

Explosion Protected
Manual Motor Starter with Overload Protector (8523/8)
Manual Motor Starter with Short-Protection Only (8523/A)
for Motor Control &
Control Circuits



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2 General Information

2.1 Contact Information

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2.2 Information regarding this Installation, Operation and Maintenance Sheet

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The explosion protected manual motor controller should be installed, inspected, maintained, and operated by qualified and competent personnel. Read entire instructions before starting installation of this product.

Contact your R. STAHL Customer Service or R. STAHL distributor if you have any questions.

Technical information and illustrations are not binding and subject to change without notice.

The nature of these instructions is only informative and does not cover all of the details, variations or combinations in which this device may be used, its storage, delivery, installations, safe operation and maintenance.

Since conditions of use of the product are outside of the care, custody and control of the manufacturer, the purchaser should determine the suitability of the product for his intended use, and assumes all risk and liability whatsoever in connection therewith.

Save these instructions for future reference.

3 Application

The Series 8523/8 explosion protected manual motor controllers are devices for control circuits or motor circuits. They can be also be used in branch circuits to control lighting, heating, appliance, motors and similar circuits. The Series 8523/A are also explosion protected manual motor controllers, but they do not include a motor overload protection feature.

Refer to section 6 for application and details of the devices.

4 Hazardous Location Ratings and Applicable Standards

The Ex Manual Motor Controllers are in compliance with the following standards:

CSA-C22.2 No. 0-M91	General Requirements - Canadian Electrical Code Part II
CSA-C22.2 No. 65-03	Wire Connectors
CSA-C22.2 No. 60529:05	Ingress Protection
CSA-C22.2 No.60079-0	Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General Requirements.
CSA-C22.2 No.60079-1	Electrical Apparatus for Explosive Gas Atmospheres - Part 1: Construction and Verification Test of Flameproof Enclosures of Electrical Apparatus
CSA-C22.2 No.60079-7	Electrical Apparatus for Explosive Gas Atmospheres - Part 7: Increased Safety "e"
CSA C22.2 No. 213-M1987	Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations.
CSA C22.2 No.14	Standard for Industrial Control Equipment
CSA C22.2 No.60947-1	Standard for Industrial Control Equipment
ANSI/UL 60079-0	Standard for Safety for Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General Requirements.
ANSI/UL 60079-1	Standard for Safety for Electrical Apparatus for Explosive Gas Atmospheres - Part 1: Flameproof enclosures "d".
ANSI/UL 60079-7	Electrical Apparatus for Explosive Gas Atmospheres - Part 7: Increased Safety
ANSI/UL 486E	Equipment Wiring Terminals
ANSI/UL 508	Standard for Industrial Control Equipment
UL 60947-1	Standard for Industrial Control Equipment

5 Hazardous Location Ratings and Applicable Standards

Use the control unit only for its intended purpose.

Incorrect or impermissible use or non-compliance with these instructions invalidates our warranty provision.

Any alterations or modifications to the component impairing its explosion protection are not permitted. The control unit must be use only if it is clean and undamaged.

Observe the following when using the device:

- National and local safety regulations
- National and local accident prevention regulations
- National and local assembly and installation regulations
- Generally recognized technical regulations
- Safety instructions in these operating instructions
- Characteristic values and rated operating conditions on the rating and data plates
- Additional instruction plates on the control unit

