

Certificate of Compliance

Certificate: 1530107 (LR 98793)

Master Contract: 183691

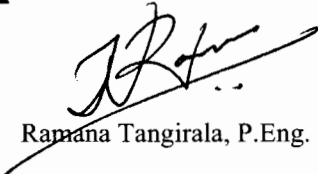
Project: 1530107

Date Issued: 2004/05/31

Issued to: **ABB STOTZ-KONTAKT GmbH**
Dept STO/LN3
Eppelheimer Str 82
Postfach 10 16 80
Heidelberg, Baden-Wurttemberg 69006
Germany
Attention: Mr. Eric Englert

The products listed below are eligible to bear the CSA Mark shown with adjacent indicator ▲



Issued by: 
Ramana Tangirala, P.Eng.

Authorized by: Nick Alfano, Operations
Manager



PRODUCTS

CLASS 3215 30 - SUPPLEMENTARY PROTECTORS - COMPONENT ACCEPTANCE PROGRAM

· Component Supplementary Protectors, manual reset, thermo-magnetic trip units: Series S200 followed with B, C, D, K or Z followed by a number between 0.5 and 63A may be followed by additional suffixes. 1 to 4 pole.

S200B rating 6 to 63A, and S200C, D, K and Z ratings 0.5 to 63A, 277V ac -1 phase, 480V ac - 3 phase or two



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pole breaking, Temperature range -25°C to 70°C ; Short Circuit Ratings: 6kA at 27V ac one pole and 480V ac multipole; 10kA at 120V ac/60V dc one pole and 240V ac/125V dc multiple. May or may not be provided with Auxiliary contacts (Types S2-H, S2-S/H, H01 and H02) and shunt trip (S2-A1 and S2-A2).

Open type devices are Certified as components for use in assemblies where the suitability of the combination is to be determined by the CSA International.

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 0-M91 - General Requirements - Canadian Electrical Code, Part II

CAN/CSA-C22.2 No. 235 - Supplementary Protectors

INFORMS – Component

Acceptance Service No. 32 - Component Acceptance Service for Supplementary Protectors for use in Electrical and Electronic Equipment



Supplement to Certificate of Compliance

Certificate: 1530107

Master Contract: 183691

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
1530107	2004/05/31	Original Certification - Supplementary Protectors, Series S200, CSA Component Acceptance



Descriptive and Test Report

MASTER CONTRACT: 183691

REPORT: 1530107 (LR 98793)

PROJECT: 1530107

Edition 1: May 31, 2004; Project 1530107 - Toronto
Issued by R. Tangirala, P. Eng.

Contents: Certificate of Compliance - Page 1
Supplement to Certificate of Compliance - Page 1
Description and Tests - Pages 1 to 16
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Appendices - Appendix A to C (CSA Engineering File copy)

PRODUCTS

CLASS 3215 30 - SUPPLEMENTARY PROTECTORS - Component Acceptance Program

- Component Supplementary Protectors, manual reset, thermo-magnetic trip units: Series S200 followed with B, C, D, K or Z followed by a number between 0.5 and 63A may be followed by additional suffixes. 1 to 4 pole.

S200B rating 6 to 63A, and S200C, D, K and Z ratings 0.5 to 63A, 277V ac –1 phase, 480V ac – 3 phase or two pole breaking, Temperature range –25°C to 70°C; Short Circuit Ratings: 6kA at 27V ac one pole and 480V ac multipole; 10kA at 120V ac/60V dc one pole and 240V ac/125V dc multiple. May or may not be provided with Auxiliary contacts (Types S2-H, S2-S/H, H01 and H02) and shunt trip (S2-A1 and S2-A2).

Notes:

1. Open type devices are Certified as components for use in assemblies where the suitability of the combination is to be determined by the CSA International.
2. These are intended for rail mounting.
3. The terminals of the device have not been investigated for field wiring.
4. These devices are not suitable for branch circuit protection.
5. Short circuit tests were conducted without series fuse.
6. The spacings from live parts of single devices to adjacent metal surface, and from the outside pole of multipole devices to adjacent metal surface shall be evaluated in the end product application.
7. These protectors are designed for use in ambient of –25°C to 70° C. Calibration tests were conducted in the ambient of 25°C only. Verification of trip times to published trip curve at ambients other than 25°C need to be conducted.

The test report shall not be reproduced, except in full, without the approval of CSA International.

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8. These devices may or may not be provided with auxiliary switches/shunt trip. The summary of ratings as extracted from previous reports and UL Inc. Files E76126 , Vol. 1 (see Appendix – B for details) is detailed below:

Accessory	Type	Ratings		UL Inc. Sec. Ref
		DC	AC	
Auxiliary Contacts	S2-H	2A, 60V	6A, 240V	Sec.5
	S2-S/H	.5A, 250V	2A, 415V	
		1A, 119V	6A, 240V	
		4A, 24V		
Shunt Trip	S2-A1	12 to 60V	12 to 60V	Sec. 6
	S2-A2	110 to 250V	110 to 415V	
Auxiliary Contacts	H01/H02	2A, 30V	2A, 230V	Sec. 9
		DC13 (Pilot)	AC14 (Pilot)	

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No.	0-M91	-	General Requirements - Canadian Electrical Code, Part II
CAN/CSA-C22.2 No.	235-04	-	Supplementary Protectors
INFORMS – Component			
Acceptance Service No.	32	-	Component Acceptance Service for Supplementary Protectors for use in Electrical and Electronic Equipment

MARKINGS

The submitter's tradename "ABB", Product Catalogue number, voltage and current ratings and characteristics designation ink printed on the front of the device close to the handle. "ON" and "OFF" moulded on the handle. The submitter's tradename "ABB" moulded on the side with electrical ratings including S.C. rating and the CSA Component Acceptance Mark ink printed on the side (See Ill. 1)

ALTERATIONS

Markings as indicated in "Markings" above.

