuit Breakers

Catalog Types: LGE, LGS, LGH, LGC, LGU, LGX, GLE, GLS, GLH, GLC, GLU, and GLX circuit breakers, three- and four-pole.

Trip Unit Types: 33 (LS) and 35 (LSG).

Available Sensors (I_n): 250A, 400A, 600A, and 630A.

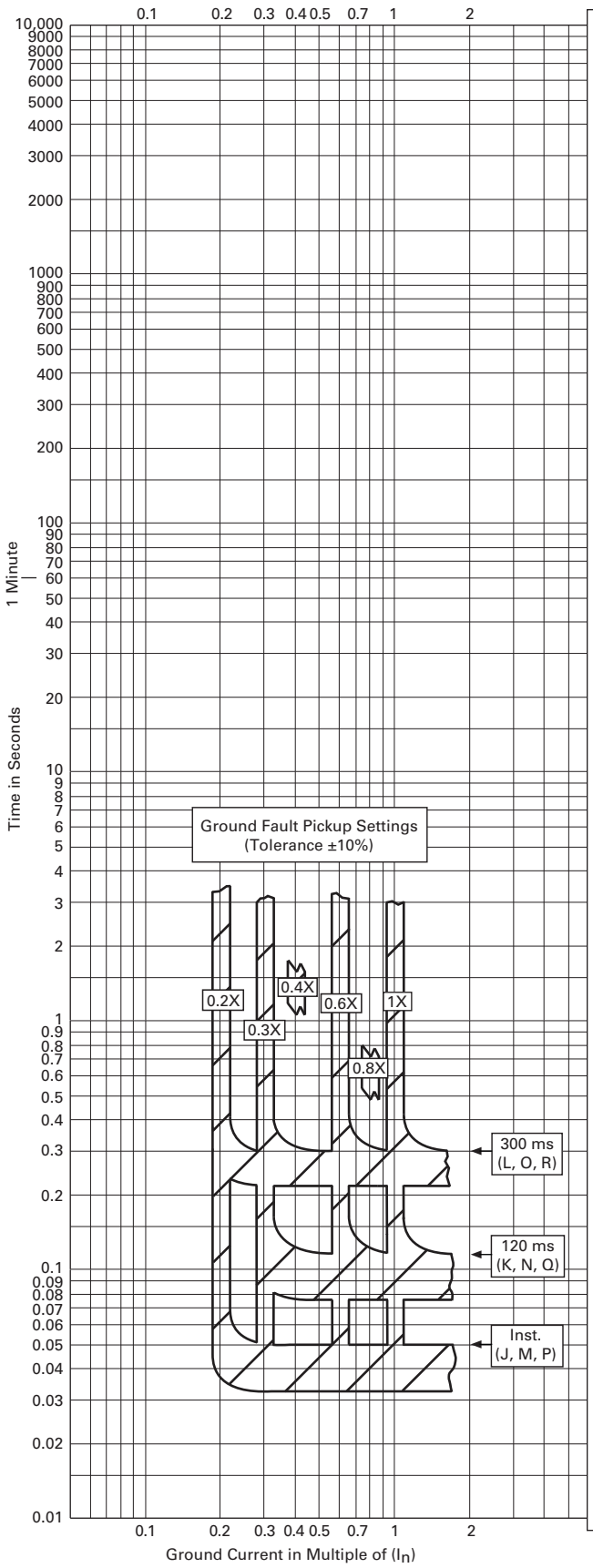
Long Delay and Short Delay with I^2T Response

Available Sensors (I_r) / (I_n)	Rated Amperes			
	250	400	600	630
A	100	160	250	250
B	125	200	300	300
C	150	225	315	315
D	160	250	350	350
E	175	300	400	400
F	200	315	450	500
G	225	350	500	600
H	250	400	600	630

Notes:

1. Curve accuracy applies from –20°C to +55°C ambient. For possible continuous Ampere derating for ambient above +40°C, refer to Eaton. Temperatures above +85°C cause an overtemperature protection trip.
2. Application frequency is 50/60 Hz.
3. There is a memory effect that can act to shorten the Long Delay. If the breaker trips on a Long Delay overload and is quickly reset, the memory capacitor will still have charge and a subsequent overload will cause the breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately five minutes is required between overloads to completely reset memory.
4. The right portion of the curve is determined by the interrupting rating of the circuit breaker.
5. The left portion of the curve is shown as a multiple of the Long Delay Setting (Long Delay Pickup = 115% of I_r). Range is 110–120%.
6. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
7. The Short Delay Pickup has nine settings/positions: 2–8, 10, and 12.
8. Short Delay I^2t band has a tolerance of ±15%.
9. Breakpoint back to FLAT response occurs at 8X I_r for upper line of the I^2t curve.
10. For high fault current levels, an additional fixed Instantaneous Override is provided. Instantaneous Override tolerance is +/– 20%. The Instantaneous Override pickup value (I_i) is a multiple of the breaker sensor rating (I_n). The Instantaneous Override has precedence over a SDPU. When Rated Amps (I_r) is set to the maximum (position H), then both the SDPU and the Instantaneous Override pickup are equivalent. Therefore, the breaker will trip on Instantaneous Override.
    I_n = 250A Instantaneous Override (I_i) = 28X(I_n)
    I_n = 400A, 600A, 630A Instantaneous Override (I_i) = 12X(I_n)

Figure 3. Digitrip 310+ Long Delay Response and Short Delay with I^2t Response Curve (LS, LSG)— Curve Number TC01207005E, May 2008

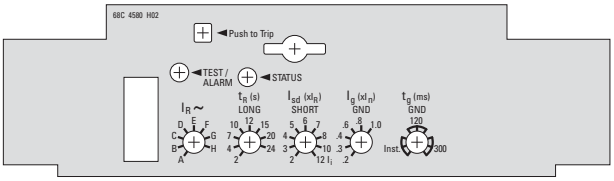


Digitrip 310+ Circuit Breaker Time/Current Curves (Ground Current)

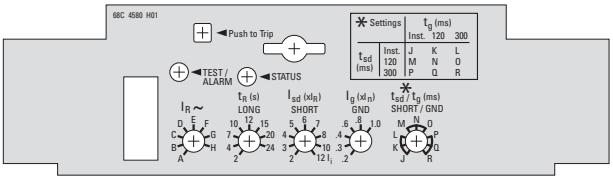
Series G® L-Frame Circuit Breakers

Catalog Types: LGE, LGS, LGH, LGC, LGU, LGX, GLE, GLS, GLH, GLC, GLU, and GLX circuit breakers, three- and four-pole.

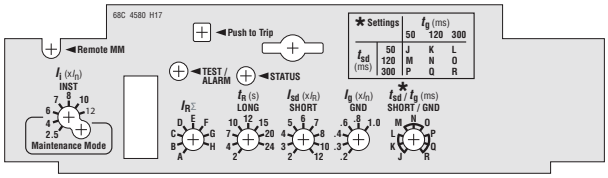
LSG



LSIG



ALSIG (With Maintenance Mode)



Note: Refer to table below for variations.

Available Sensors (I_n): 250A, 400A, 600A, and 630A.

SD/GF Delay Settings Table

✱ Settings		t_g (ms)		
		Inst.	120	300
t_{sd} (ms)	Inst.	J	K	L
	120	M	N	O
	300	P	Q	R

Ground Fault Delay Response Notes:

1. Curve accuracy applies from –20°C to +55°C ambient. For possible continuous Ampere derating for ambient above +40°C, refer to Eaton. Temperatures above +85°C cause an overtemperature protection trip.
2. Application frequency is 50/60 Hz.
3. Trip units are suitable for functional field testing with test kit style #70C1056G52.
4. For LD Response and SD with Flat Response curve, see TC01207004E.
5. For LD Response and SD with I^2t Response curve, see TC01207005E.
6. For testing information, please contact Eaton.