6 Technical Data

Type	8523/8		8523/A	
Description	Manual Motor Starter and Overload Protector		Manual Motor Starter with Short-Protection Only	
Explosion Protection				
US & Canada	AEx / Ex db eb IIC T5 Gb		AEx / Ex db eb IIC T5 Gb	
IECEX	Ex d e IIC Gb		Ex d e IIC Gb	
ATEX	Ex II 2G Ex db eb IIC Gb		Ex II 2G Ex db eb IIC Gb	
Certificate				
US & Canada	FM 16 US 0153U / FM 16 CA 0089U		FM 16 US 0153U / FM 16 CA 0089U	
IECEX	IECEX BVS 07.0029U		IECEX BVS 07.0029U	
ATEX	DMT 00 ATEX E 073U		DMT 00 ATEX E 073U	
Ambient Temperature	-20°C ... +55°C		-20°C ... +55°C	
Ingress Protection	IP 20 to IEC 60529		IP 20 to IEC 60529	
Main Contacts Arrangement	3x NO		3x NO	
Rated Voltage	480 VAC	600 VAC / 440 VDC	480 VAC	600 VAC / 440 VDC
Back-up Protection	Self-Protected Device	Use fuse rated no more than 225% of FLA	Self-Protected Device	Use fuse rated no more than 225% of FLA
Fuse type class J	No Fuse needed 10kA and below	per NEC article 430.52(C)(1)	No Fuse needed 10kA and below	per NEC article 430.52(C)(1)
Rated Current	up to 25 A		up to 25 A	
Short Circuit Rating	10kA		10kA	
Tripping Current	= I*1.25 (where I is the setting of the Overload Range) No tripping below I*1.05			
Motor Rating	up to 20 hp @ 600 VAC up to 15 hp @ 480 VAC up to 7-1/2 hp @ 240 VAC up to 3 hp @ 240 VAC (single phase) up to 2 hp @ 120 VAC (single phase)		Magnetic Protection ONLY up to 20 hp @ 600 VAC up to 15 hp @ 480 VAC up to 7-1/2 hp @ 240 VAC up to 3 hp @ 240 VAC (single phase) up to 2 hp @ 120 VAC (single phase)	
Terminal Size	1.5 mm ² ... 10.0 mm ² stranded 14 AWG ... 6 AWG stranded		1.5 mm ² ... 10.0 mm ² stranded 14 AWG ... 6 AWG stranded	
Torque	2.0 Nm 25 lbf-in		2.0 Nm 25 lbf-in	
Aux Contacts (if present)				
Arrangement	1x NO + 1x NC / 2x NO + 2x NC		1x NO + 1x NC / 2x NO + 2x NC	
Rated Voltage	500 VAC		500 VAC	
Rated Current	2A @ 230 VAC / 1A @ 400 VAC		2A @ 230 VAC / 1A @ 400 VAC	
Back-up Protection Current (i.e.Fuse type J, gG)	10 A		10 A	
Terminal Size	0.75 mm ² ... 1.5mm ² stranded 18 AWG ... 14 AWG stranded		0.75 mm ² ... 1.5mm ² stranded 18 AWG ... 14 AWG stranded	
Torque	1.2 Nm 15 lbf-in		1.2 Nm 15 lbf-in	
Overload Range (I)	0.1 A ... 22.5A		0.1 A ... 22.5A	

Please pay attention to Section 12 for the tripping Characteristics of the 8523/A.

WARNING

Please observe the technical data on the rating plate

Please consult the manufacturer if operating conditions are non-standard

7 Installation

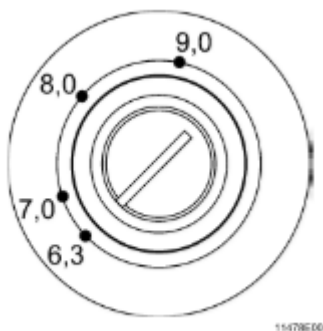
⚠ WARNING

To avoid fire or shock hazard, the electrical power must be turned OFF before and during installation.

- Refer to the technical data and installation information on the front and side mounted nameplates of the control unit.
- For Class I, Zone 1 installations, Series 8523/8 manual motor controller must be installed in a Certified Increased Safety 'e' enclosure. When installing the control components into 'e' enclosures the spacing distances through air and over surface, in accordance with CAN/CSA E60079-7 and C22.2 No. 5-02 for Canada, or ANSI/ISA 60079-7 + UL508A for USA, must be maintained.
- For Class I, Division 2 installations, Series 8523/8 manual motor controller must be installed in a suitable enclosure providing mechanical protection, provisions for conduit/cable entry, and sufficient clearance for electrical connections as per C22.2 No. 5 and 14 for Canada and UL508A for USA.
- Series 8523/8 manual motor controller have been Certified as a component and the suitability of the final assembly is to be determined by the authorities having jurisdiction.
- The terminals on the manual motor controller have been identified on the control unit. Refer to the device label and technical information for proper connection.
- Field wiring conductors shall be copper wires only, stranded – and sized based on the conductor rated for 75°C.(for North American Installations)
- For 600 V applications the Main Circuits shall be protected by a Class J fuse rated not more than 225% of the rated full load current.
- The Auxiliary Circuits shall be protected by a Class J fuse rated not more than 10A.