FACTORY TESTS

The equipment at the conclusion of manufacture, before shipment, shall withstand the application of twice the rated voltage plus 1000V ac applied for one min, without breakdown occurring between:

- (a) Live parts of opposite polarity, circuit protector on.
- (b) "Line" and "Load" terminals, circuit protector off.
- (c) Live parts and non-current-carrying metal parts, circuit protector on.

As an alternative, a potential 20 percent higher may be applied for one sec.

Note: The above factory testing is on a "percentage of production" basis. The testing is on the basis of one percent of production (one out of every hundred). In the event of a failure, all protectors manufactured subsequent to the previous acceptable tests will have to be tested and all further production tested until the cause of failure has been determined and rectified.

Warning: The factory test(s) specified may present a hazard of injury to personnel and/or property and should only be performed by persons knowledgeable of such hazards and under conditions designed to minimize the possibility of injury.

DESCRIPTION

Project 1530107:

Corrosion Protection: All parts are constructed of corrosion resistant material or are suitably plated as protection against corrosion.

Spacings: A minimum spacing of 9.4mm through air and 12.7 mm over surface is maintained by providing appropriate barriers.

Tripping Diagrams: See Ill. 2 for details.

Construction Details: The following product description is an edited extract from UL Inc. File E76126, Vol. 1, Sec.2, Issued: 1987-05-14, Revised 2003-03-17 (Appendix-A, CSA Engineering File Copy).

Series S200:

General - Fig. 1 represents general assembly.

1. Housing and Housing Cover – Plastic, 131.5Urea (UF) designated 131.5 manufactured by Carmel Chemicals Ltd. or MP183 - Melamine formaldehyde "MELOPAS" Type MP183, manufactured by Espla GmbH, min 1.2 mm thick. Single pole devices overall 90 by 68 by 17.5 mm. Calibration screw holes sealed with Du Port Delrin sealing plates.
2. Handle and Handle Ties - Handle, Plastic (Ultramid) Type A3HG5 manufactured by BASF. Multiple units are provided with the handle tie, U-shaped aluminum which is held in place by projections engaging recesses in handle.
3. Mounting Latching Mechanism - Consists of spring and steel plated bracket which clips on rail when breaker is pressed against rail. Held captive by enclosure halves.
4. Arc Chamber Plate: Two provided, ceramic composition, approx 1.45 mm thick
5. Arc Cooling Plates: Steel, 10 plates provided, except for Types S260-B, S260-C devices 20 to 40 A and Type S270-K which have 12 plates. Overall 24 mm x 14 mm x 0.80 mm thick. Held captive by fiber support. Type S260/S270 greater than 40 amperes have 12 plates with wrapper Akadur.
6. Arc Chamber Support - Fiber, overall 0.4 = thick. Held captive by arc chamber plates.
7. Slide: Plastic, Ultramid A3HG5 manufactured by BASF or Peek 450 manufactured by I.C.I., 17.7 mm long overall x 1 mm thick.
8. Coupling - (For Multipole units only) Plastic, Ultem 2300 by General Electric. Couples trip mechanisms through slot on housing. Opening in housing when provided on single pole devices sealed with polyester disk when not used.

Mechanism (Fig. 2):

General - Fig. 2 illustrates mechanism-movable contact-load terminal subassembly.

1. Mechanism Support - Plated steel, 1 mm thick, supports latching mechanism and movable contact pivot and support.
2. Latch Lever: Plastic, Ultem 2300, manufactured by General Electric.
3. Pigtail: Copper, consists of 7 bundles of strands, each bundle contains 770 strands, each strand is 0.05 mm in dia.
4. Wire Connector : Consists of stationary and moving parts, stationary part consists of brass 1.2 mm thick and approx 12 mm wide overall. Moving part is U-shaped, plated steel, 1.5 mm thick, approx 9.2 mm wide. Screw is plated steel. Bottom of stationary part is provided with indents and a boss for wire securement.
5. Load Terminal Arc Runner : Plated steel, 0.8 mm thick, shaped as shown.
6. Movable Contact - Shaped as shown, riveted to Item 1. Measures 1.2 mm thick by approx 2.9 mm wide. Material is Ag/C 97/3 for all ratings.

Line Terminal-Bimetal-Coil Assembly (Fig 3):

1. Line Terminal: See Item 4 of mechanism.
2. Line Terminal Bus Bar : Brass, approx 5 mm wide x 1.2 mm thick.
3. Pigtail : Same as Item 3 of mechanism
4. Bimetal: Measures 4.9 mm wide x 1 nun thick. May be provided with heater. See Ills. 3 and 4 for details. Not provided in poles with Suffix NA.
5. Coil: See Ills. 5 and 6 for details.
6. Coil Support: Connected directly to Item 2 for poles with Suffix NA. Plated steel, 1.2 mm thick.
7. Pin: Plastic, Ultramid A3WG7, manufactured by BASF. Nail shaped 17.2 mm long x 1.9 mm in dia.
8. Stationary Contact - Measures 4 mm x 3.2 = x 0.5 mm thick. Welded to coil support, Item 6. Material is silver for all types except S250-L, S260-B, S260-C, 20 to 40 A and S270-K which is Ag/C 97/3.
9. Stationary Contact Support: Copper plated steel, 1 mm thick.

