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Find the *Rockwell / Allen-Bradley 1492-SP1D150* at our website: *Click HERE*

Technical Data

Allen-Bradley

Supplementary Protectors/Miniature Circuit Breakers

Catalog Numbers 1492-SP Series C









Allen-Bradley • Rockwell Software

Rockwell Automation

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Important User Information

Solid-state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://www.rockwellautomation.com/literature/) describes some important differences between solid-state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid-state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

	**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence
	**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
	**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

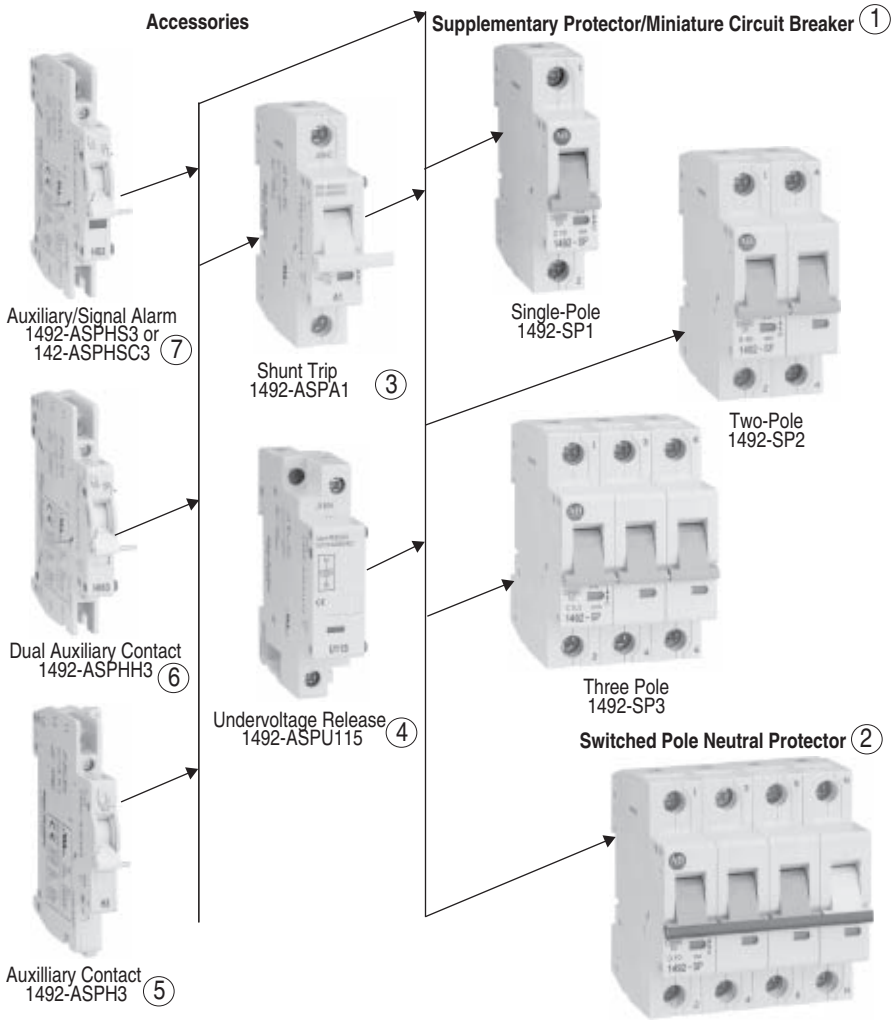
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Supplementary Protectors & Accessories

Figure 1 - 1492-SP* Devices & Accessory Overview



① Supplementary Protector/Miniature Circuit Breaker

- Available in single-, two-, three-pole, one-pole neutral, and four-pole neutral
- Specifications & Certifications:
  - Meets UL 1077/CSA 22.2 No. 235
  - In conformity with IEC/EN 60 898
  - CE Marked
- Trip Characteristics
  - B-Trip — for resistive or slightly inductive loads
  - C-Trip — for inductive loads
  - D- Trip — for highly inductive loads

② Switched Pole Protector (not field-mountable)

- Switched neutral pole closes before the adjacent protected pole (i.e., early make)
- Instantaneous/magnetic release provided, but no overload thermal release

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③ **Shunt Trip**

- Field installable
- Mounts to side
- Module width is equal to that of a single-pole

④ **Undervoltage Release**

- Field installable
- Mounts to side
- Module width is equal to that of a single-pole

⑤ **Auxiliary Contact**

- Field installable
- Changeover contact
- Switches when protective device is operated manually or is tripped electrically
- 1 Form C

⑥ **Dual Auxiliary Contact**

- Field installable
- Two auxiliary contacts
- Changeover contact
- Switches when protective device is operated manually or is tripped electrically
- 2 Form C
- Version with convertible contact

⑦ **Auxiliary/Signal Alarm**

- Field installable
- Auxiliary contacts
- Auxiliary contact switches when protective device is operated manually or is tripped electrically
- Signal alarm
- Signal alarm contact switches only when protective device is tripped electrically
- Changeover contact
- 2 Form C
- Front indicator indicates when device is tripped electrically

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Description

Bulletin 1492-SP Supplementary Protector/Miniature Circuit Breakers are energy limiting, thermal-magnetic type, overcurrent-protective devices meeting UL 1077/CSA 22.2 No. 235, IEC/EN 60898 and IEC 60947-2. These devices are designed for the protection of a wide variety of products including:

- Solenoids
- Test Equipment
- Controller I/O Points
- Relay and Contractor Coils
- Computers
- Transformers
- Automotive Systems
- Power Supplies
- Medical Equipment
- Control Instrumentation

Bulletin 1492-SP Supplementary Protectors/Miniature Circuit Breakers are available in one-, two-, three-, and four-pole units as well as one- and three-pole plus neutral units. One- and two-pole AC units also have limited DC ratings. Two and three-pole units are connected at the handle for simultaneous operation.

Screw termination is standard on all Bulletin1492-SP units. Both line and load side terminals accept #16...4 AWG (1.5...25 mm^2) copper wire.

IMPORTANT UL 1077, CSA C22.2 No. 235

In North America, miniature circuit breakers are recognized as supplementary protectors and are intended for use as overcurrent protection within an appliance or other electrical equipment where branch circuit protection is already provided or not required.

Internationally, these products are rated to IEC standards as miniature circuit breakers for equipment.

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International Approvals

The Bulletin 1492-SP, Supplementary Protectors/Miniature Circuit Breakers, are designed to comply with standards for worldwide customer acceptance. The Bulletin 1492-SPs meet the following standards:.

Table 1 - Bulletin 1492-SP Standards

Certifying Agency	Certification Marks	Country	Standard
Underwriters Laboratory		USA	UL 1077
Canadian Standards Association		Canada	CSA 22.2 No. 235
Verband Deutscher Electrotechniker		Germany	IEC/EN 60 898
Germanischer Lloyd		Germany	IEC/EN 60 947-2
per Conformite European		European Union	IVD Directives
per International Electrotechnical Commission		Global	IEC 60 898 IEC 60 947-2
China Quality Certification Center		Global	GB 10963

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Features

The following features provide superior performance.

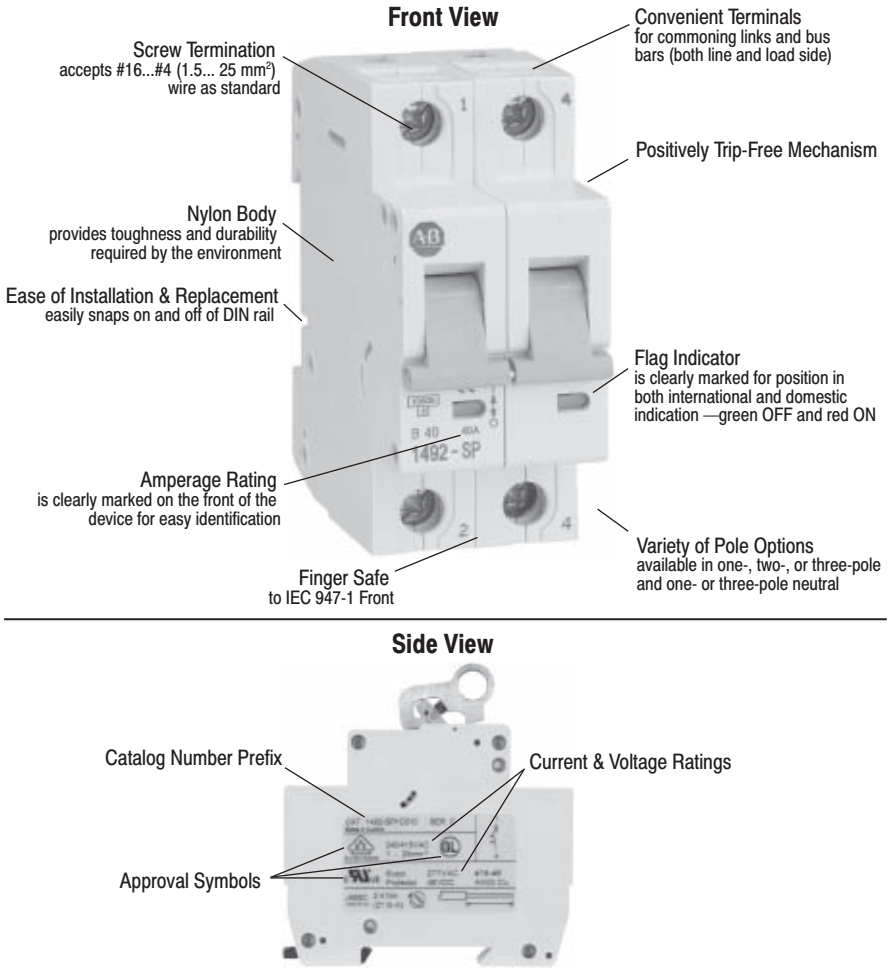
Table 2 - Features of Bulletin 1492-SP

Feature	Description
Energy limiting design	protects downstream components better than conventional breakers during short circuits
Field mountable options	for selective applications
True IP2X finger safe design (front)	
International approvals	CE Marked and meets UL, CSA, and IEC (VDE, GL) standards for worldwide acceptance
Ratings to 480Y/277V AC @ 240/415V AC	10,000 A Interrupt Rating
AC and DC voltage ratings	in one convenient device
A positively trip-free mechanism	where the breaker operation cannot be defeated by holding the handle in the ON position
Three trip curves	B, C, and D
Time delay (D characteristic)	for high inrush currents during inductive startups, such as transformers and power supplies
Superior shock and vibration resistance capabilities	helps to prevent nuisance tripping
Mounts on DIN Rail	
Reversible line and load connections	

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Construction

Figure 2 - Construction



Switched Neutral Module (not field-mountable)

The switched neutral module opens the neutral line of the circuit when the protected poles are tripped. This module should be used as a safety measure (required by some standards) when protecting networks with a grounded neutral system. The switched neutral pole closes before the adjacent protected pole (i.e., early make).

The switched neutral module also provides instantaneous/magnetic trip, manual actuation is through the linked handles, and should always be mounted on the right side of the protected poles. These modules are not field installable.

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Ordering Information

To order the proper device, you need to know the:

- maximum rated current of equipment to be protected,
- system phase of one, two, or three,
- maximum startup (inrush) current, and
- accessories that are required.

Catalog Number

Determine the catalog number by following the steps below and referencing the Selection Tables on page 12.

1. Select a one-, two-, or three-pole device.
2. If needed, select the Switched Neutral Module. The Switched Neutral Module is mounted on the right side of the breaker. This module must be mounted at the factory. It cannot be installed in the field.
3. If applicable, consider the derating factors listed in the Rating Determination on page 9.
4. Order accessory contacts or modules as separate items. Accessory modules are always mounted on the left side of the supplemental protector/ miniature circuit breaker. A maximum of two accessory modules can be mounted on a single device. Refer to the Accessories on page 18 for possible combinations.

Rating Determination

The standard tripping characteristic for Bulletin 1492-SP is Type C. Type C has a magnetic trip activated at 5...10 times the rated current of the circuit breaker. The reference temperature for the thermal tripping characteristics is 30 °C. The Type C characteristic will suit most applications. Use the following steps to determine the current rating for the breaker.

1. Take the rated current of the equipment. For example, 10 A.
2. Take the ambient temperature of the 1492-SP location (e.g., 50 °C (122 °F)).
3. Refer to the table below, which rerates the 1492-SP current for the given ambient temperature. Influence of the ambient temperature on the thermal tripping characteristic.