7.1 Setting the Thermal Overcurrent Trip

The required current value can be set by using a suitable screwdriver. The open end of the slot shows the set current value (see drawing for sample of 6.3A)



8 Maintenance

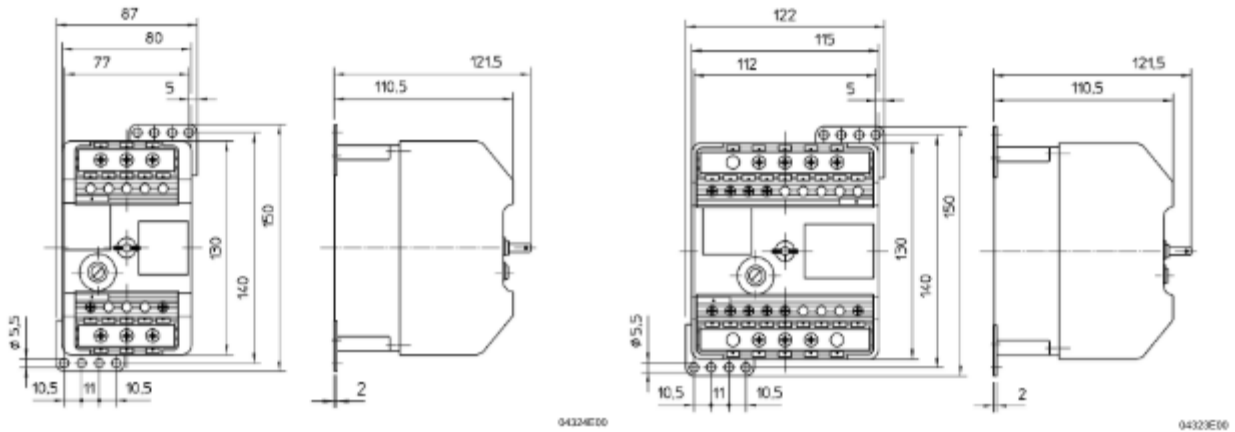
⚠ WARNING

To avoid electrical shock, fire and/or explosions, always disconnect primary power source before inspection, service or Maintenance.

- We recommend an Electrical Prevention Maintenance program as described in the National Electrical Code® (NEC) and the National Fire Protection Association Bulletin NFPA No. 70B or the Canadian Electrical Code (CEC) respectively, and any local regulations. It is recommended that it should be at least once a year.
- Maintenance should only be performed by qualified and experienced personnel.
- Perform visual, electrical, and mechanical checks on all components on a regular basis.
 - Visually check for undue heating evidence by distortion of wires or other components, damaged or worn parts.
 - Electrically check to make sure that all connections are clean and tight.
 - Mechanically check that all parts are properly assembled, and operating mechanisms move freely.
- The Flameproof joints CANNOT be repaired
- Replacement parts are available through R. STAHL distributors. Replace circuit breakers only with R. STAHL's explosion protected manual motor controller Series 8523/8. Replace only with parts of identical rating.

9 Dimensions in Millimeters

Dimensional Drawings (All Dimensions in mm) - Subject to Alterations



8523/.1
Motor Protection
Module width 1, without auxiliary contacts

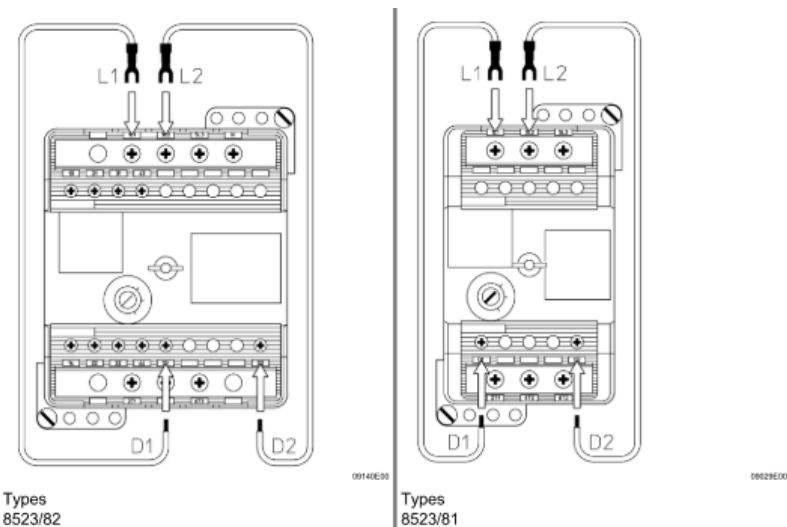
8523/.2
Motor Protection
Module width 2, with auxiliary contacts