10. Coil Assembly – Bobbin, Plastic, Ultramid A3HG5, manufactured by BASF. Held in place on both ends by Item 6. Plunger assembly is in three parts.
- a) Spring holder is cylindrical plated steel, approx 6.3 mm in dia. Hole provided to captivate spring.
 - b) Spring - Approx 14 mm free length, 20 turns, 0.26 mm in dia spring steel.
 - c) Moving plunger is same material as Item a, 6 mm in dia at widest part. Hole provided to captivate spring. Outer end shaped as shown to operate rocking trip lever.

Accessory Bus (KS2/56, KS2/12 and VB45.32):

This accessory is a Copper bus intend to supply protectors from a single source. UL Inc. File E 76126, Vol. 1, Sec. 7, Issued: 6-19-92 and Revised: 10-2-98 is attached to the back of this report as Appendix - C (CSA Engineering File copy).

No additional description is considered necessary.

TEST REPORT

Project 1530107: Submitter submitted following satisfactory test results in the form of UL Inc. test data, File E 76126, Vol. 1, Sec. 2, Issued: 1987-05-14, Revised 2003-03-17 (Appendix-A, CSA Engineering File Copy).

1. Calibration test
2. Temperature rise test
3. Overload test
4. Endurance test
5. Dielectric voltage withstand test
6. Recalibration test
7. Short circuit withstand test

The following audit tests were satisfactorily conducted at CSA International, Toronto test labs on a representative samples.

1. Short circuit withstand test (Clause 6. 8 of CSA std. 235)
2. Calibration, Temperature rise and Dielectric Tests (Clause 6.2, 6.3 and 6.9 of CSA std. 235)

The results are as follows:

Type / Cat. No.:	S200 Series	Voltage Rating:	480 Vac
Current Rating:	63 A	Number of Poles:	3
Tested by:	H. Hellmich & J. Chin	Date:	May 06, 2004

CALIBRATION TEST: Clause 6.2

Percent of Rated Current	Test Current	Trip Time (Min:Sec)					
		Sample 4			Sample 5		
		Left Pole	Centre Pole	Right Pole	Left Pole	Centre Pole	Right Pole
155	97.65 A	11:01	47:28	49:53	19:43	43:19	25:30
300	189 A	0:31	0:35	0:34	0:34	0:33	0:30
Results:		"A"	"A"	"A"	"A"	"A"	"A"

TEMPERATURE TEST: Clause 6.3

Test Current	Wire Size (AWG)	Amb. (°C)	Torque	Temperature Readings (°C)						
				Sample No 5						
				Left Terminal *		Centre Terminal *		Right Terminal *		Enclosure Size
63 A	No. 4, Cu	24	45 IN.LB	Line	Load	Line	Load	Line	Load	
				82	69	85	74	77	84	
Temperature Rise, K				58	45	61	50	53	60	
Results				"A"*	"A"*	"A"*	"A"*	"A"*	"A"*	

DIELECTRIC STRENGTH TEST: Clause 6.9

Sample No.	Test Voltage	Between live parts & non-current-carrying metal parts		Between terminals of opposite polarity		Between live parts of different circuits
		Contacts open	Contacts closed	Contacts open	Contacts closed	
5	1960 Vac	---	"A"	---	"A"	-----

Denotations: "A" = Acceptable "NC" = Non-Conformance

Note: * Factory Wiring Terminals

Type / Cat. No.:	S200 Series	Voltage Rating:	480 Vac
Current Rating:	63 A	Number of Poles:	3
Tested by:	H. Hellmich & J. Chin	Date:	May 06, 2004

LIMITED SHORT CIRCUIT TEST: Clause 6.8

Test Parameters			
Test Voltage	490 Vac	Series Fuse	"NA"
Test Current	6077 A	Ground Fuse	30 A, 600 Vac, Edison Fusegear, Cat. No. KOS30, one-time, Class K5
Power Factor	77.5 %		
Phase	3		

Results								
Sample No	Pole	Short Circuit Operation	Series Fuse Opened?	Ground Fuse Opened?	Cotton Ignited?	Breakage of Housing?	Device Tripped?	Result
1	---	"O"	"NA"	No	No	No	Yes	"A"
1	---	"CO"	"NA"	No	No	No	Yes	"A"
1	---	"CO"	"NA"	No	No	No	Yes	"A"
2	---	"O"	"NA"	No	No	No	Yes	"A"
2	---	"CO"	"NA"	No	No	No	Yes	"A"
2	---	"CO"	"NA"	No	No	No	Yes	"A"
3 *	---	"O"	"NA"	No	No	No	Yes	"A"
3 *	---	"CO"	"NA"	No	No	No	Yes	"A"
3 *	---	"CO"	"NA"	No	No	No	Yes	"A"

Denotations: "A" = Acceptable "NC" = Non-Conformance "NA" = Not Applicable
 "O" = Contacts of protector are closed, and then the short circuit is applied to the protector
 "CO" = Contacts of protector are open, and then closed on the short circuit.