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Table 3 - Ambient Temperature Derating

Calibration temperature = 30 °C; application below 0 °C is for non-condensing atmosphere*

Product Nameplate Continuous Current Rating	Ambient Temperature in °C													
		-25	-20	-10	0	10	20	30	35	40	45	50	55	60
	0.5	0.61	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.48	0.47	0.46	0.45	0.44
	1	1.2			1.1		1.0		0.99	0.97	0.95	0.93	0.90	0.89
	2	2.4		2.3	2.2		2.1	2.0		1.9			1.8	
	3	3.7	3.6	3.5	3.4	3.3	3.1	3.0		2.9	2.8		2.7	
	4	4.9	4.8	4.7	4.5	4.3	4.2	4.0	3.9		3.8	3.7	3.6	3.5
	5	6.1	6.0	5.8	5.6	5.4	5.2	5.0	4.9	4.8	4.7	4.6	4.5	4.4
	6	7.3	7.2	7.0	6.7	6.5	6.3	6.0	5.9	5.8	5.7	5.6	5.4	5.3
	8	9.8	9.6	9.3	9.0	8.7	8.4	8.0	7.9	7.7	7.6	7.4	7.2	7.1
	10	12			11		10		9.9	9.7	9.5	9.3	9.0	8.9
	13	16		15		14		13			12			
	15	18		17		16		15			14			13
	16	20	19		18	17		16		15			14	
	20	24		23	22		21	20		19			18	
	25	31	30	29	28	27	26	25		24		23		22
	32	39	38	37	36	35	33	32		31	30		29	28
	40	49	48	47	45	43	42	40	39		38	37	36	35
	50	61	60	58	56	54	52	50	49	48	47	46	45	44
	63	77	76	73	71	68	66	63	62	61	60	58	57	56

*Care should be taken for application below 0 °C. These devices are not certified to operate correctly in the presence of ice.

4. All other specifications for standard Bulletin1492-SP products remain unchanged. The ambient temperature derating applies to applications of the device as an IEC Miniature Circuit Breaker (MCB) following 60 947-2 and as a supplementary protector to UL1077/CSA 22.2 No 235. Ambient temperature refers to the free air temperature in contact with the 1492-SP. Contact Rockwell Automation for ambient temperatures beyond those shown above.
5. Select the 1492-SP with the next available rating at the given ambient temperature. In this example, it would be 13 A. With this selection, adequate overload protection is provided and nuisance tripping by thermal influences is avoided.
6. Check that transients of the system **do not exceed** the "must hold" value of the trip characteristic. This will eliminate nuisance tripping by magnetic influences. The Type C characteristic will be adequate for most applications. Refer to the Selection Tables on page 12.

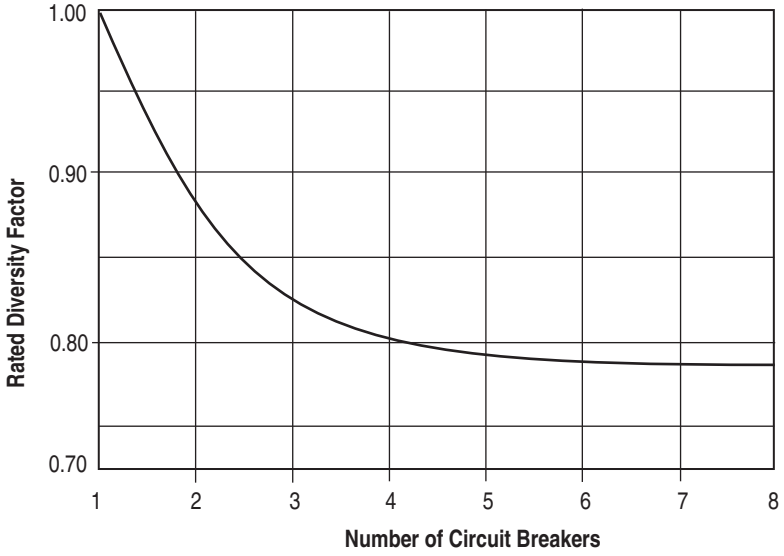
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7. In rare occurrences when the Type C characteristic does not fully meet the application, the following additional magnetic trip characteristics are available:
8. Type D allows for transients approximately twice as high as the standard Type C. Refer to the Selection Tables on page 12.
9. Type B achieves instantaneous tripping at current levels approximately half as high as Type D. Refer to the Selection Tables on page 12.
10. If multiple supplementary protectors are mounted side-by-side, they must be derated to determine the load carrying capacity. Use the derating equation below.

    Adjusted Current Rating = Rated Current multiplied by α

    The figure below shows the rated diversity factor, where miniature circuit breakers influence one another thermally at rated load.

Figure 3 - Rated Diversity Factor



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Selection Tables

B-Trip Characteristics — Resistive/Slightly Inductive Loads, 3…5 I_n

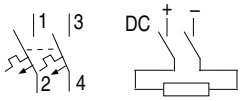
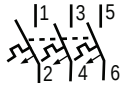
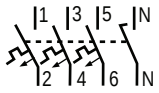
Table 4 - One Pole & One-Pole Neutral

	One-Pole			One-Pole plus Neutral		
						
	Continuous Current Rating (*In*)	**Catalog Number**	**3rd Party Certification**	**Continuous Current Rating (*In*)**	**Catalog Number**	**3rd Party Certification**
	1	1492-SP1B010	❶	1	1492-SP1B010-N	❶
	2	1492-SP1B020	❶	2	1492-SP1B020-N	❶
	3	1492-SP1B030	❶	3	1492-SP1B030-N	❶
	4	1492-SP1B040	❶	4	1492-SP1B040-N	❶
	5 ❷	1492-SP1B050	❶			
	6	1492-SP1B060	❶	6	1492-SP1B060-N	❶
	7 ❷	1492-SP1B070	❶			
	8	1492-SP1B080	❶	8	1492-SP1B080-N	❶
	10	1492-SP1B100	❶	10	1492-SP1B100-N	❶
	13	1492-SP1B130	❶	13	1492-SP1B130-N	❶
	15 ❷	1492-SP1B150	❶			
	16	1492-SP1B160	❶	16	1492-SP1B160-N	❶
	20	1492-SP1B200	❶	20	1492-SP1B200-N	❶
	25	1492-SP1B250	❶	25	1492-SP1B250-N	❶
	30 ❷	1492-SP1B300	❶			
	32	1492-SP1B320	❶	32	1492-SP1B320-N	❶
	40	1492-SP1B400	❶	40	1492-SP1B400-N	❶
	50	1492-SP1B500	❶	50	1492-SP1B500-N	❶
	63	1492-SP1B630	❶	63	1492-SP1B630-N	❶
Operational Voltage	IEC 240/415V AC/48V DC			IEC 240V AC		
	UL/CSA 277V AC/48V DC			UL/CSA 277V AC		
Pieces Per Package	2			1		
Diagram						

❶ ❷ Current rating used only in North America.

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Table 5 - Two-Pole, Three-Pole, & Three-Pole Neutral

	Two-Pole			Three-Pole			Three-Pole plus Neutral		
									
	Continuous Current Rating (*In*)	**Catalog Number**	**3rd Party Certification**	**Continuous Current Rating (*In*)**	**Catalog Number**	**3rd Party Certification**	**Continuous Current Rating (*In*)**	**Catalog Number**	**3rd Party Certification**
	1	1492-SP2B010	❶	1	1492-SP3B010	❶	1	1492-SP3B010-N	❶
	2	1492-SP2B020	❶	2	1492-SP3B020	❶	2	1492-SP3B020-N	❶
	3	1492-SP2B030	❶	3	1492-SP3B030	❶	3	1492-SP3B030-N	❶
	4	1492-SP2B040	❶	4	1492-SP3B040	❶	4	1492-SP3B040-N	❶
	5 ❷	1492-SP2B050	❶	5 ❷	1492-SP3B050	❶			
	6	1492-SP2B060	❶	6	1492-SP3B060	❶	6	1492-SP3B060-N	❶
	7 ❷	1492-SP2B070	❶	7 ❷	1492-SP3B070	❶			
	8	1492-SP2B080	❶	8	1492-SP3B080	❶	8	1492-SP3B080-N	❶
	10	1492-SP2B100	❶	10	1492-SP3B100	❶	10	1492-SP3B100-N	❶
	13	1492-SP2B130	❶	13	1492-SP3B130	❶	13	1492-SP3B130-N	❶
	15 ❷	1492-SP2B150	❶	15 ❷	1492-SP3B150	❶			
	16	1492-SP2B160	❶	16	1492-SP3B160	❶	16	1492-SP3B160-N	❶
	20	1492-SP2B200	❶	20	1492-SP3B200	❶	20	1492-SP3B200-N	❶
	25	1492-SP2B250	❶	25	1492-SP3B250	❶	25	1492-SP3B250-N	❶
	30 ❷	1492-SP2B300	❶	30 ❷	1492-SP3B300	❶			
	32	1492-SP2B320	❶	32	1492-SP3B320	❶	32	1492-SP3B320-N	❶
	40	1492-SP2B400	❶	40	1492-SP3B400	❶	40	1492-SP3B400-N	❶
	50	1492-SP2B500	❶	50	1492-SP3B500	❶	50	1492-SP3B500-N	❶
	63	1492-SP2B630	❶	63	1492-SP3B630	❶	63	1492-SP3B630-N	❶
Operational Voltage	IEC 415V AC			IEC 415V AC			IEC 415V AC		
	UL/CSA 480Y/277V AC, 96V DC			UL/CSA 480Y/277V AC			UL/CSA 480Y/277V AC		
Pieces per Package	1			1			1		
Diagram									

❶ ❷ Current rating used only in North America.

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C-Trip Characteristics — Inductive Loads, 5…10 I_n

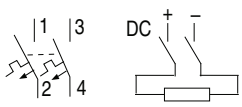
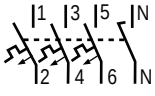
Table 6 - One Pole & One-Pole Neutral

	One-Pole			One-Pole plus Neutral		
						
	Continuous Current Rating (*In*)	**Catalog Number**	**3rd Party Certification**	**Continuous Current Rating (*In*)**	**Catalog Number**	**3rd Party Certification**
	0.5	1492-SP1C005	❶	0.5	1492-SP1C005-N	
	1	1492-SP1C010	❶	1	1492-SP1C010-N	❶
	2	1492-SP1C020	❶	2	1492-SP1C020-N	❶
	3	1492-SP1C030	❶	3	1492-SP1C030-N	❶
	4	1492-SP1C040	❶	4	1492-SP1C040-N	❶
	5 ❷	1492-SP1C050	❶			
	6	1492-SP1C060	❶	6	1492-SP1C060-N	❶
	7 ❷	1492-SP1C070	❶			
	8	1492-SP1C080	❶	8	1492-SP1C080-N	❶
	10	1492-SP1C100	❶	10	1492-SP1C100-N	❶
	13	1492-SP1C130	❶	13	1492-SP1C130-N	❶
	15 ❷	1492-SP1C150	❶			
	16	1492-SP1C160	❶	16	1492-SP1C160-N	❶
	20	1492-SP1C200	❶	20	1492-SP1C200-N	❶
	25	1492-SP1C250	❶	25	1492-SP1C250-N	❶
	30 ❷	1492-SP1C300	❶			
	32	1492-SP1C320	❶	32	1492-SP1C320-N	❶
	40	1492-SP1C400	❶	40	1492-SP1C400-N	❶
	50	1492-SP1C500	❶	50	1492-SP1C500-N	❶
	63	1492-SP1C630	❶	63	1492-SP1C630-N	❶
Operational Voltage	IEC 240/415V AC/48V DC			IEC 240V AC		
	UL/CSA 277V AC/48V DC			UL/CSA 277V AC		
Pieces Per Package	2			1		
Diagram						

❶ ❷ Current rating used only in North America.