10 Back-up Fuses for Auxiliary Contacts

- As a general rule, auxiliary contacts must be protected by a 10 A gL or J type fuse

Exception

- An undervoltage trip is connected to the contactor main contact terminals as illustrated.
- No back-up fuse is required



Types
8523/82


Types
8523/81

11 Accessories and Spare Parts



Warning

If the wrong accessories are used, explosion protection cannot be guaranteed!
Use only original R. STAHL accessories and spare Parts

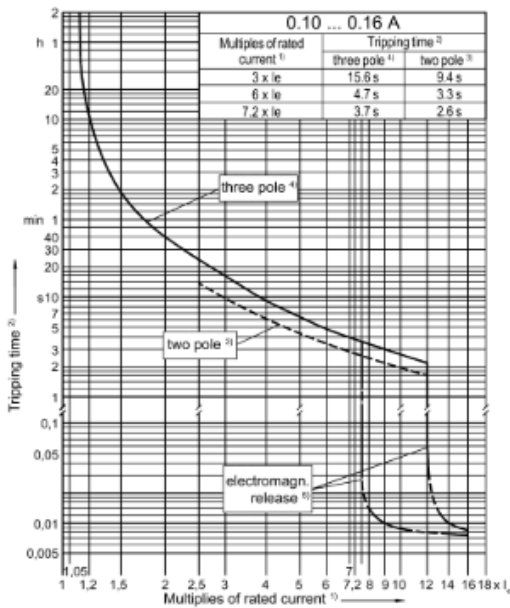
Description	Illustration	Use	Article #	Weight (kg)
Jumper		For Undervoltage Release, Length 400 mm	147121	0.019

12 Tripping Characteristics

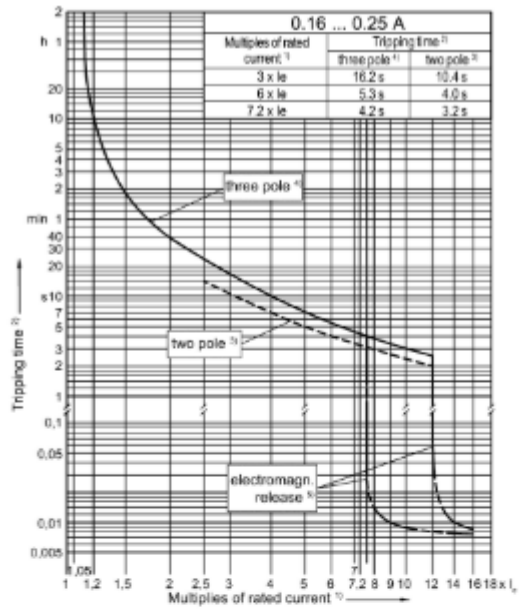
The following tripping characteristic curves show the tripping time as a function of the current ratio I_a/I_e .

Legend:

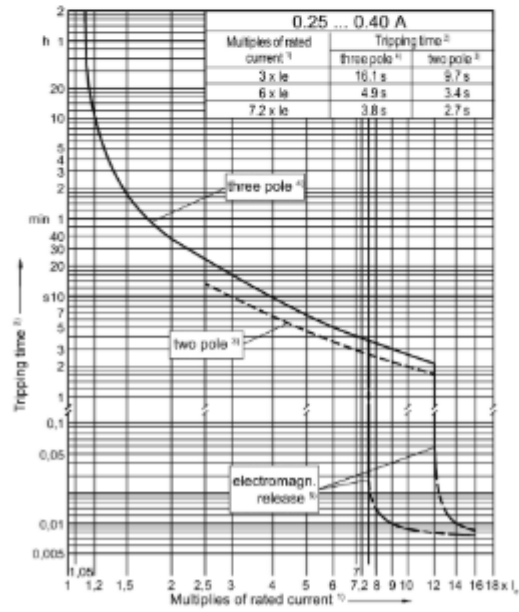
- 1) Multiples of the rated current
- 2) Tripping time
- 3) 2-pole
- 4) 3-pole
- 5) Electromagnetic tripping