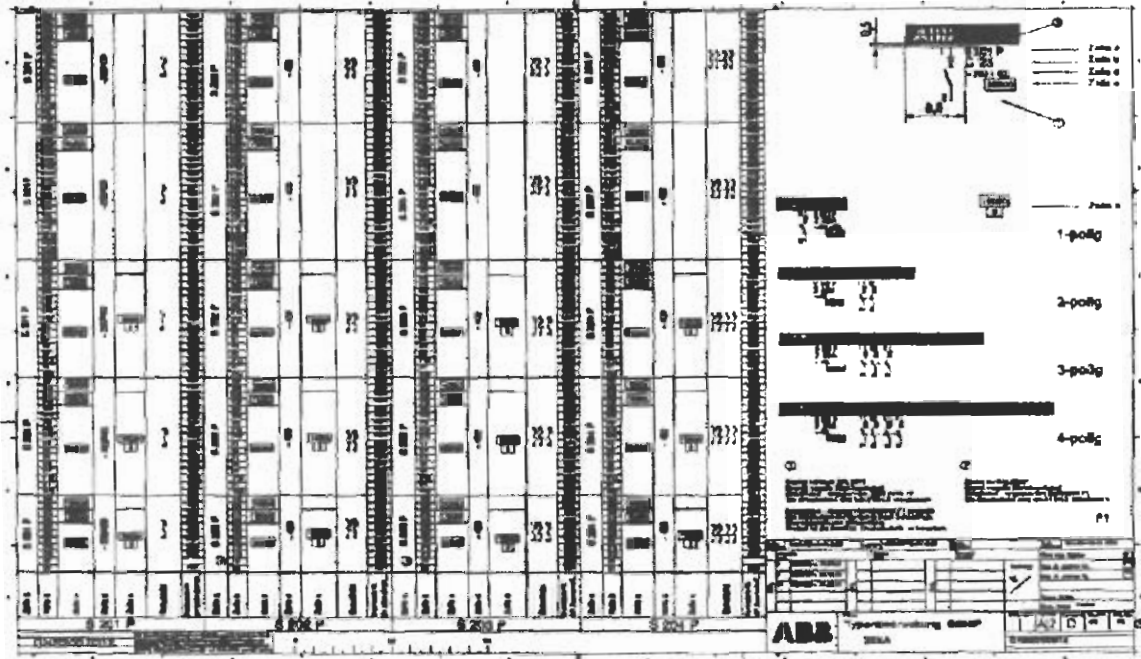
Note: * sample was connected with the line and load terminals reversed

Moisture Absorption Test:

Moisture Absorption test was satisfactorily conducted at ABB, Heidelberg Test lab under Project 183691-1546299. Tests were witnessed by a CSA representative.

