

Switch Disconnect and Air Circuit Breaker

... with
Power Xpert
Releases
PXR

Product Catalog



Powering Business Worldwide



We make what matters work.*



At Eaton, we believe that power is a fundamental part of just about everything people do. That's why we're dedicated to helping our customers find new ways to manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. To improve people's lives, the communities where we live and work, and the planet our future generations depend upon. Because this is what really matters. And we're here to make sure it works.

To learn more go to: Eaton.com/whatmatters



Powering Business Worldwide

We make what matters work.

Safety - individual solutions combined with IZM63.

Adding individual solutions to IZM63/IN63 circuit breakers provides both more protection for systems and more safety for personnel in case there is a failure. And it also reduces the risk of unintended interruptions of operation.

These solutions include:

- ARMS™
- ARCON®
- Zone selectivity
- Remote switching
- Testing and documenting with PXPM

SAFETY



ARMS™ (Arcflash Reduction Maintenance System)

Eaton's patented Arcflash Reduction Maintenance System AMRS technology provides maintenance staff improved safety of downstream maintenance locations using a simple and reliable method to reduce fault clearing times and energy in an arc flash event (radiation, sound, pressure, temperature).

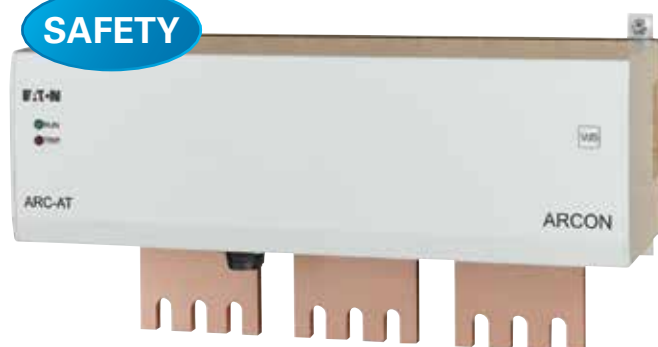
Arcflash Reduction Maintenance System uses a separate analog trip circuit providing faster signal processing and interruption times than the standard

(digital) "instantaneous" protection.

The Arcflash Reduction Maintenance System function is activated either directly on the circuit breaker through a local switch or remotely through communications or a contact input.

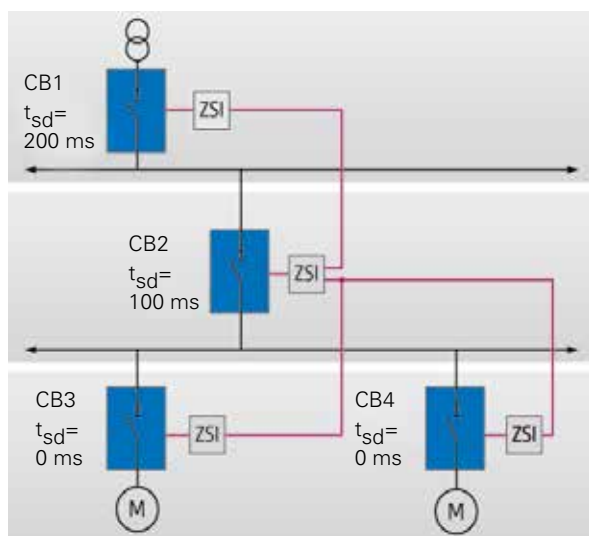
Arcflash Reduction Maintenance System is optional on both PXR20 and PXR25 trip units.

SAFETY



ARCON®

IZM63 breakers, combined with ARCON®, help users to avoid damage and to protect people against arc faults as they can effectively be brought under control within 2 ms. They also protect against arc flashes that – due to their impedance – would not even cause a protective device to react.



Zone selectivity ZSI

Now always on board an can be enabled.

Circuit breakers are directly connected to a signal line, without any additional modules. So, in case of short circuits, they ensure that only the circuit breaker immediately upstream the point of failure will break a short-circuit without delay.

The advantage of the zone selectivity feature – compared to ordinary time selectivity – is the significantly reduced delay time until tripping.

This reduces the thermal and dynamical load that protect the system in addition. In cases of a signal wire damage the back-up time selectivity ensures the selectivity of the system.

For additional safety of maintenance staff we recommend a combination with ARMS® to reduce the released amount of energy even further.



Breaker rear side (Drawout breaker)

Easy inspection and maintenance

Inspection and maintenance can be conveniently performed on the draw-out breaker as the primary finger clusters (blue) and levering mechanism are part of the breaker instead of the cassette.

Eaton also offers many field installable accessories and parts, extending the life of the breaker.

The next generation trip unit platform: Power Xpert Release (PXR)

The higher resolution dot matrix display has been enhanced to be always active, constantly displaying the status

of zone selectivity (ZSI), battery condition and rated current I_n . All data can be transferred via Modbus, Profibus or Ethernet

communication function and for security, a password can be added to avoid unauthorised changes. In addition, a QR

code has been added for easier identification and to access additional information.