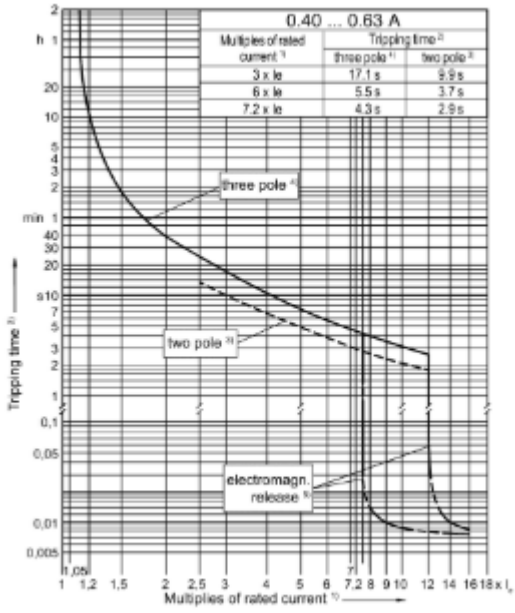
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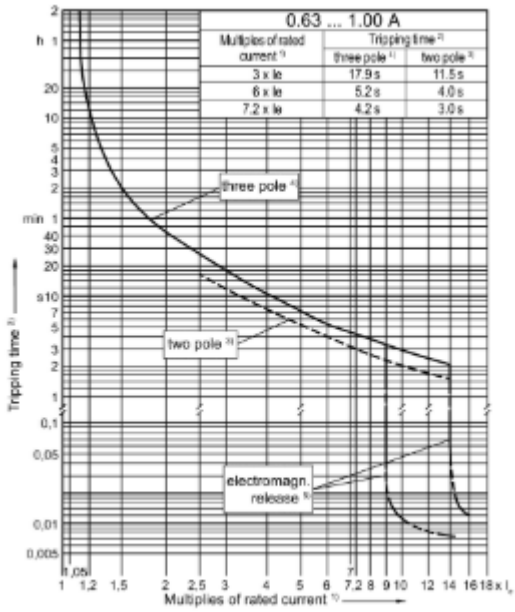
© Schneider



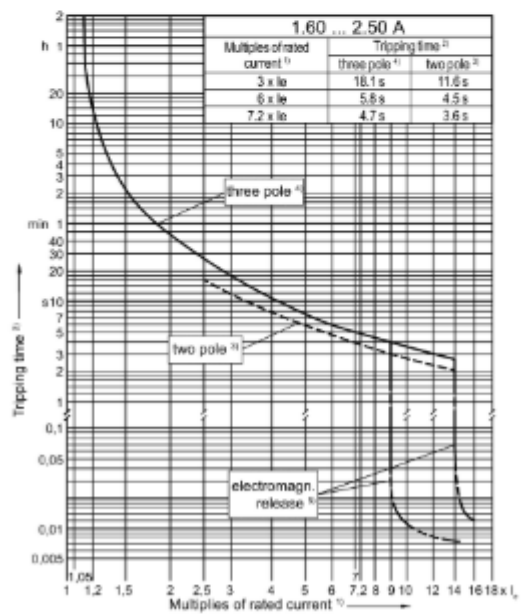
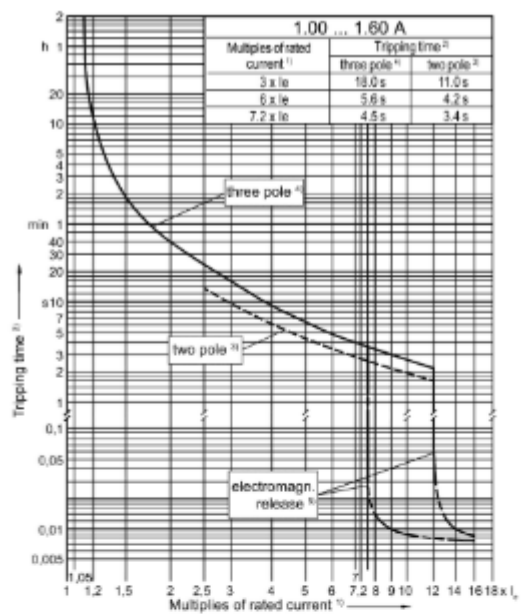
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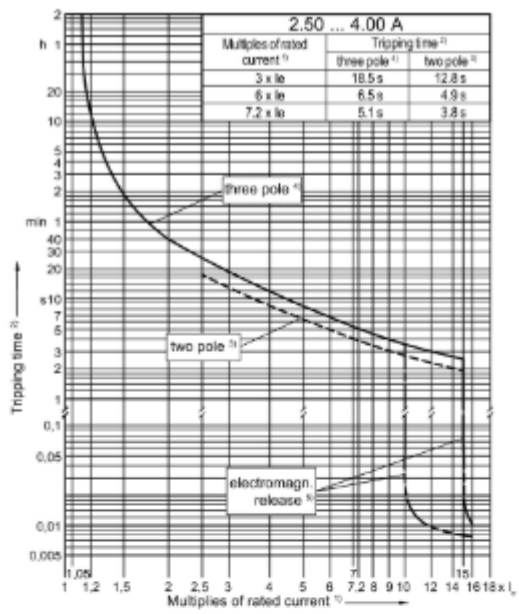