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Table 7 - Two-Pole, Three-Pole, & Three-Pole Neutral

	Two-Pole			Three-Pole			Three-Pole plus Neutral		
									
	Continuous Current Rating (*In*)	**Catalog Number**	**3rd Party Certification**	**Continuous Current Rating (*In*)**	**Catalog Number**	**3rd Party Certification**	**Continuous Current Rating (*In*)**	**Catalog Number**	**3rd Party Certification**
	0.5	1492-SP2C005	❶	0.5	1492-SP3C005	❶	0.5	1492-SP3C005-N	❶
	1	1492-SP2C010	❶	1	1492-SP3C010	❶	1	1492-SP3C010-N	❶
	2	1492-SP2C020	❶	2	1492-SP3C020	❶	2	1492-SP3C020-N	❶
	3	1492-SP2C030	❶	3	1492-SP3C030	❶	3	1492-SP3C030-N	❶
	4	1492-SP2C040	❶	4	1492-SP3C040	❶	4	1492-SP3C040-N	❶
	5 ❷	1492-SP2C050	❶	5 ❷	1492-SP3C050	❶			
	6	1492-SP2C060	❶	6	1492-SP3C060	❶	6	1492-SP3C060-N	❶
	7 ❷	1492-SP2C070	❶	7 ❷	1492-SP3C070	❶			
	8	1492-SP2C080	❶	8	1492-SP3C080	❶	8	1492-SP3C080-N	❶
	10	1492-SP2C100	❶	10	1492-SP3C100	❶	10	1492-SP3C100-N	❶
	13	1492-SP2C130	❶	13	1492-SP3C130	❶	13	1492-SP3C130-N	❶
	15 ❷	1492-SP2C150	❶	15 ❷	1492-SP3C150	❶			
	16	1492-SP2C160	❶	16	1492-SP3C160	❶	16	1492-SP3C160-N	❶
	20	1492-SP2C200	❶	20	1492-SP3C200	❶	20	1492-SP3C200-N	❶
	25	1492-SP2C250	❶	25	1492-SP3C250	❶	25	1492-SP3C250-N	❶
	30 ❷	1492-SP2C300	❶	30 ❷	1492-SP3C300	❶			
	32	1492-SP2C320	❶	32	1492-SP3C320	❶	32	1492-SP3C320-N	❶
	40	1492-SP2C400	❶	40	1492-SP3C400	❶	40	1492-SP3C400-N	❶
	50	1492-SP2C500	❶	50	1492-SP3C500	❶	50	1492-SP3C500-N	❶
	63	1492-SP2C630	❶	63	1492-SP3C630	❶	63	1492-SP3C630-N	❶
Operational Voltage	IEC 415V AC			IEC 415V AC			IEC 415V AC		
	UL/CSA 480Y/277V AC, 96V DC			UL/CSA 480Y/277V AC			UL/CSA 480Y/277V AC		
Pieces per Package	1			1			1		
Diagram									

❶ ❷ Current rating used only in North America.

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D-Trip Characteristics — Highly Inductive Loads 10…20 I_n

Table 8 - One Pole & One-Pole Neutral

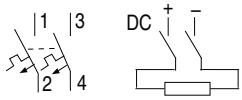
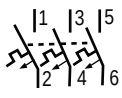
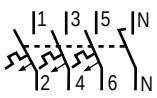
	One-Pole			One-Pole plus Neutral		
						
	Continuous Current Rating (*In*)	**Catalog Number**	**3rd Party Certification**	**Continuous Current Rating (*In*)**	**Catalog Number**	**3rd Party Certification**
	0.5	1492-SP1D005	❶	0.5	1492-SP1D005-N	
	1	1492-SP1D010	❶	1	1492-SP1D010-N	❶
	2	1492-SP1D020	❶	2	1492-SP1D020-N	❶
	3	1492-SP1D030	❶	3	1492-SP1D030-N	❶
	4	1492-SP1D040	❶	4	1492-SP1D040-N	❶
	5 ❷	1492-SP1D050	❶			
	6	1492-SP1D060	❶	6	1492-SP1D060-N	❶
	7 ❷	1492-SP1D070	❶			
	8	1492-SP1D080	❶	8	1492-SP1D080-N	❶
	10	1492-SP1D100	❶	10	1492-SP1D100-N	❶
	13	1492-SP1D130	❶	13	1492-SP1D130-N	❶
	15 ❷	1492-SP1D150	❶			
	16	1492-SP1D160	❶	16	1492-SP1D160-N	❶
	20	1492-SP1D200	❶	20	1492-SP1D200-N	❶
	25	1492-SP1D250	❶	25	1492-SP1D250-N	❶
	30 ❷	1492-SP1D300	❶			
	32	1492-SP1D320	❶	32	1492-SP1D320-N	❶
	40	1492-SP1D400	❶	40	1492-SP1D400-N	❶
	50	1492-SP1D500	❸	50	1492-SP1D500-N	❸
	63	1492-SP1D630	❸	63	1492-SP1D630-N	❸
Operational Voltage	IEC 240/415V AC/48V DC			IEC 240V AC		
	UL/CSA 277V AC/48V DC			UL/CSA 277V AC		
Pieces Per Package	2			1		
Diagram						

❶ ❷ Current rating used only in North America.

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Table 9 - Two-Pole, Three-Pole, & Three-Pole Neutral

	Two-Pole			Three-Pole			Three-Pole plus Neutral		
									
	Continuous Current Rating (*In*)	**Catalog Number**	**3rd Party Certification**	**Continuous Current Rating (*In*)**	**Catalog Number**	**3rd Party Certification**	**Continuous Current Rating (*In*)**	**Catalog Number**	**3rd Party Certification**
	0.5	1492-SP2D005	❶	0.5	1492-SP3D005	❶	0.5	1492-SP3D005-N	❶
	1	1492-SP2D010	❶	1	1492-SP3D010	❶	1	1492-SP3D010-N	❶
	2	1492-SP2D020	❶	2	1492-SP3D020	❶	2	1492-SP3D020-N	❶
	3	1492-SP2D030	❶	3	1492-SP3D030	❶	3	1492-SP3D030-N	❶
	4	1492-SP2D040	❶	4	1492-SP3D040	❶	4	1492-SP3D040-N	❶
	5 ❷	1492-SP2D050	❶	5 ❷	1492-SP3D050	❶			
	6	1492-SP2D060	❶	6	1492-SP3D060	❶	6	1492-SP3D060-N	❶
	7 ❷	1492-SP2D070	❶	7 ❷	1492-SP3D070	❶			
	8	1492-SP2D080	❶	8	1492-SP3D080	❶	8	1492-SP3D080-N	❶
	10	1492-SP2D100	❶	10	1492-SP3D100	❶	10	1492-SP3D100-N	❶
	13	1492-SP2D130	❶	13	1492-SP3D130	❶	13	1492-SP3D130-N	❶
	15 ❷	1492-SP2D150	❶	15 ❷	1492-SP3D150	❶			
	16	1492-SP2D160	❶	16	1492-SP3D160	❶	16	1492-SP3D160-N	❶
	20	1492-SP2D200	❶	20	1492-SP3D200	❶	20	1492-SP3D200-N	❶
	25	1492-SP2D250	❶	25	1492-SP3D250	❶	25	1492-SP3D250-N	❶
	30 ❷	1492-SP2D300	❶	30 ❷	1492-SP3D300	❶			
	32	1492-SP2D320	❶	32	1492-SP3D320	❶	32	1492-SP3D320-N	❶
	40	1492-SP2D400	❶	40	1492-SP3D400	❶	40	1492-SP3D400-N	❶
	50	1492-SP2D500	❸	50	1492-SP3D500	❸	50	1492-SP3D500-N	❸
	63	1492-SP2D630	❸	63	1492-SP3D630	❸	63	1492-SP3D630-N	❸
Operational Voltage	IEC 415V AC			IEC 415V AC			IEC 415V AC		
	UL/CSA 480Y/277V AC, 96V DC			UL/CSA 480Y/277V AC			UL/CSA 480Y/277V AC		
Pieces per Package	1			1			1		
Diagram									

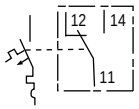
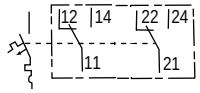
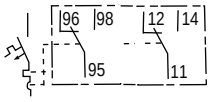
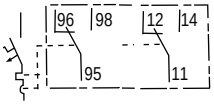
❶ ❷ Current rating used only in North America.

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Accessories

Table 10 - Auxiliary Contacts

Auxiliary Contact	Description	Approvals	Diagram	Catalog Number
	Auxiliary Contact Module • Changeover • 1 Form C • Switches when protective device is operated manually or tripped electrically	c UL us IEC CE		1492-ASPH3
	Dual Auxiliary Contact Module • Two auxiliary contacts • Changeover contact • 2 Form C • Switches when the protective device is operated manually or tripped electrically	c UL us IEC CE		1492-ASPHH3
	Auxiliary/Signal Alarm Module • Auxiliary Contact — switches when the protective device is operated manually or tripped electrically • Signal Alarm Contact — trip indicating contact switches only when the protective device is tripped electrically • Changeover Contact • 2 Form C • Front Indicator — signals when device is tripped electronically	c UL us IEC CE		1492-ASPHS3
	Convertible Contact Module • Customer selectable • Contact sets similar to 1492-ASPHH3 or 1492-ASPHS3 • Customer may field select one configuration or the other	c UL us IEC CE CCC		1492-ASPHSC3

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Table 11 - Voltage Trips

Voltage Trip	Description	Approvals	Diagram	Voltage	Catalog Number
	Undervoltage Release Module • Use to trip the adjacent breaker poles when the applied voltage is less than the nominal voltage • Undervoltage trip is often used when loss of power and eventual restoration of power creates an unsafe or unknown set of conditions	c UL us IEC CE		50…115V AC	1492-ASPU115
				110…240V AC	1492-ASPU230
	Shunt Trip Module • Use to trip the adjacent breaker poles from a remote location. The module is actuated by applying a voltage (pickup voltage) to the trip terminals • Use in emergency shutdown circuits where multiple power circuits must be switched off from a single location	c UL us IEC CE		110…415V AC 110…230V DC	1492-ASPA1
				12…110V AC 12…60V DC	1492-ASPA2

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Allowable Combinations of Field Added Modules

IMPORTANT All field added modules **must** be added to left side of supplementary protector/miniature circuit breaker.

Table 12 - Allowable Combinations of Field Added Modules

						+ 
Catalog Number 1492-						**Catalog Number 1492-**
ASPHSC3	**ASPH3**	**ASPHH3**	**ASPHS3**	**ASPA…**	**ASPU…**	**SP***
	X					X
		X				X
			X			X
				X		X
					X	X
	X			X		X
		X		X		X
			X	X		X
X						X
X				X		X

(1) Auxiliary Contact Module

(1) Dual Auxiliary Contact Module

(1) Auxiliary/Signal Alarm Contact Module

(1) Convertible Contact Module

(1) Shunt Trip Module

(1) Undervoltage Release Module

(1) Auxiliary Contact Module + (1) Shunt Trip Module

(1) Dual Auxiliary Contact Module + (1) Shunt Trip Module

(1) Auxiliary/Signal Alarm Module + (1) Shunt Trip Module

(1) Convertible Contact Module + (1) Shunt Trip Module

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Additional Accessories

The following table lists additional accessories used with all 1492-SP* Miniature Circuit Breakers.

Table 13 - Additional Accessories

Accessory	Catalog Number	Pieces per Package
Mounting Rails		
1 m Symmetrical DIN	199-DR1	10
1 m Hi-Rise Symmetrical DIN	1492-DR6	2
1 m Angled Hi-Rise Symmetrical DIN	1492-DR7	2
End Anchor	1492-EAH35	50
Lockout Attachment	1492-ASPLOA	10

Product Selection

Cuttable Copper Bus Bar

NOTE: The copper bus bar is 1 meter in length and may be cut to a length suitable for your application.