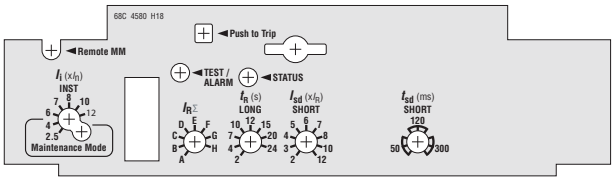
Figure 4. Ground Fault Delay Response Curve (LSG, LSIG, ALSIG)—Curve Number TC01207006E, May 2008

Digitrip 310+ Circuit Breaker Time/Current Curves

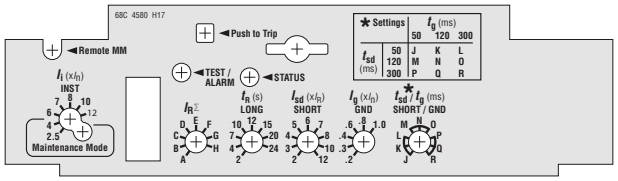
Maintenance Mode / Instantaneous Setting

Series G® L-Frame Trip Unit Nameplates

ALSI (With Maintenance Mode)

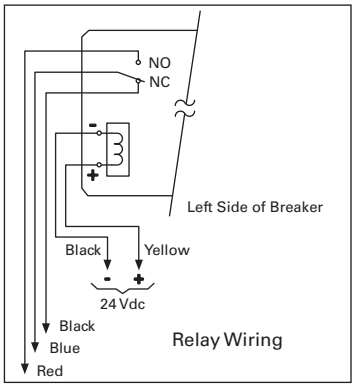


ALSIG (With Maintenance Mode)



Notes:

1. The Maintenance Mode feature must be ENABLED for these curves to apply, when in Maintenance Mode.
2. The Maintenance Mode is Enabled locally by turning the Maintenance Mode/INST dial to the 2.5X or 4X position, or via remote signal. Enabling the Maintenance Mode via remote signal sets the pickup to 2.5X regardless of Maintenance Mode/INST dial position.
3. The end of the curve is determined by the interrupting rating of the circuit breaker.
4. Total clearing times shown include the response times of the trip unit,the breaker opening, and the interruption of the current.
5. Nominal Values (Pickup) (Tolerance is ±15%) 2.5X I_n, 4X I_n, 6X I_n, 7X I_n, 8X I_n, 10X I_n, 12X I_n.
6. These curves are comprehensive for the complete family of Series G L-Frame electronic breakers, including all frame sizes, ratings, and constructions. The total clearing times shown are conservative and consider the maximum response times of the trip unit, the circuit breaker opening, and the interruption of the current in worst case conditions, such as maximum rated voltages, single-phase interruption, and minimum power factor. Faster clearing times are possible depending on the specific system conditions.
7. For L-Frame breakers with 250A sensors (I_n = 250A), an INST setting of 12 is equal to 28X (7000A).
8. Contact Eaton for additional information.



This feature allows enabling of the maintenance mode remotely by applying 24 Vdc to the yellow (+) and black (–) wires that exit the left hand side of the breaker. The maintenance mode settings that is enabled is the 2.5X setting.

There are two indicators that can verify that the trip unit has been remotely activated/enabled into the maintenance mode feature:

A. The blue LED (MM) located on the top left side of the trip unit will light.

AND/OR

B. The relay output is provided by three wires exiting the left hand side of the breaker: blue = C, red = NO, black = NC. The relay will change state when the maintenance mode is remotely enabled.