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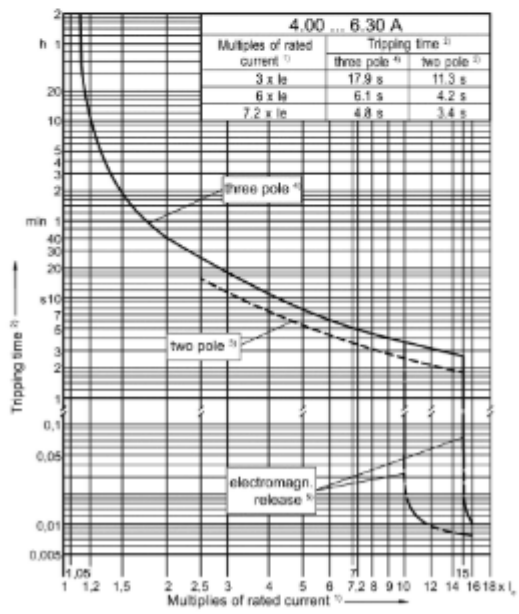


0002/00

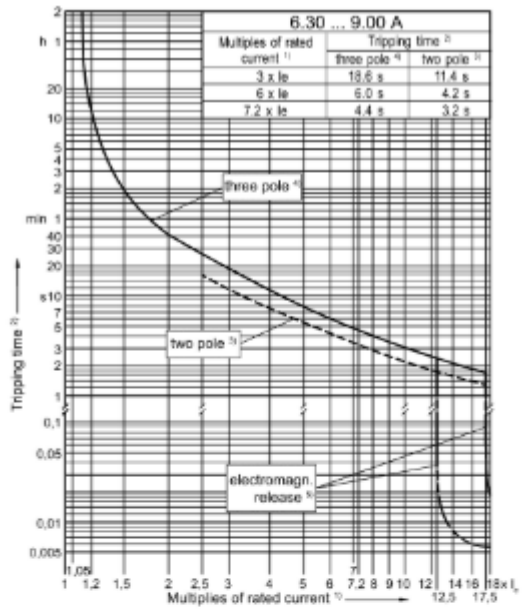




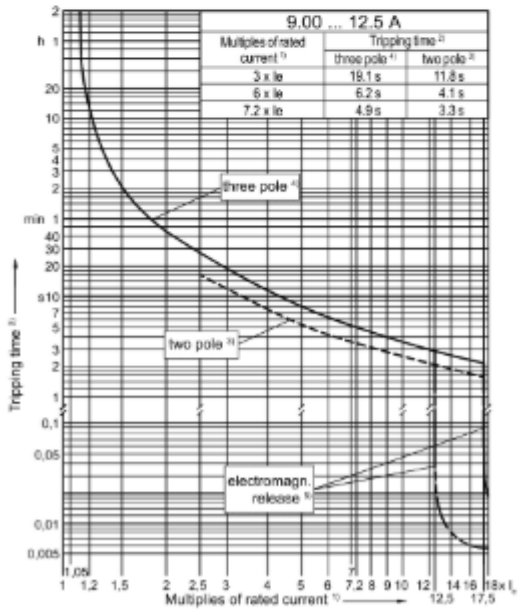
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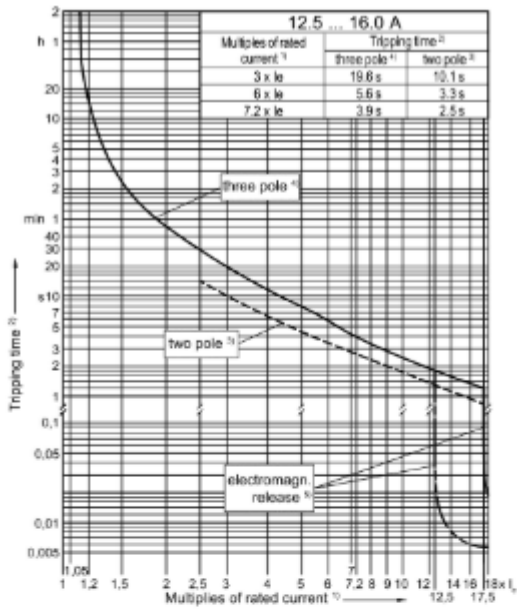
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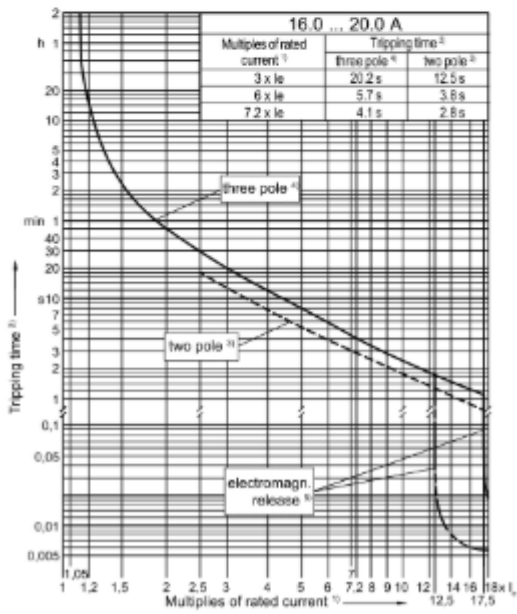