Figure 4 - Bus Bar Specifications

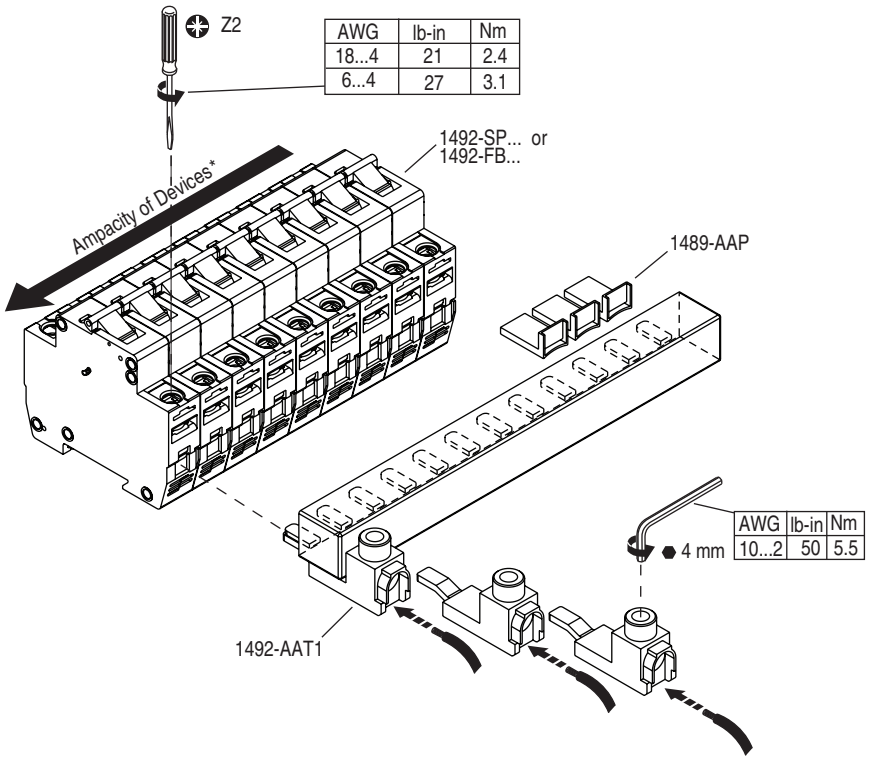
Bus Bar Description	Devices per Meter	Amperage	Approvals	Catalog Number 1492-	Package Quantity
Single-Phase	57	80	UL 508 UL E56639 Category NMTR2 ULus listed CE	A1B8	1
		100		A1B1	
	36 with Auxiliary Module	80		A1B8H	
		100		A1B1H	
Two-Phase	29	80		A2B8	
		100		A2B1	
	22 with Auxiliary Module	80		A12B8H	
		100		A12B1H	
Three-Phase	19	80		A3B8	
		100		A3B1	
	16 with Auxiliary Module	80		A3B8H	
		100		A3B1H	

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Table 14 - Bus Bar Accessory Specifications

Accessory Description		Amperage	Approvals	Catalog Number 1492-	Package Quantity
End Caps for use with:	Single-Phase Bus Bar		UL 508 UL E56639 Category NMTR2 ULus Listed CE	A1E	10
	Two- & Three-Phase Bus Bar			AME	
Protective Shroud				AAP	
Terminal Lug		80/100		AAT1	

Figure 5 - Bus Bar Installation



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Table 15 - Bus Bar Installation Specifications

Type	Number of 1492-SP*	Rated Operational I_e: End Feed per Phase	Rated Operational I_e: Center Feed per Phase (I_e< 63 A)	Approvals	Catalog Number 1492-	Pieces per Package
Fork Style Commoning Links — may be cut to length, not for use with accessories						
One-Pole	1 m (56 devices/m)	63	100	CE	ASPCL1	1
Three-Pole	1 m (19 devices/m)	63	100		ASPCL3	1
End Cap for Three-Pole	—	—	—		ASPEC1	10
Fork Style Commoning Links — may NOT be cut to length, not for use with accessories						
One-Pole	2	63	100	CE	ASPCL102	—
	6				ASPCL106	20
	12				ASPCL112	20
Two-Pole (One-Pole plus Neutral)	2	63	100		ASPCL204	10
	3				ASPCL206	10
	6				ASPCL212	10
Three-Pole	2	63	100		ASPCL306	10
	4				ASPCL312	10
Four-Pole	2	63	100		ASPCL408	5
	3				ASPCL412	5
Fork-Style Commoning Links (for use with accessories)						
One-Pole	2	63	100	CE	ASPCL1A02	20
	6				ASPCL1A06	
	9				ASPCL1A09	
Two-Pole (One-Pole plus Neutral)	2	63	100	CE	ASPCL1A04	10
	3				ASPCL1A06	
	5				ASPCL1A10	
Three-Pole	2	63	100	CE	ASPCL3A06	10
	4				ASPCL3A12	
Three-Phase Bus Bar for Multiple One-Pole (each with one auxiliary contact)						
—	2x3 (1p)	63	100	CE	ASPCL3AP06	10
—	2x3 (1p)+2 (1p)	63	100		ASPCL3AP08	10
—	3x3 (1p)	63	100		ASPCL3AP09	10
Incoming Terminals for Fork Style (not for use in North America)						
For Max 25 mm^2 Wire	—	—	100	CE	ASPCT25	50
For Max 25 mm^2 Wire	—	—	100		ASPCLT35	10
Protective Covers for Unused Forks						
—	—	—	—	CE	ASPCLPS	10 sets (5 per set)

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Limiting Let-Through Energy

Bulletin 1492-SP versus Conventional Breakers

The 1492-SP line features the unique ability to achieve short-circuit interruptions far more effectively than conventional breakers.

In conventional circuit breakers, the short-circuit interruption time required is approximately one or two half cycles of an AC sine wave. When the contacts open, the resulting arc continues to burn until the current level passes through zero. The arc may reignite because of the insufficient width of the contact gap. The current that flows until the arc is extinguished produces a heating effect proportional to the I^2t value (let-through-energy) of the fault current.

The 1492-SP device is designed to substantially reduce the amount of let-through-current and the resulting let-through-energy that can damage protected components. The 1492-SP has the ability to interrupt short-circuit current within the first half cycle of the fault.

Limiting let-through-energy will protect against the harmful effects of overcurrent and is focused primarily on avoiding:

- excessive heat and
- mechanical damage.

Both of these factors are proportional to the square of the current. Thermal energy is proportional to the square of the RMS value and magnetic forces are proportional to the square of the peak value. The most effective way to provide protection is to substantially limit let-through-energy. This provides the following advantages:

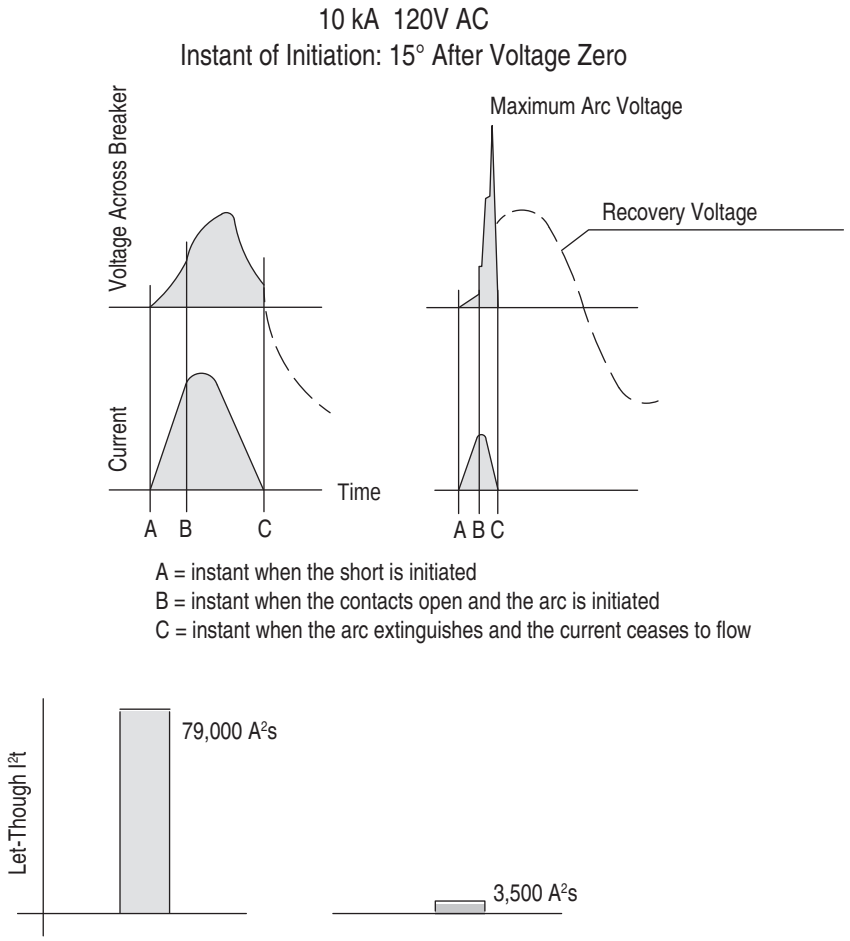
- Far less damage at the location of the short circuit.
- Fast electric separation of a faulty unit from the system; in particular, power supplies connected in parallel that are switched off when the voltage of the power bus drops below a certain level.
- Far less wear on the miniature circuit breaker itself, which means more safe interruptions.
- Better protection of all components in the short circuit path.
- Far wider range of selective action when used with an upstream protective device; there are no nuisance shut downs from feeder line interruptions, causing a blackout in all connected branches.

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Short-Circuit Interruption

The following graphic shows the short circuit interruption from 10 kA — 120V AC with an instant of initiation of 15° after a voltage of zero.

Figure 6 - Short-Circuit Interruption — Conventional Breakers

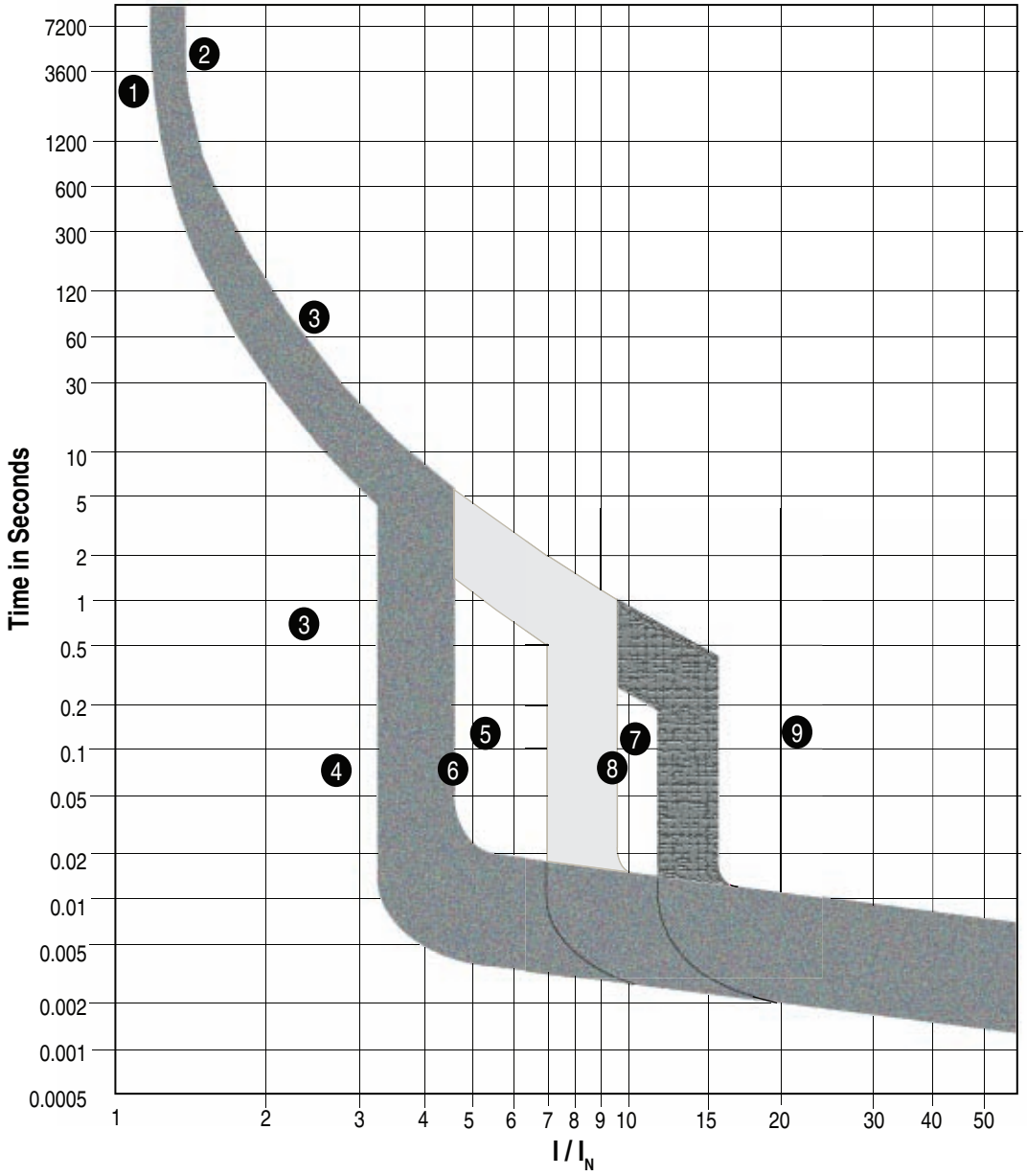


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Energy-Limiting Characteristics

Tripping Characteristics

Figure 7 - Tripping Characteristics at 30º C



❶ Conventional Non-Tripping Current: 1_{nt}=1.13I_N: t >1h

❷ Conventional Tripping Current: 1t=1.45: t <1h

❸ 2.55I_N: t=1-60 seconds (I_N < 32a); t=1-120 seconds (I_N < 32a)