No additional testing was considered necessary.

Frontprint S200P acc. to CSA22.2 No:235/UL1077



detail frontprint S200P acc. to CSA22.2 No:235/UL1077

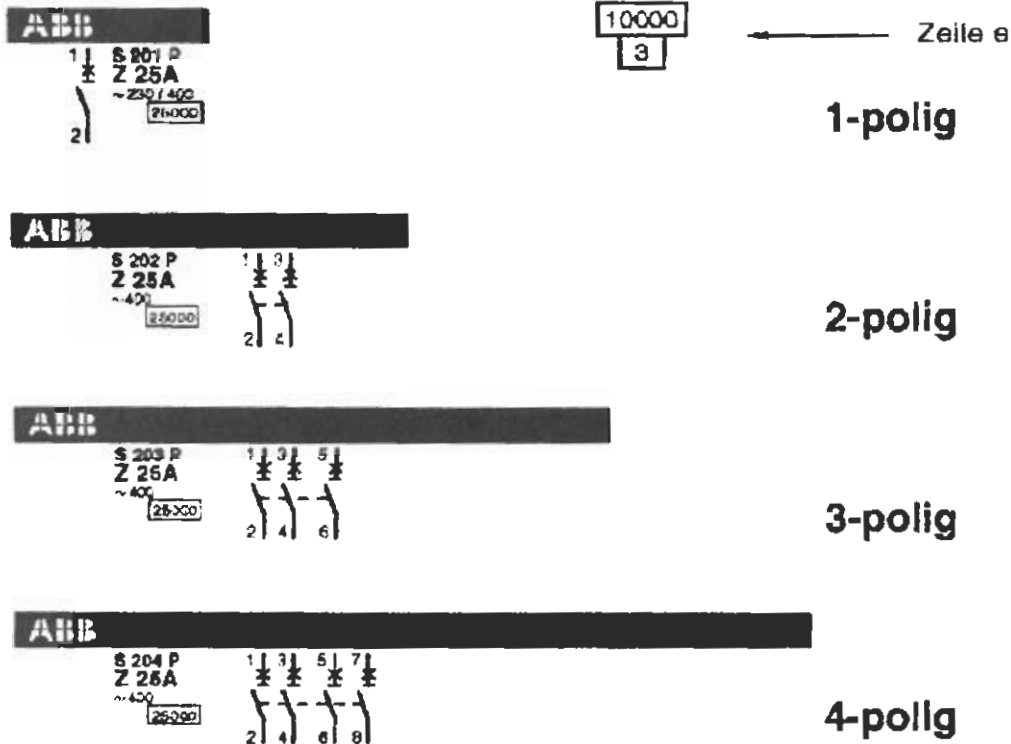
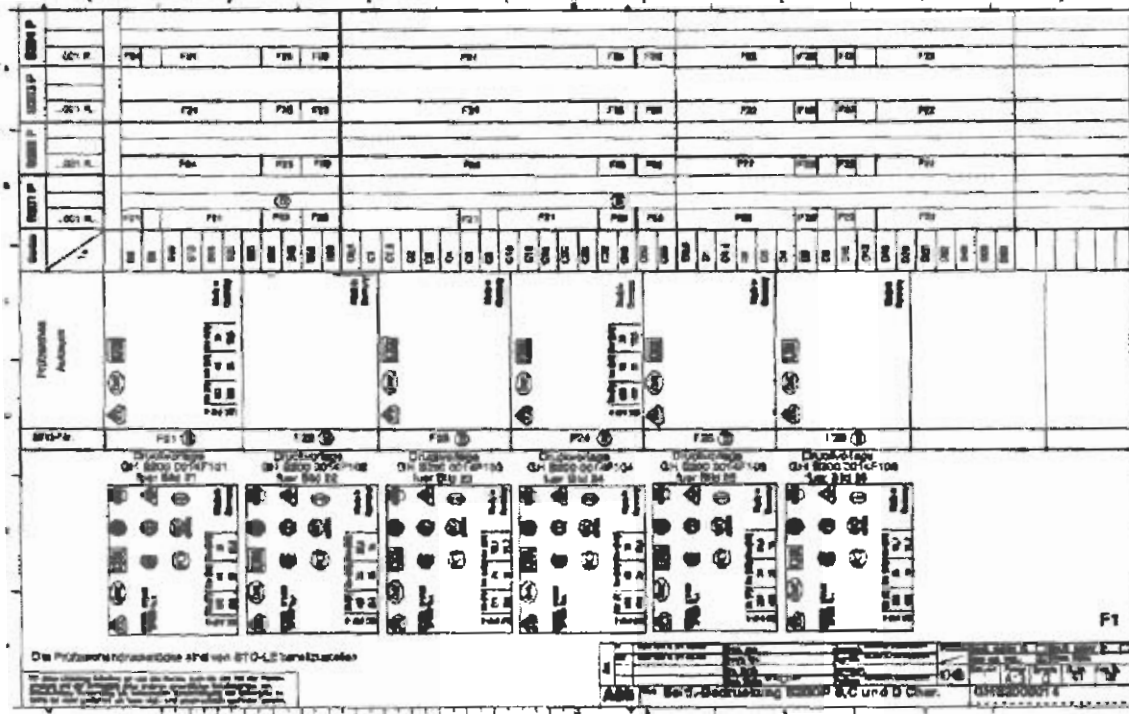