EDS4000



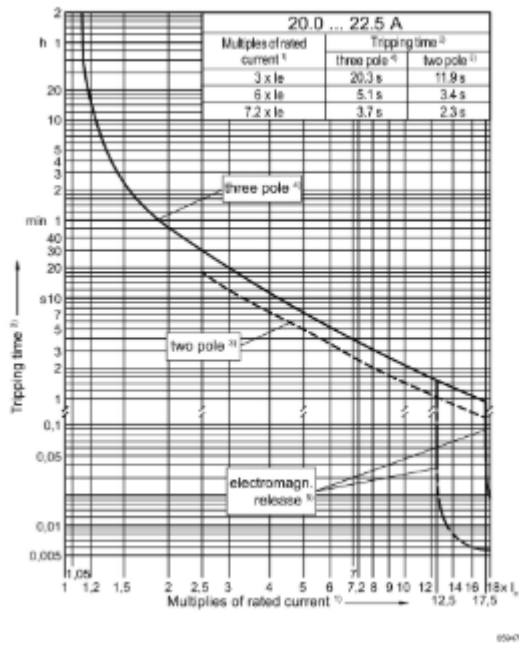
EDS4000



0204020

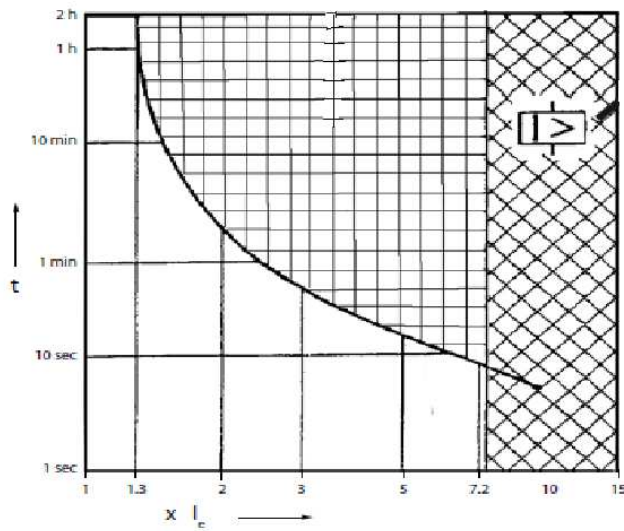


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Characteristics for 8523/A:

Release Values for the electromagnetic trip



8523/A [A]	[A]
0.4	3.0-4.8
0.63	4.8-7.6
1.0	9-14
1.6	13-22
2.5	22-32.5
4.0	32-48
6.3	53-82
9	112-155
12.5	155-215
16	200-280
20	250-350
25	315-435