❹ Type B: 31_N: t > 0.1 seconds

❺ Type B: 51_N: t < 0.1 seconds

❻ Type C: 51_N: t > 0.1 seconds

❼ Type C: 101_N: t < 0.1 seconds

❽ Type D: 101_N: t > 0.1 seconds

❾ Type D: 201_N: t < 0.1 seconds

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Specifications

Table 16 - Basic Specifications

Description		B Curve	C Curve	D Curve
Tripping Characteristic		Resistive or Slightly Inductive Loads, 3…5 I_n	Inductive Loads, 5…10 I_n	Highly Inductive Loads, 10…20 I_n
Poles (17 mm width per pole)		1, 2, 3, 1+ N, 3 + N		
Approvals		See Selection Tables on page 12		
Maximum Voltage				
Dielectric Strength		1960V AC		
Shock		25 G Half Sine Wave for 11 ms (3 axes)		
Vibration		Frequency Range: 10…2000 Hz Max. Amplitude (p - p) = 0.030 in. Max. Acceleration = 5 G 2 hours each of 3 axes		
Operating Temperature Range		-22…+158 °F (-30…+70 °C) non-condensing		
Shipment & Short-Term Temperature Limits		-40…+185 °F (-40…+85 °C)		
Housing Material		Nylon		
Wire Size (Cu Only)	#18…8 AWG (1.0…10 mm^2)	Tightening Torque: 2.4 N•m (21 lb-in.)		
	#6…4 AWG (16…25 mm^2)	Tightening Torque: 3.1 N•m (27 lb-in.)		
Recommended Wire Strip Length		0.51 in. (13 mm)		
Electromechanical Life		6,000 operations (1 operation = 2 switching events) ON/OFF		
Switched Neutral Rating		277V AC		
Direction of Incoming Supply		As Required		
Contact Position Indicator		Red/Green		
Terminals		M5 (with slotted screw PZ2)		
Mounting		DIN Rail (IEC60715)		
Mounting Position		As Required		

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Table 17 - Basic Specifications, Continued

Description	B Curve	C Curve	D Curve
Current Range	1…63 A	0.5…63 A	0.5…40 A
Certifications	UL 1077 – Recognized Component QVNU2 - E65138 CSA 22.2 No. 235 Certified Components		
Use Group (UG)	UG A — General Industrial		
Terminals (FW)	FW 3 Line and Load Evaluated for Field Wiring		
Overload Rating	OL 0 (General Use)		
One-Pole, One-Pole plus Neutral			
Maximum Voltage	277V AC	48V DC	
Tripping Current (TC)	TC1, 40 °C		
Short-Circuit Current Rating (SC)	SC U2	SCU1	
<35 A	10 kA @ 277V AC; B & C Curve 5 kA @ 277V AC; D Curve	10 kA @ 48V DC; B, C, & D Curve	
40, 50, 63 A	5 kA @ 277V AC; B, C, & D Curve		
Two-Pole, Three-Pole, Three-Pole plus Neutral			
Maximum Volts	480Y/277V AC	96V DC (Two-Pole Series)	
Tripping Current (TC)	TC2, 40 °C		
Short-Circuit Current Rating	SC U2	SC U1	
<35 A	10 kA @ 480V AC; B & C Curve 5 kA @ 480V AC; D Curve	10 kA @ 48V DC; B, C, & D Curve	
40, 50, 63 A	5 kA @ 277V AC; B, C, & D Curve		
Miniature Circuit Breakers			
Current Range	1…63 A	0.5…63 A	0.5…40 A
Certifications	IEC/EN 60 898 (VDE) IEC/EN 60 947-2 (GL) (not including D50 and D63) CQC (GB-10963) (not including D50 and D63)		
Electrical Specifications			
Rated Voltage Un	240/415 VAC 48 V DC (CE 60747-2)		
Rated Insulation Voltage Ui	440 V AC		
Rated Impulse Withstand Voltage U_{imp}	4 kV (1.2/50)		
Conventional Non-Tripping Current	int=1.13 In		
Conventional Tripping Current	it=1/45 In		
Reference Temperature	30 °C		
Temperature Factor	0.5% per K		
Maximum Back-Up Fuse	125 A gL/gG		
Selectivity Class	3		
Rated Short-Circuit Capacity	Icn (IEC 60 898)=10 kA Icu (IEC 60 947-2)=15 kA		
Service Short-Circuit Capacity	Ics=7.5 kA		
Climatic Conditions	Acc to IEC 68-2 (25…55 °C/90…95% RH)		

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Auxiliary Contacts

Module Type		Auxiliary Contact, Dual Auxiliary Contact, Auxiliary /Signal Alarm	Undervoltage Release		Shunt Trip	
Catalog Number 1492-		**ASPH3, ASPHH3, ASPHS3, ASPHSE3**	**ASPU115, ASPU230**		**ASPA1, ASPA 2**	
Degree of Protection		IP 20 (IP 00)				
Dimensions		See Dimensions on page 31.				
Weight in kg		0.045	0.355		0.155	
Mechanical Lifespan in Operations		6,000	10,000		4,000	
Minimum Impulse Duration		—	—		> 15 ms	
Minimum Command Time		—	—		≤ 200 ms	
Operating Voltage		—	ASPU115	U_n - 115V AC U_{min} - 50V AC	ASPA1	110 … 415V AC 110 … 230V DC
		—	ASPU230	U_n - 230/240V AC U_{min} - 110V AC	ASPA2	12 … 110V AC 12 … 60V DC
Inrush Current		—	3.6/44 mA (AC/DC)		25/12 mA (AC) 15/2 mA (DC)	
Dropout		—	0.7 … 0.35 x U_s		—	
Voltage Range		—	—		0.7 … 1.1 x U_s	
IEC	Maximum Operating Current	AC13 @ 250V AC 3 A AC15 @ 250V AC 0.5 A DC12 @ 110V DC 0.5 A U_{min} - 5V AC	—		—	
	Terminal Capacity IEC Rigid, CU	0.5…2.5 mm^2 2 x 0.5…2 x 2.5 mm^2	0.5…4.0 mm^2 2 x 0.5…2 x 2.5 mm^2		1.0…25 mm^2 2 x 1.0…2 x 4.0 mm^2	
	Tightening Torque	0.8 Nm	1.1 Nm		2.4 Nm	
UL 1077, CSA 22.2 No. 235	Maximum Operating Current	@ 230V AC 2 A @ 110V DC 0.5 A U_{min} - 5 V DC	—		—	
	Terminal Capacity CU	#18…#14 AWG 2 x #18 …2x #14 AWG	#18…#14 AWG 2 x #18 …2x #14 AWG		#18…#8 AWG 2 x #18…2x #12 AWG	
	Tightening Torque	7 lb-in.	10 lb-in.		21 lb-in.	

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Application Information

A bus bar may be used for all 1492-SP Miniature Circuit Breakers.

IMPORTANT Position high current drawing devices nearest to the Feed Terminal, 1492-AAT1.

Figure 8 - For 1492-ANNN Bus Bars

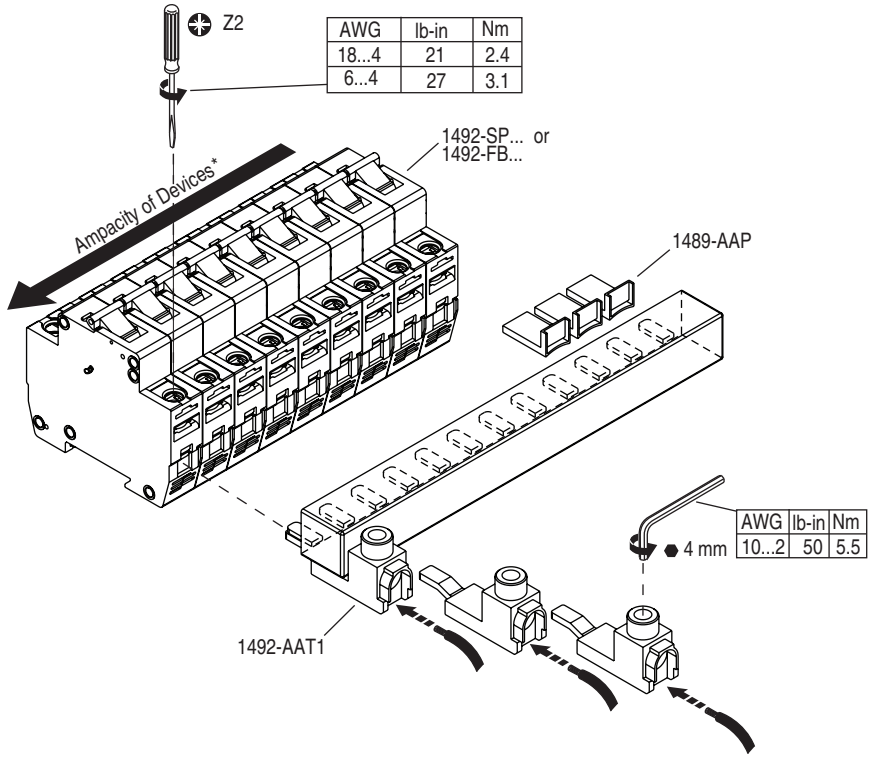
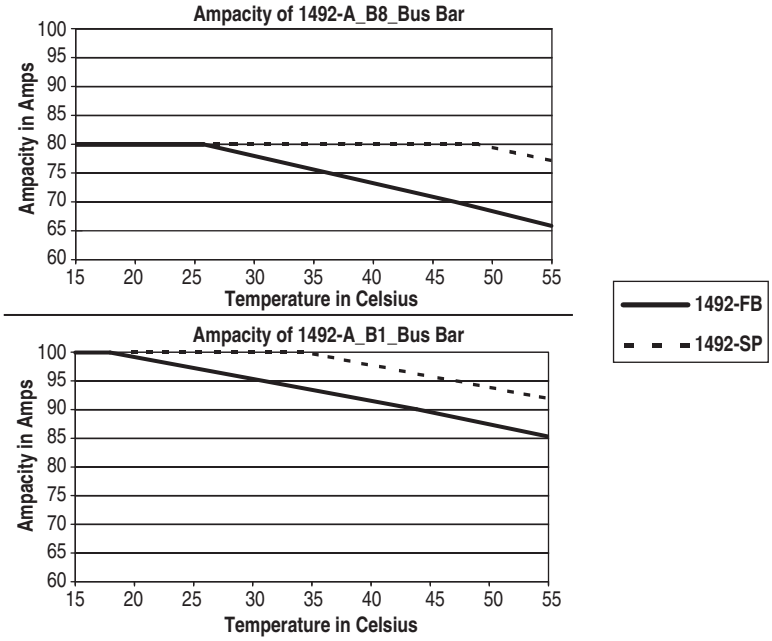


Figure 9 - Temperature Current Characteristic



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Dimensions

Dimensions are shown in millimeters. Dimensions are not intended for manufacturing purposes.