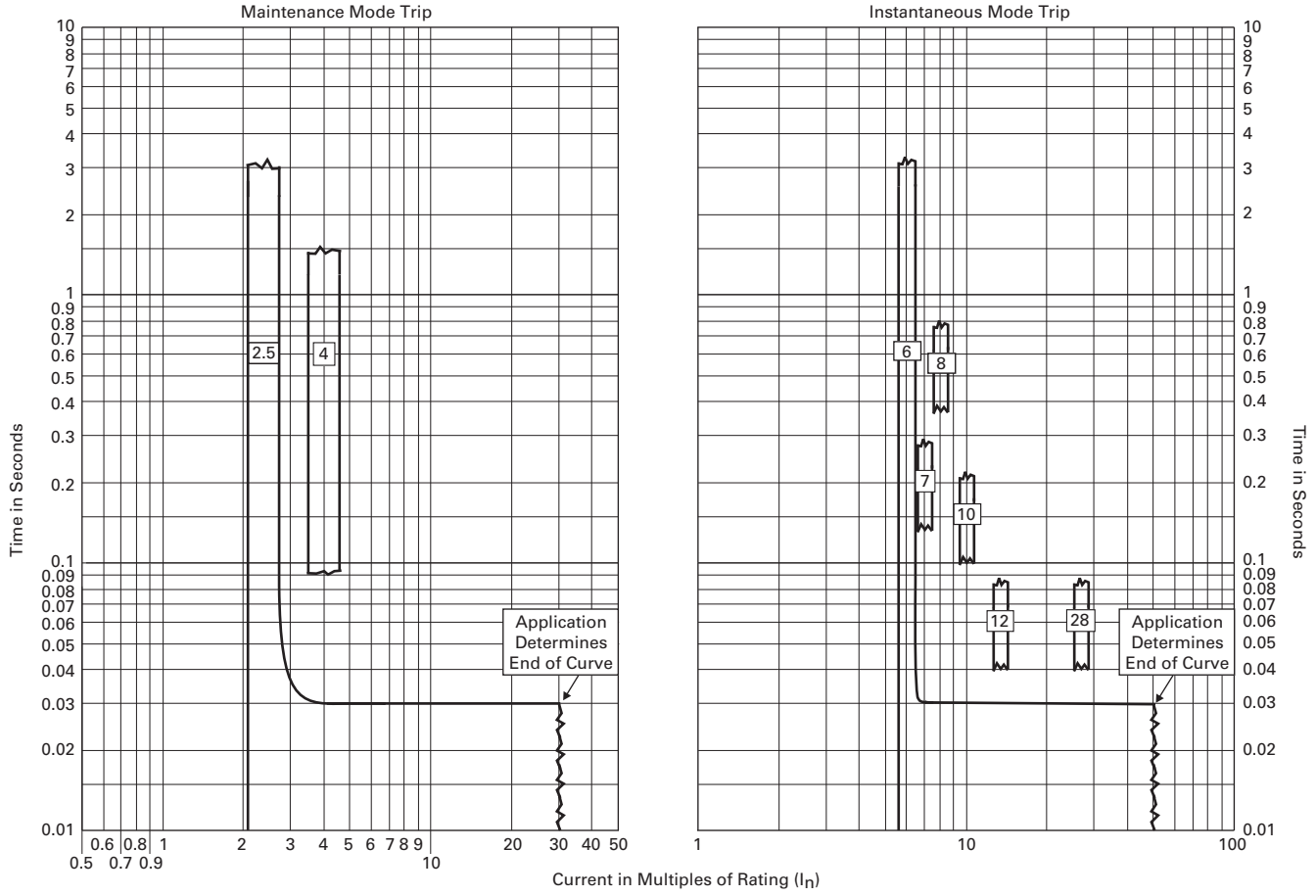


Figure 5. Maintenance Mode / Instantaneous Setting (ALSI, ALSIG)—Curve Number TC01207014E, May 2008