Illustration - 1 (Sheet 1 of 3)
 Project # 183691-1530107

Sideprint S200P acc. to CSA22.2 No:235/UL1077



detail Sideprint S200P acc. to CSA22.2 No:235/UL1077 (template)

	277/480 Va.c.			
			A001546	
IEC 947-2	Ue (V)	Icu (kA)	Ics (kA)	Made in Germany
	133	30	22,5	
	230	20	15	

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Illustration - 1 (Sheet 2 of 3)
 Project # 183691-1530107

Additional print on packaging box S200P (CSA22.2 No:235/UL1077):

UL1077	$I_n \leq 25A$	S.C.: $I_p = 10kA$	$U_p = 277/480V$
AC			
	$32 \leq I_n \leq 63A$	S.C.: $I_p = 6kA$	$U_p = 277/480V$
AC			
CSA22.2 No. 235	$I_n \leq 25A$	S.C.: $I_p = 10kA$	$U_p = 277/480V$ AC
	$(32 < I_n \leq 63A)$	S.C.: $I_p = 5kA$	$U_p = 277/480V$
AC) decision in week 21:			

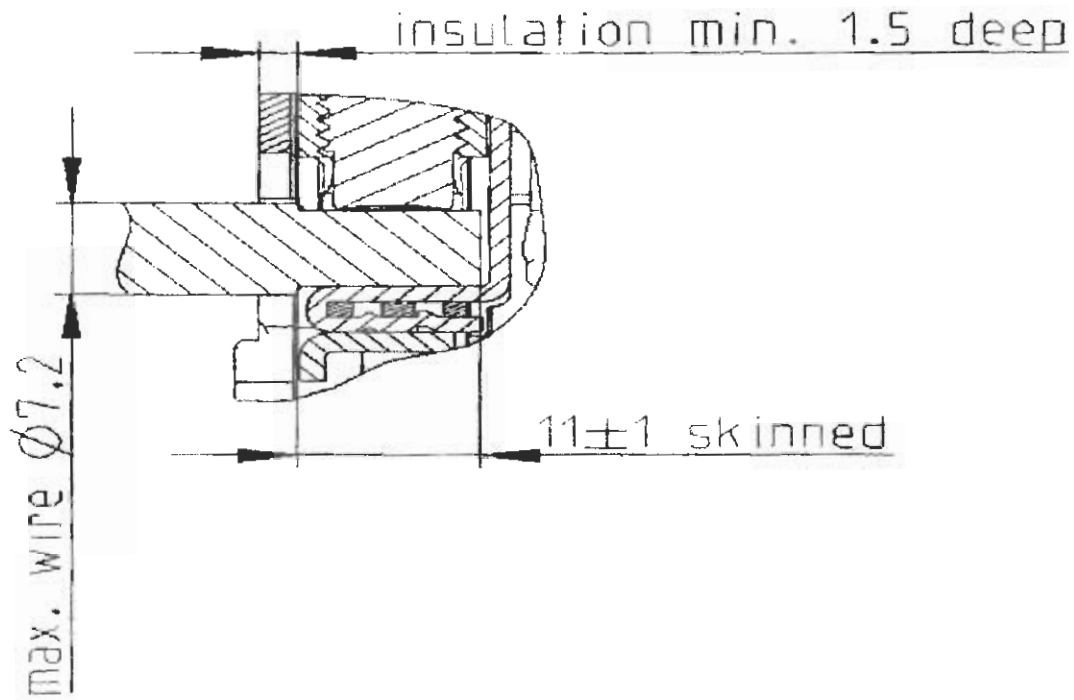


Illustration – 1 (Sheet 3 of 3)
Project # 183691-1530107

System Miniature circuit-breakers
pro M compact S 200/S 200 M series

Tripping diagrams

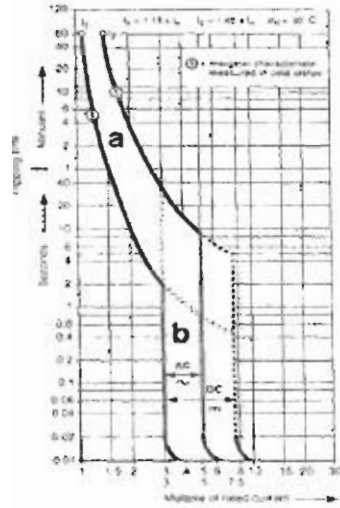
Reading example for tripping characteristic of the B-type trip characteristics in connection with the table tripping characteristics on page 9, line B)

a Thermal tripping characteristic:

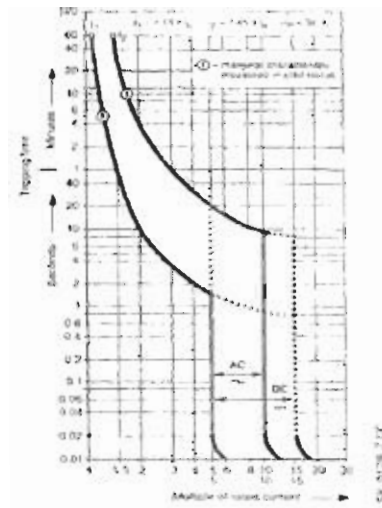
Conventional non-tripping current I_n = selected non-tripping current
 The MCB maintains the 1.13 times of the rated current for at least 60 minutes.
 Conventional tripping current I_t = selected tripping current.
 The MCB switches off within 60 minutes when the 1.45 times of the rated current is reached

b Electromagnetic trip characteristic

AC:
 The MCB maintains current rushes of the 3-fold of the rated current for more than 0.1 sec. (in this example up to ca. 4 sec.)
 The MCB switches off within less than 0.1 sec when the 5-times of the rated current is reached

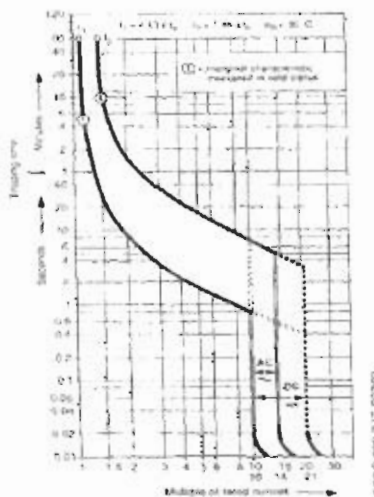


trip characteristic: B
 $I_n = 6 \dots 63 \text{ A}$
 S 200/S 200 M MCBs

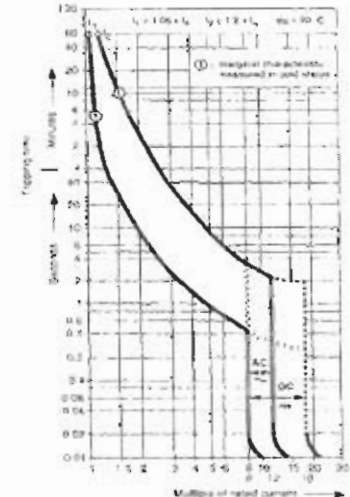


trip characteristic: C
 $I_n = 0.5 \dots 63 \text{ A}$
 S 200/S 200 M MCBs

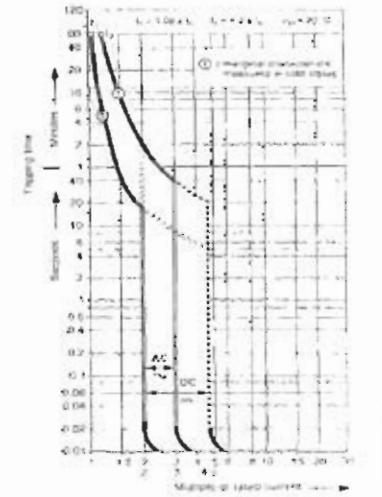
Note: Deviating ambient temperature values and interdependencies need to be taken into account