Figure 10 - 1492-SP Series C

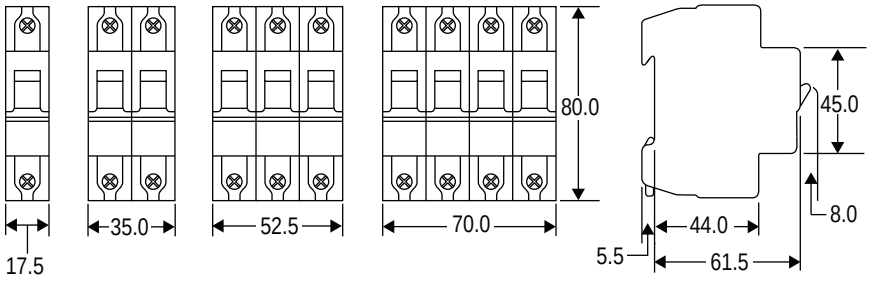


Figure 11 - Bulletin 1492-A1B8

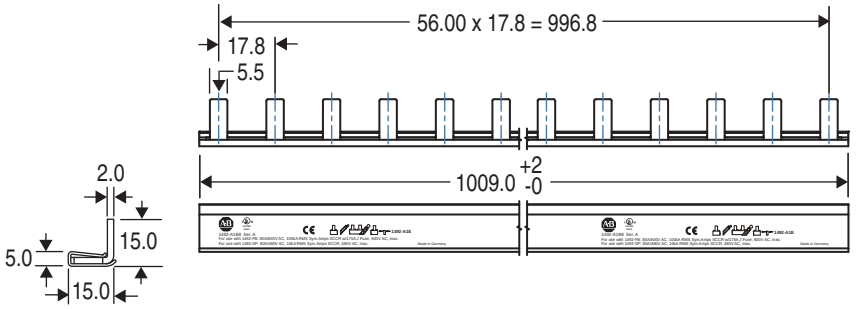


Figure 12 - Bulletin 1492-A2B8

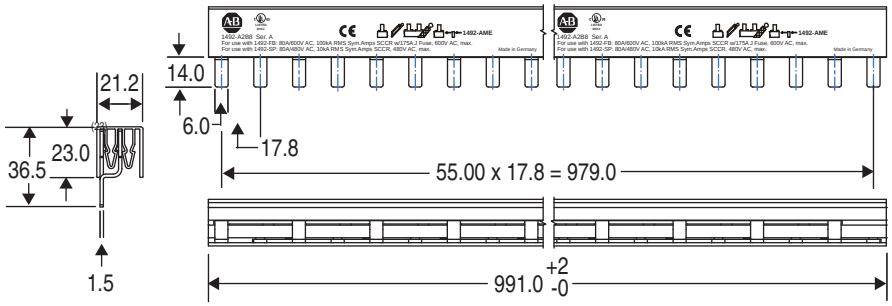
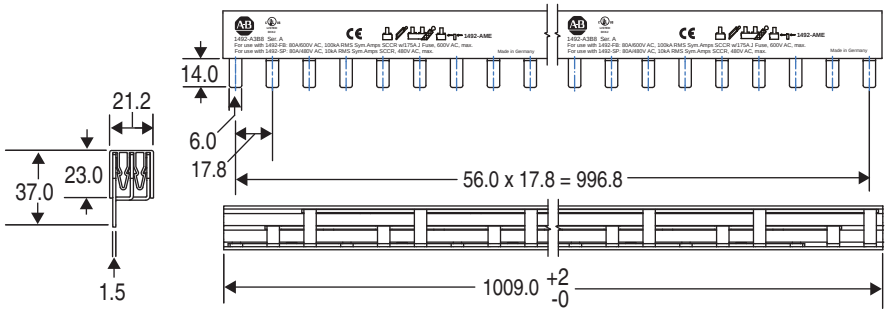


Figure 13 - Bulletin 1492-A3B8



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Figure 14 - Bulletin 1492-A1B1

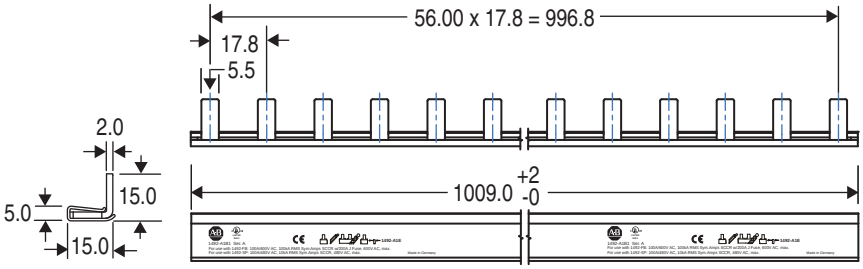


Figure 15 - Bulletin 1492-A2B1

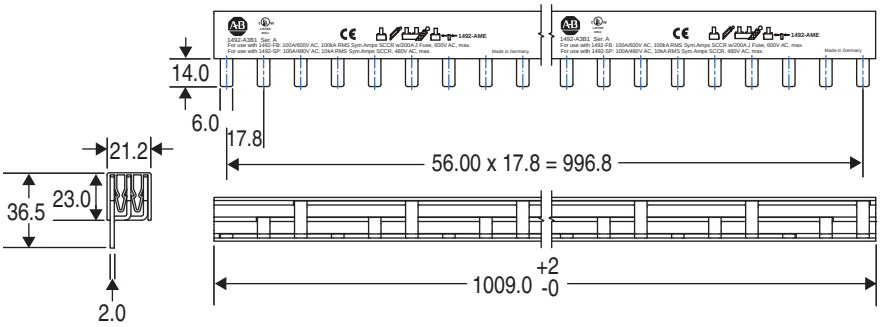


Figure 16 - Bulletin 1492-A1B1H

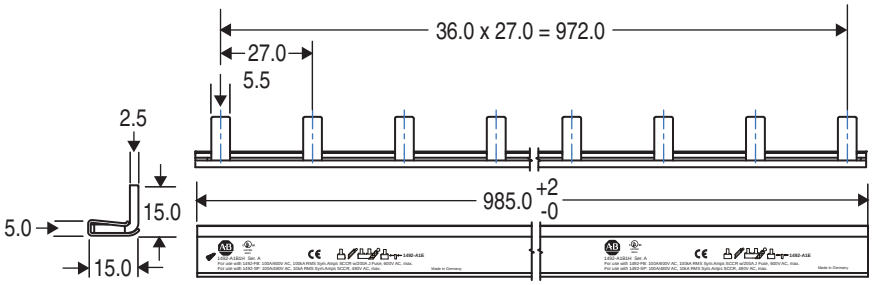
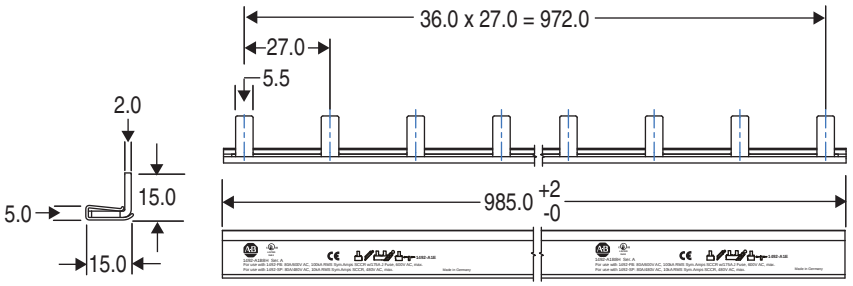


Figure 17 - Bulletin 1492-A1B8H



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Figure 18 - Bulletin 1492-A2B8H

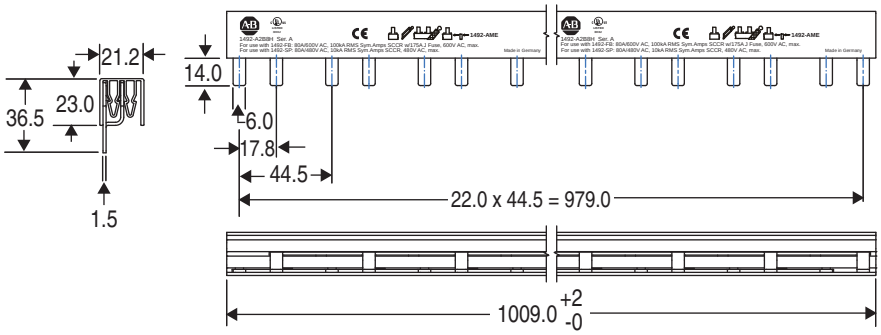


Figure 19 - Bulletin 1492-A3B8H

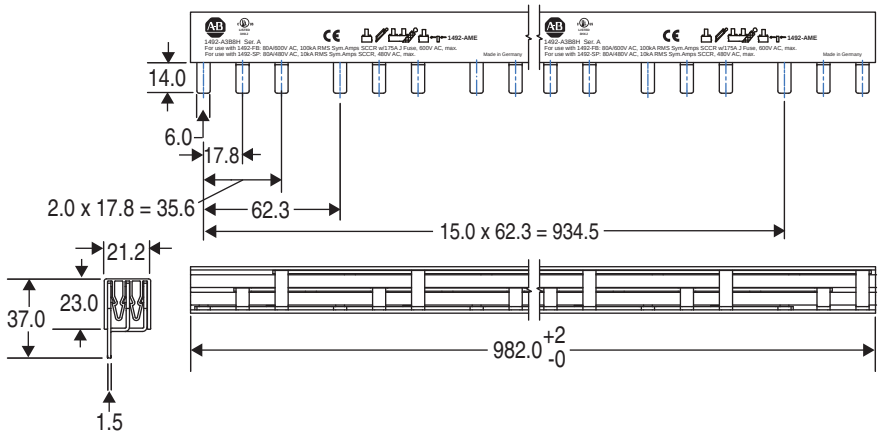
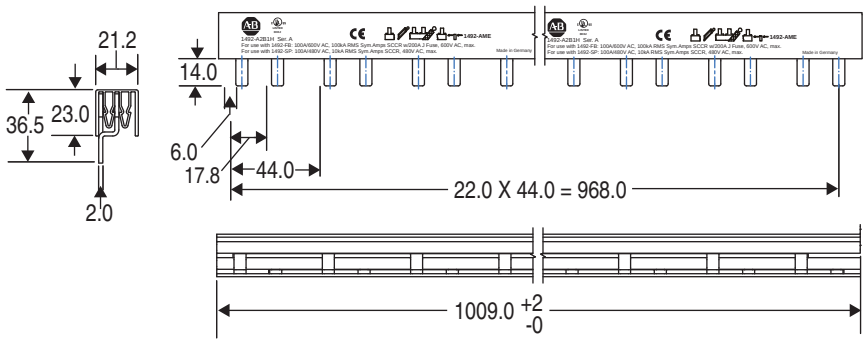


Figure 20 - Bulletin 1492-A2B1H



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Figure 21 - Bulletin 1492-A3B1H

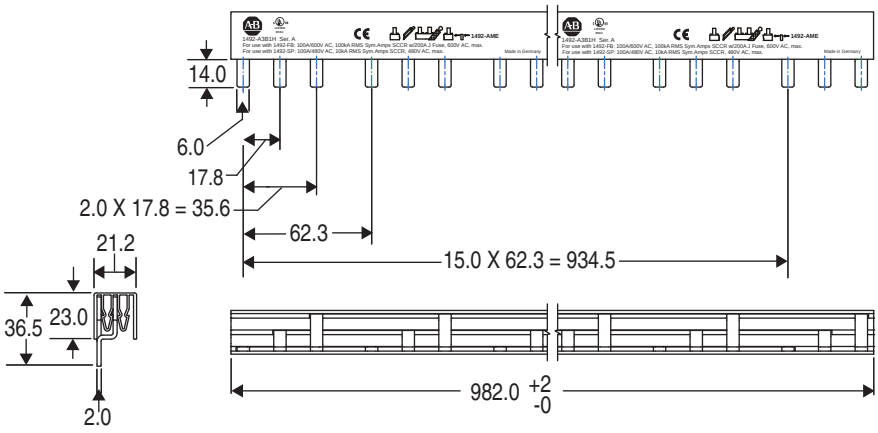


Figure 22 - Auxiliary Contacts — 1492-ASPHH3, ASPHS3, ASPH3, AS9HSC3P

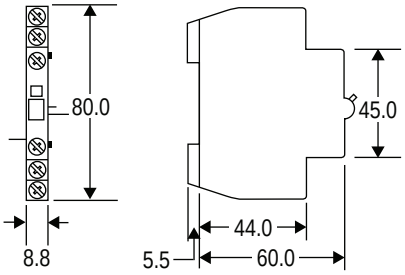


Figure 23 - Undervoltage Release Module — 1492-ASPU

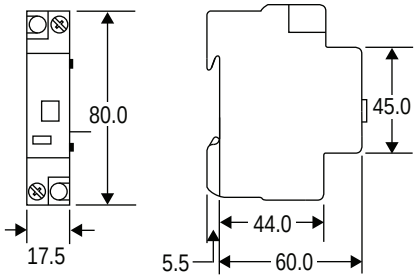
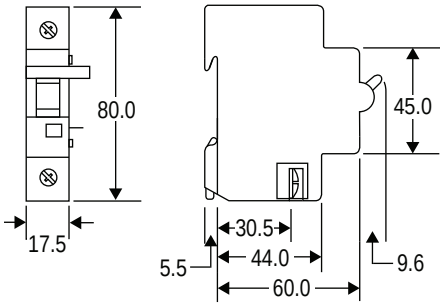


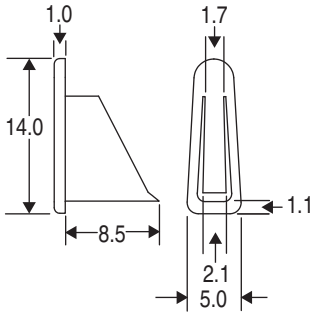
Figure 24 - Shunt Trip Module — 1492-ASPA



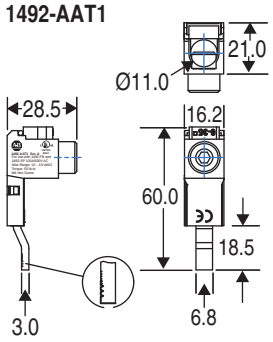
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Figure 25 - Bus Bar Accessories

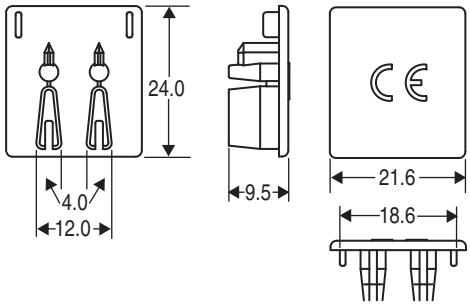
Bulletin 1492-A1E



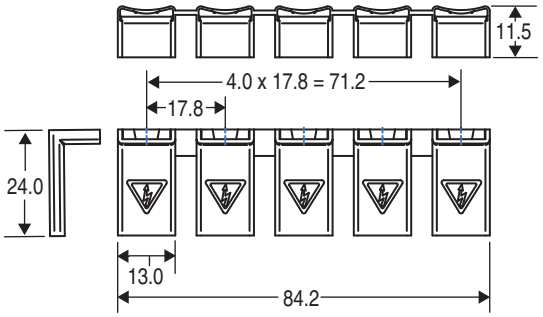
Bulletin 1492-AAT1



Bulletin 1492-AME



Bulletin 1492-AAP



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Internal Resistance

The following table provides the internal resistance of a one-pole at room temperature.