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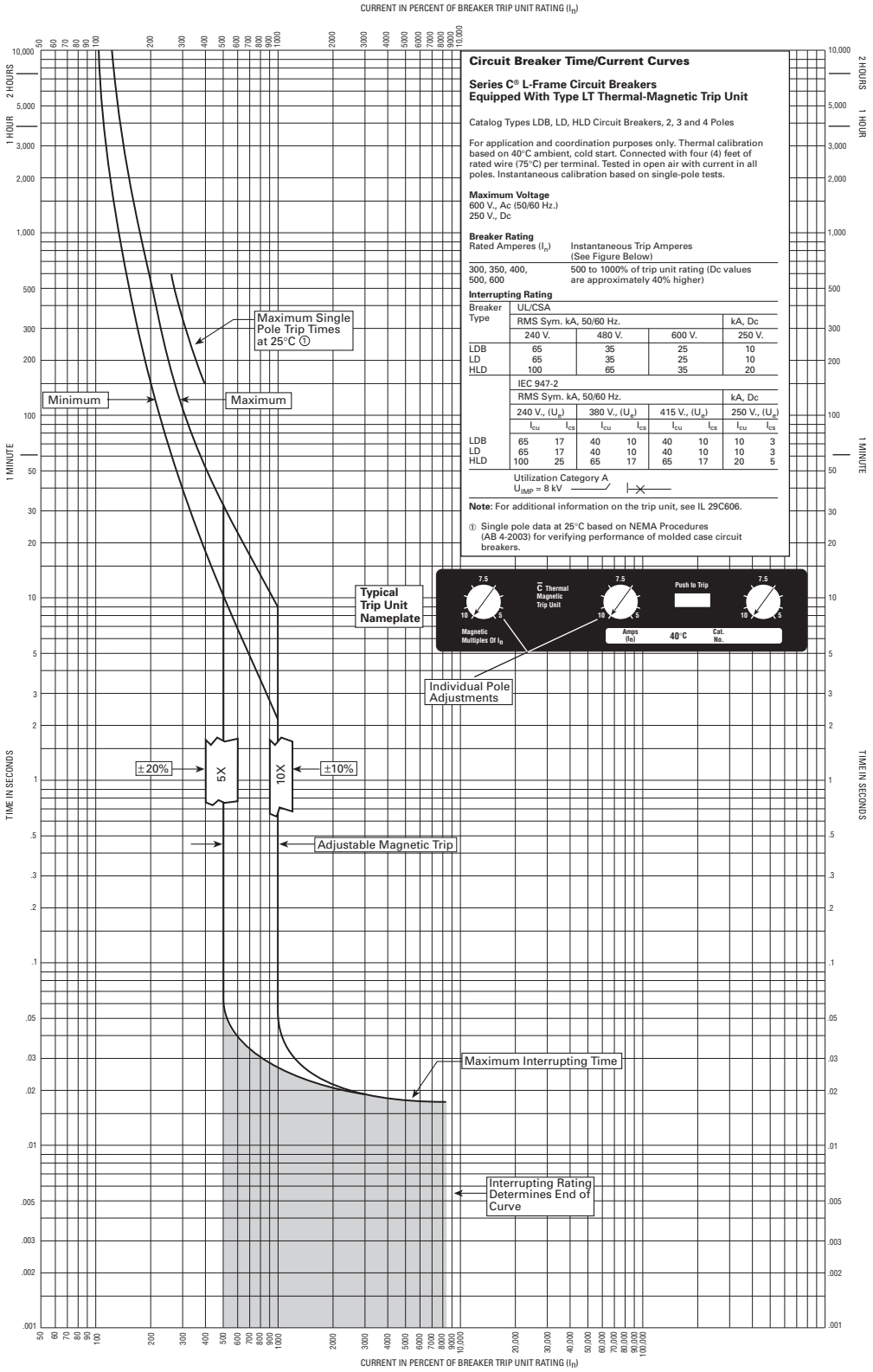
AB DE-ION Circuit Breakers

Types LDB, LD, HLD Equipped With Type LT Thermal-Magnetic Trip Unit



Curve No. SC-4547-89B

AB DE-ION Circuit Breakers

Type LDC Equipped With Type LT Thermal-Magnetic Trip Unit