trip characteristic: D
 $I_n = 0.5 \dots 63 \text{ A}$
 S 200 MCBs



trip characteristic: K
 $I_n = 0.5 \dots 63 \text{ A}$
 S 200 MCBs



trip characteristic: Z
 $I_n = 0.5 \dots 63 \text{ A}$
 S 200 MCBs

Illustration – 2
 Project # 183691-1530107

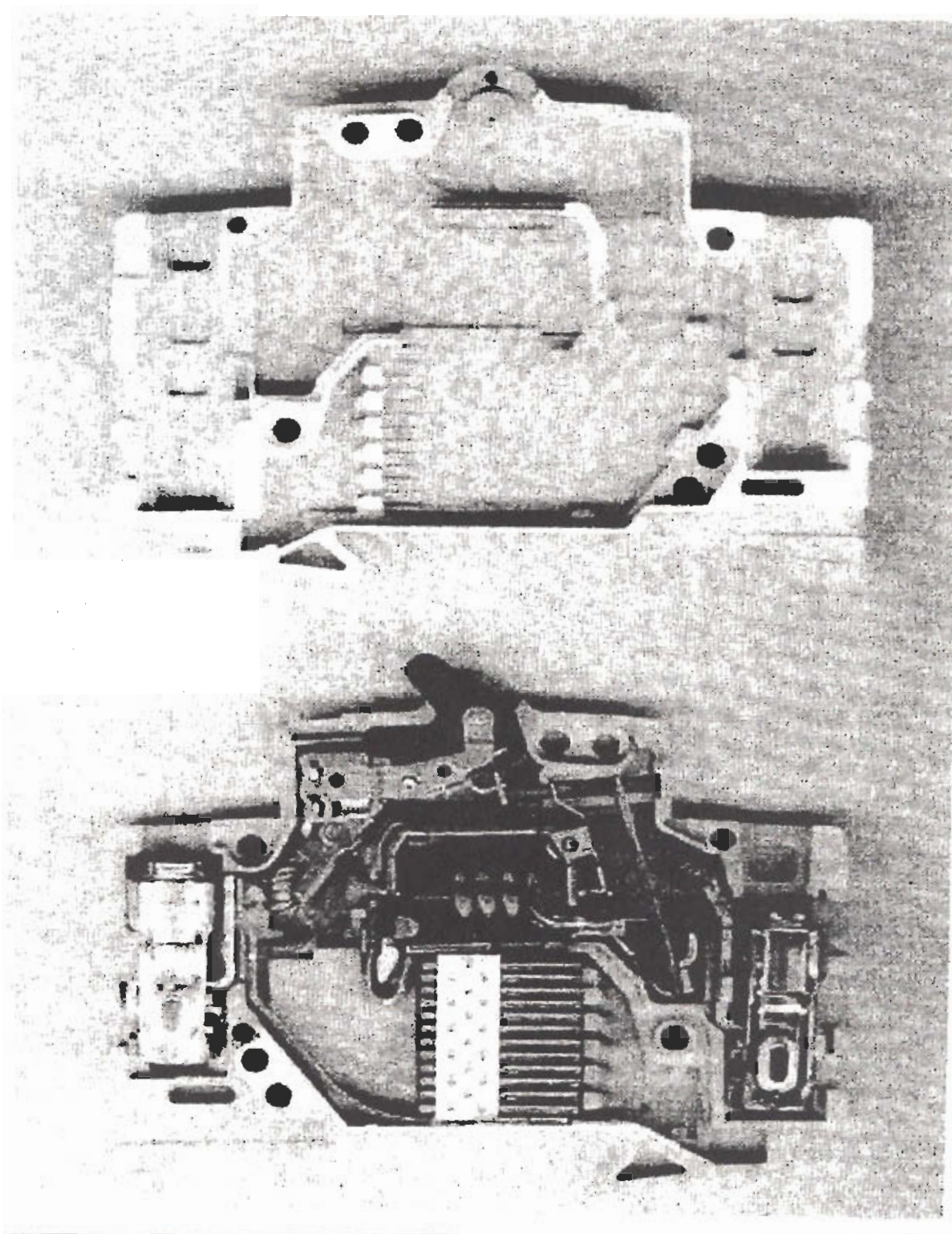


Figure - 1
Project # 183691-1530107

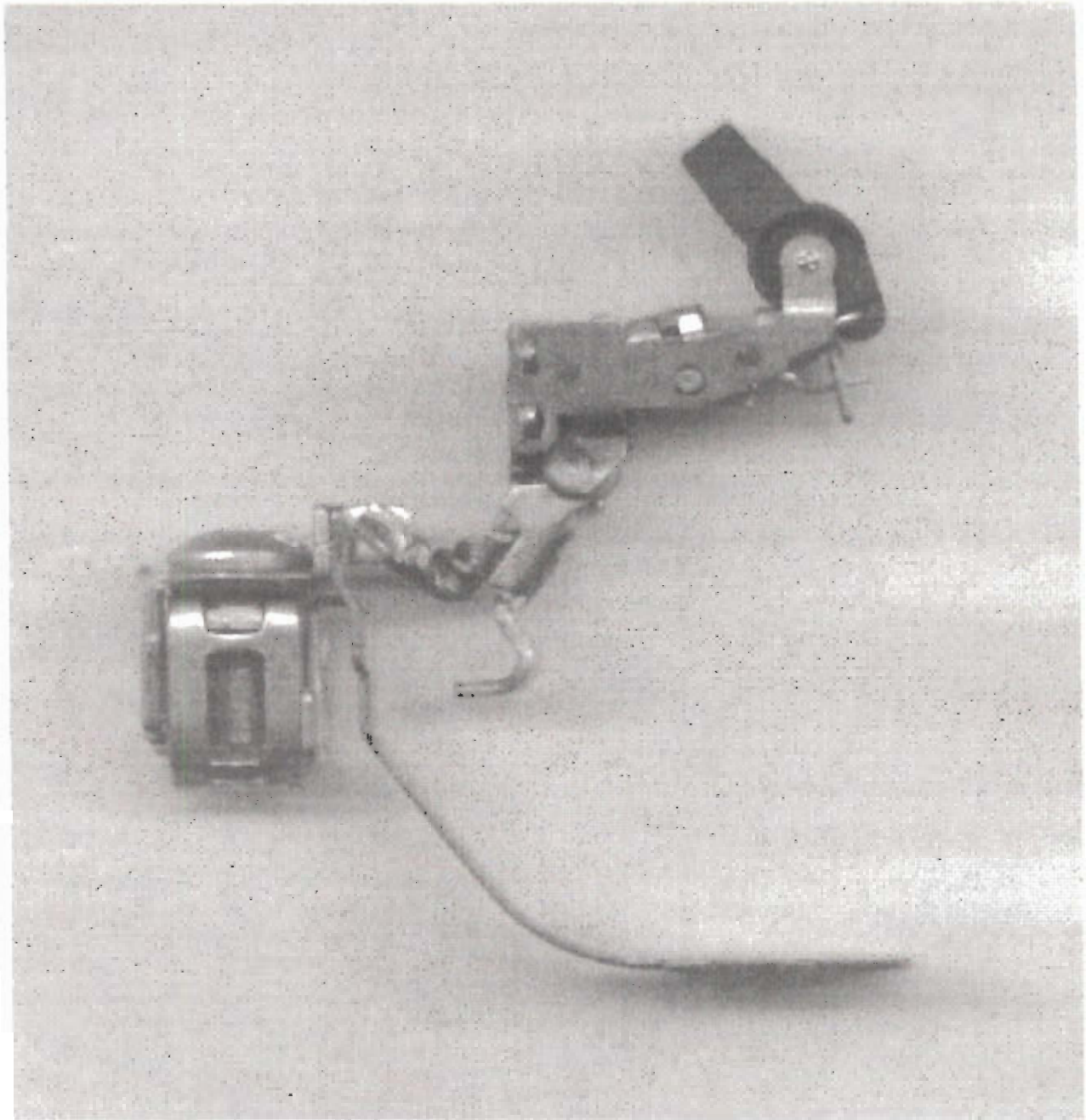


Figure - 2
Project # 183691-1530107

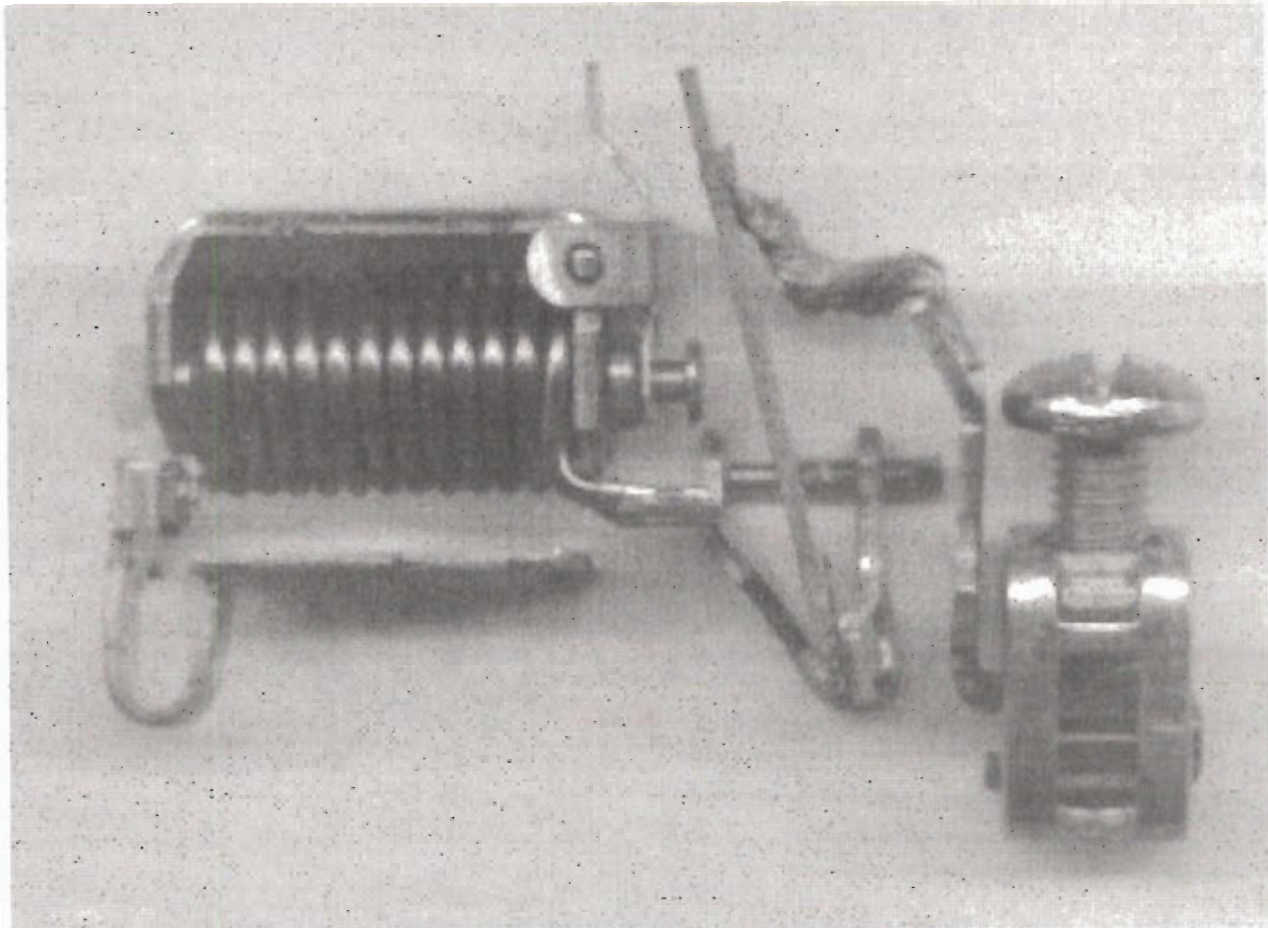


Figure - 3
Project # 183691-1530107