Table 18 - Internal Resistance of a One-Pole at Room Temperature

	R [mΩ]*		
I_n [A]	Type B	Type C	Type D
0.5	—	4670	4670
1	1102	1100	770
2	333	333	249
3	208	130	130
4	87.2	87.2	87.2
5	72.8	72.8	65.1
6	46.3	39.1	39.1
7	35	32	28
8	30.4	30.4	19.5
10	17.4	14.0	14.0
13	13.3	13.3	10.1
15	7.9	7.9	7.9
16	7.9	7.9	7.9
20	7.1	7.1	4.9
25	4.9	4.9	3.8
30	3.9	3.9	3.5
32	3.7	3.7	3.4
40	2.5	2.5	2.6
50	2.1	2.1	1.9
63	2.0	2.0	1.5

* 50 Hz

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Power Loss I_n

Entire Unit

Table 19 - Entire Unit Power Loss I_n—Type B, C, & D

	Type B — P* [W]					Type C — P* [W]					Type D — P* [W]				
I_n [A]	1p	1pN	2p	3p	3pN	1p	1pN	2p	3p	3pN	1p	1pN	2p	3p	3pN
0.5	—	—	—	—	—	1.2	1.3	2.4	3.5	3.7	1.2	1.3	2.4	3.5	3.7
1	1.6	1.7	3.1	4.7	4.8	1.6	1.7	3.1	4.7	4.8	0.8	0.9	1.6	2.4	2.5
2	1.4	1.5	2.8	4.1	4.3	1.4	1.5	2.8	4.1	4.3	1.0	1.1	2.0	3.0	3.1
3	2.5	2.7	5.0	7.6	7.8	1.2	1.3	2.4	3.6	3.7	1.2	1.3	2.4	3.6	3.7
4	1.4	1.6	2.9	4.4	4.5	1.4	1.6	2.9	4.4	4.5	1.4	1.6	2.9	4.4	4.5
5	1.9	2.1	3.8	5.8	6.0	1.9	2.1	3.8	5.8	6.0	1.7	1.8	3.3	5.1	5.3
6	1.8	2.0	3.6	5.5	5.6	1.5	1.6	2.9	4.4	4.6	1.5	1.6	2.9	4.4	4.6
7	1.9	2.2	3.8	5.7	6.0	1.6	1.9	3.0	4.5	4.8	1.4	1.6	2.8	4.2	4.4
8	2.1	2.3	4.1	6.3	6.5	2.1	2.3	4.1	6.3	6.5	1.3	1.5	2.6	4.0	4.2
10	1.9	2.1	3.9	5.9	6.1	1.5	1.7	3.0	4.6	4.7	1.5	1.7	3.0	4.6	4.7
13	2.5	2.9	5.3	7.8	8.1	2.5	2.9	5.3	7.8	8.1	1.9	2.2	4.0	5.9	6.1
15	2.1	2.4	4.4	6.5	6.7	2.1	2.4	4.4	6.5	6.7	2.1	2.4	4.4	6.5	6.7
16	2.2	2.6	4.7	6.9	7.2	2.2	2.6	4.7	6.9	7.2	2.2	2.6	4.7	6.9	7.2
20	3.2	3.6	6.6	9.8	10.1	3.2	3.6	6.6	9.8	10.1	2.0	2.2	4.1	6.8	6.2
25	3.0	3.5	6.4	9.4	9.7	3.0	3.5	6.4	9.4	9.7	2.5	2.9	5.2	7.7	7.9
30	3.2	3.9	6.5	9.6	10.3	3.4	4.0	6.8	10.2	10.8	2.4	4.0	4.8	7.2	8.8
32	3.7	4.4	8.1	12.1	12.5	3.7	4.4	8.1	12.1	12.5	3.4	4.0	4.8	7.2	8.8
40	3.4	4.1	7.5	11.2	11.5	3.4	4.1	7.5	11.2	11.5	3.2	3.8	7.0	10.4	10.7
50	4.5	5.4	9.9	14.9	15.3	4.5	5.4	9.9	14.9	15.3	4.9	7.5	9.8	14.6	17.3
63	5.2	6.3	11.5	17.2	17.7	5.2	6.3	11.5	17.2	17.7	6.8	11.9	13.6	20.4	25.5

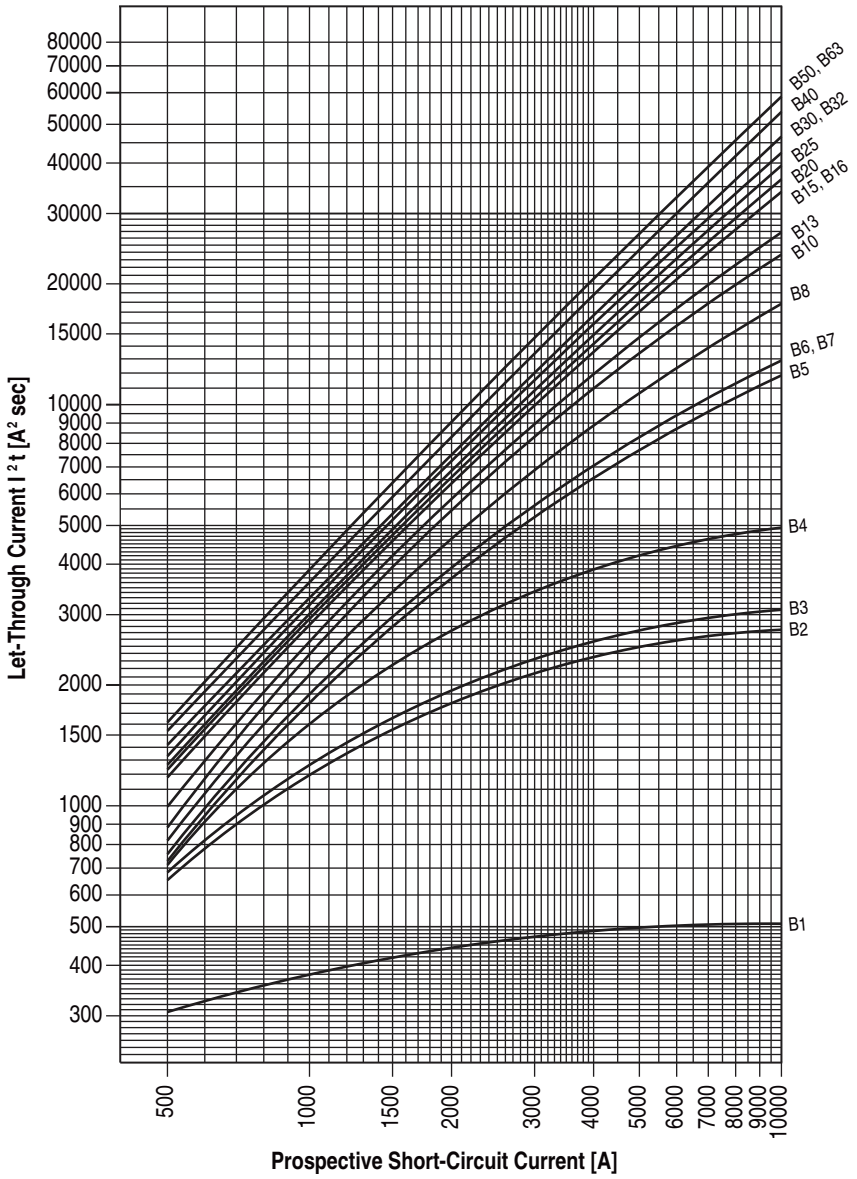
* 50 Hz

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Maximum Let-Through Energy

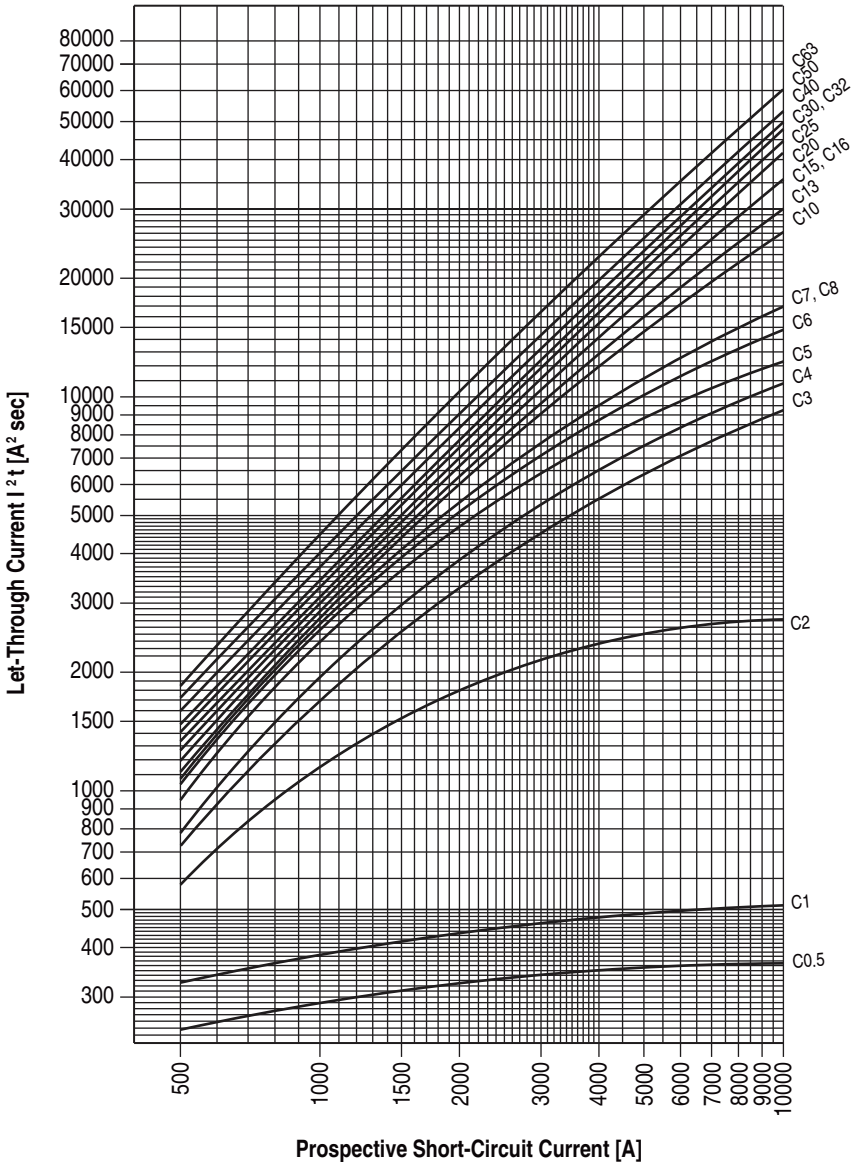
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Figure 26 - Type B



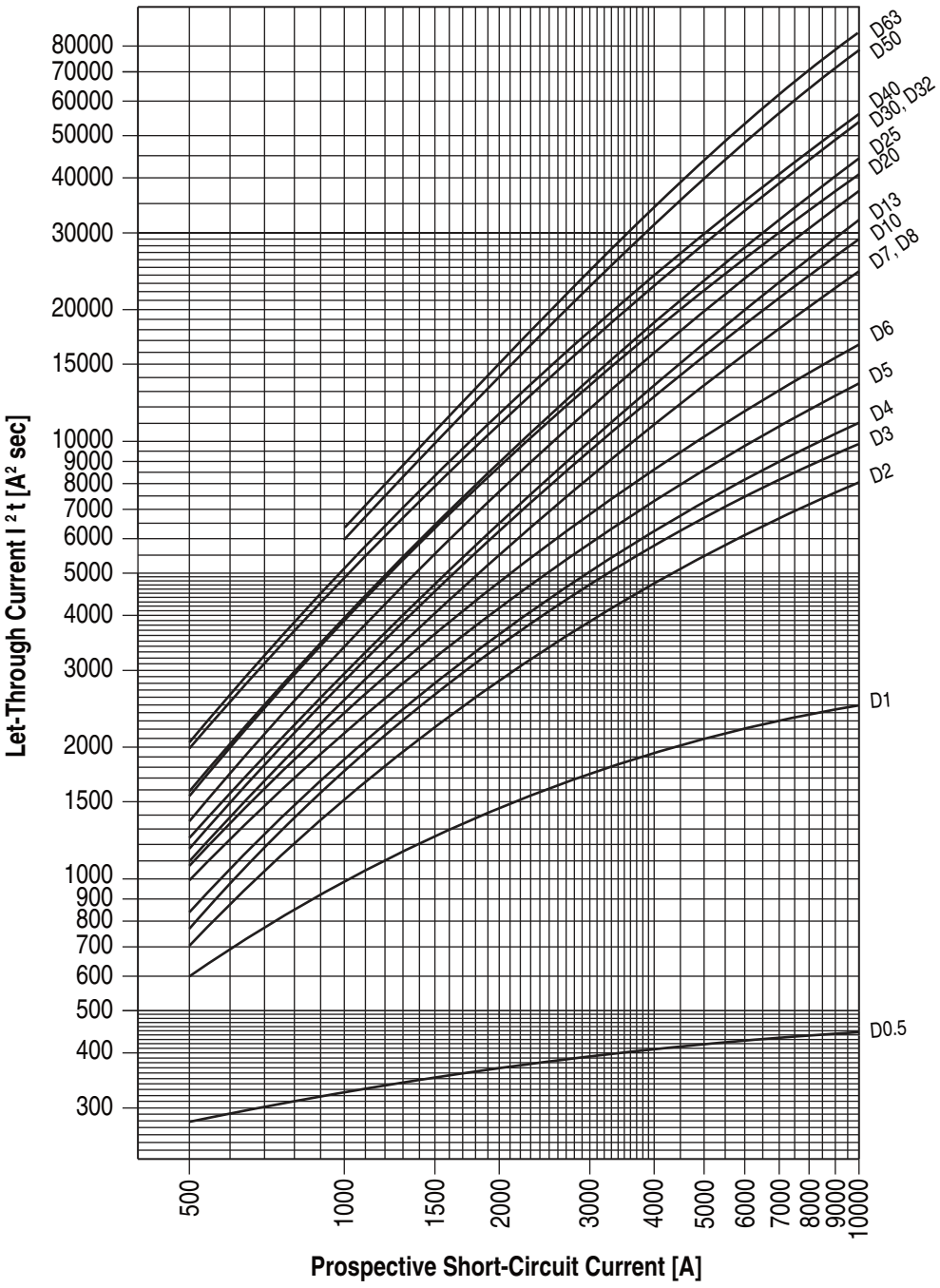
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Figure 27 - Type C



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Figure 28 - Type D

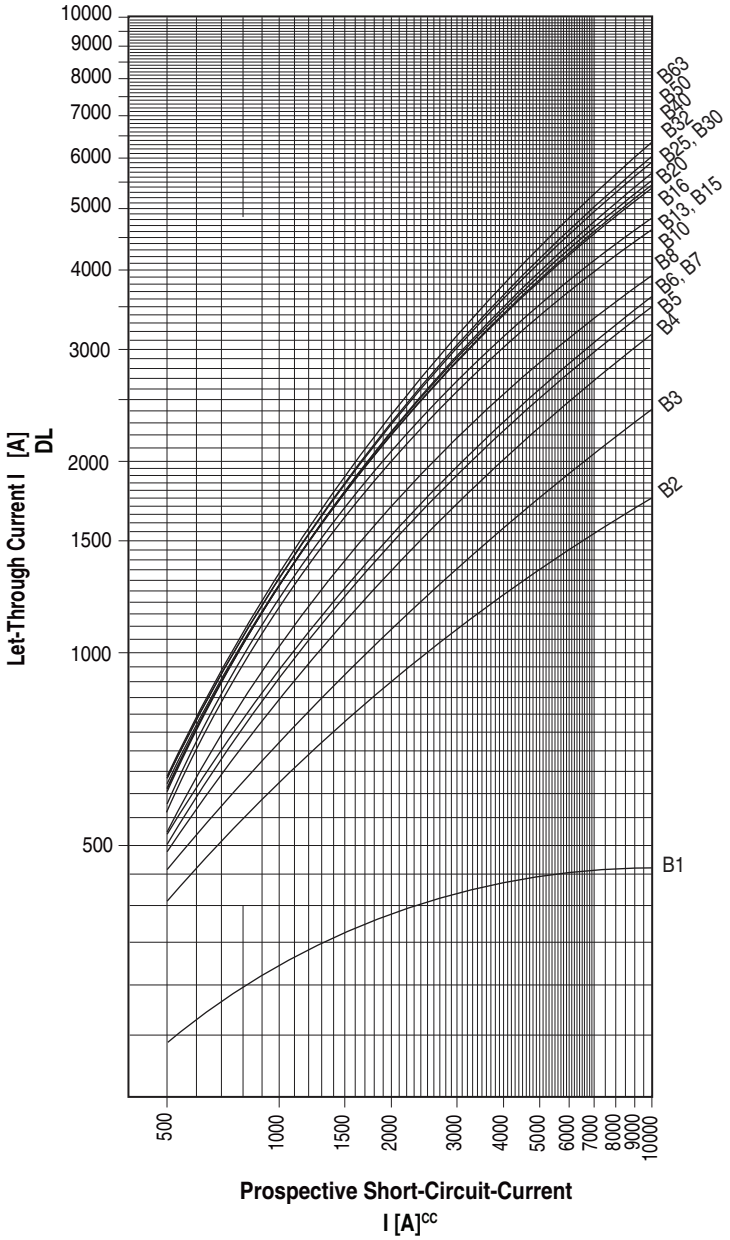


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Maximum Let-Through Current

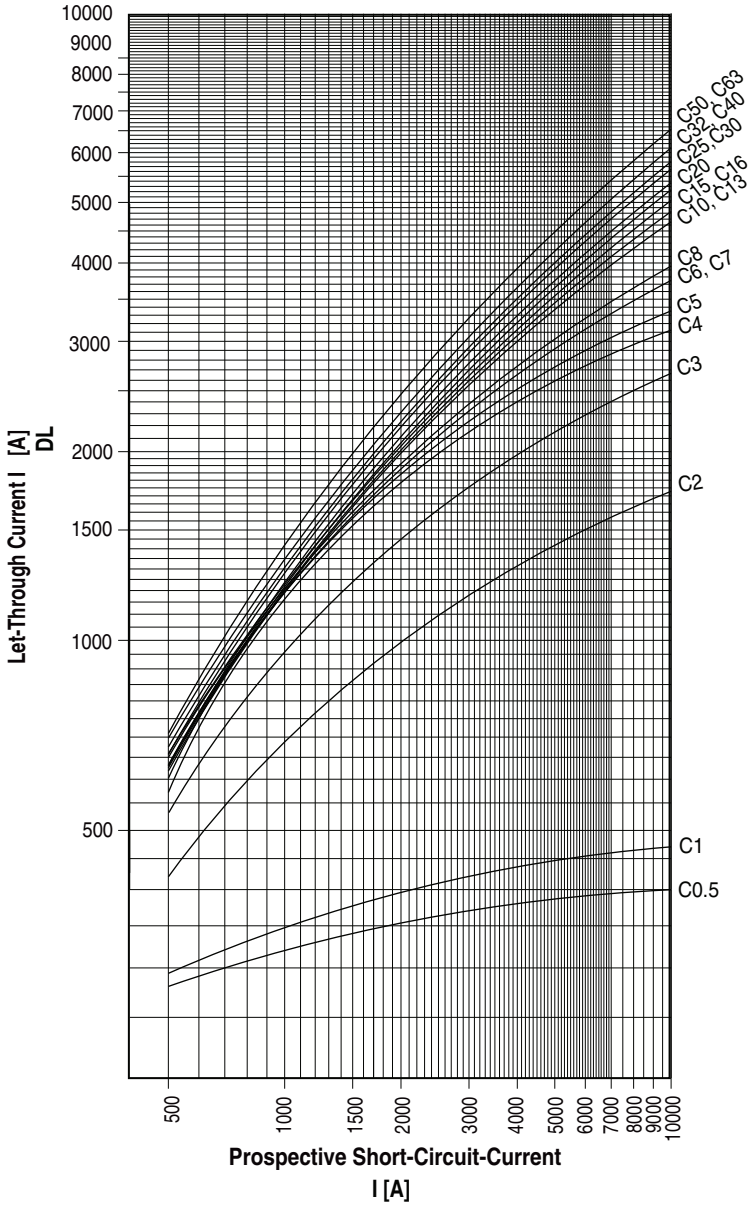
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Figure 29 - Type B



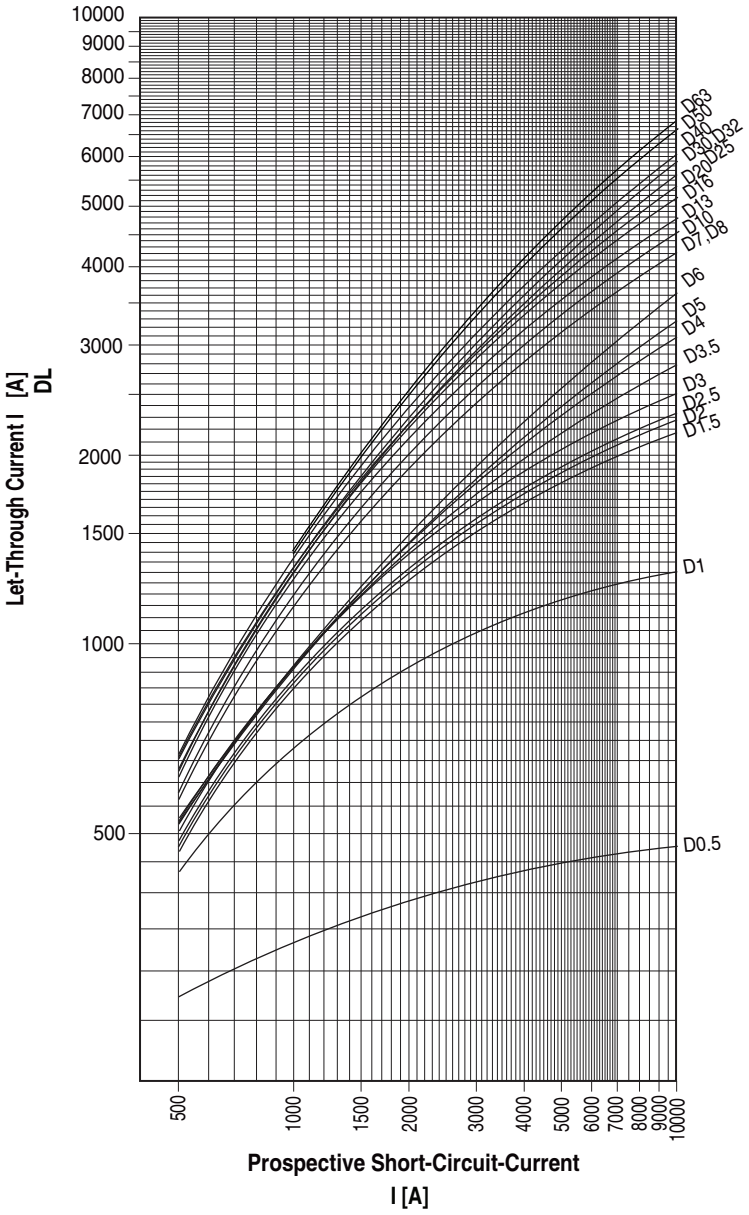
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Figure 30 - Type C



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Figure 31 - Type D



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