Power Xpert Release (PXR) with multiple new features



- Modbus on board for PXR25 (optional for PXR20)
- Large LCD combined with cursor operation for more function and information
- Battery status, ZSI and In visible anytime
- ZSI – the better selective protection is always on board
- Password protection
- Rating plug programmable
- LSI protection can be changed to LI (without time selectivity $T_{sd} = 0$) or LS (without instantaneous $I_l = 0 \triangle 100\%$ selective)
- 3 free alarm contacts available
- USB port for testing and additional function setup via PC and software PXPMP



- Improved Diagnostics with breaker health (graph), events and run time

Software Power Xpert Protection Manager (PXPM) for interaction with PXR



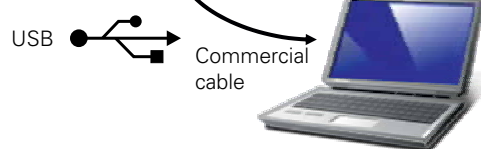
- Dis-/enable functions
- Reading/Changing settings (not basic protection settings)
- Waveform capture
- Multiple test procedures with final test protocol print including date/time stamp
- Print settings and curves

Using the software is easy and self explaining. The cursor above a select able function opens a window with its explanation. Depending on the selection next logical selection opens.

Testers no longer require specialized test tools thanks to the much better software solution in combination with the integrated secondary injection test hardware.



The Power Xpert Release trip unit platform enables engineers to configure and test circuit breakers from a PC via a USB port. As a result, it is easier for users to interact with the trip unit and store or print test data so they can improve their control and maintenance regimes.



Load your settings and record them.

If any values are changed a “final setting adjustments” screen shows the original and revised settings, highlighting any that were modified. The sheet can be saved or printed.



High current circuit breakers, for example those used in high power distribution systems in industry, are configured and periodically tested by end

users to ensure they continue to work reliably in case of over-currents, and therefore prevent expensive downtime. This new unit allows technicians to

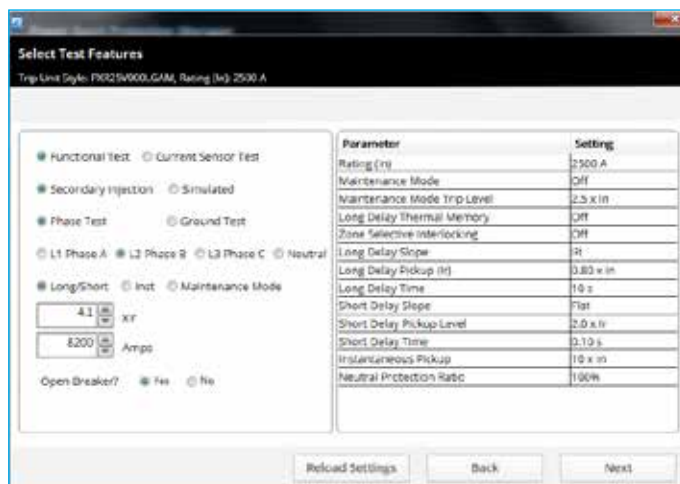
simulate or inject overloads, short circuits, ground faults , do internal current transformer test including its wiring, test with or without tripping and

much more using the Software Power Xpert Protection Manager (PXPMP).



Dis-/Enable or change settings, enlarge tripping curves and print curves for documentation.

Utilizing the easy-to-use dashboard, Control Mode can be selected allowing diagnostic and meter data to be reset. In Test Mode individual phases can be tested against values entered as current value or as a multiplier of individual settings.

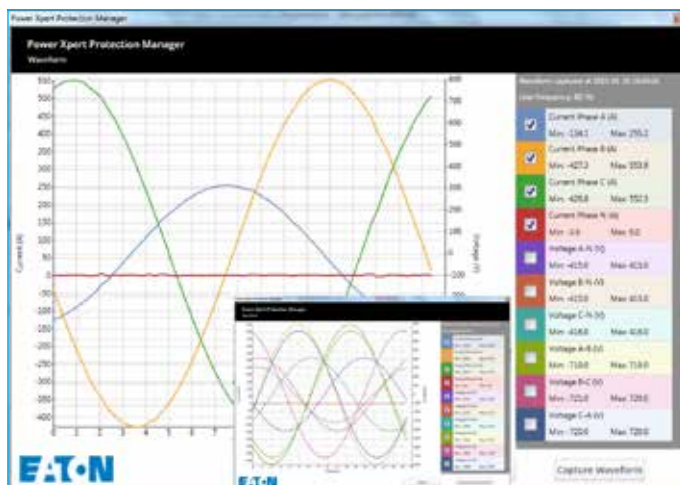


Select the function you want to test and choose the test current as value or multiplier of setting.

The unit has been developed in response to user demand for an easy-to-use system. Previously test data had to be written down, but with the upgraded software a three page professional test report with date/time stamp, customized information, individual settings/ tripping curves and secondary injection test result, can be generated and stored electronically in a pdf format. This enables technicians to significantly reduce the time it takes for testing, makes it much easier for them to carry out their maintenance, and receive a test report for documentation.

Prior to printing the test report, the customer name, location, environment and equipment condition can be entered.

Report professional all your test results within one document after installation in your system or report your yearly inspection that might be requested in your company.



Get additional information by capturing the waveform and select which curves shall be visible or be printed.

New features include the ability to capture current and optional voltage waveforms along with minimum and maximum values for the phase and neutral conductors. In addition, the waveform can give an indication of the overall quality caused by harmonics, and metering accuracy is now one per cent "of reading".

5 tests are possible. For more tests and other function packages generate the request file in PXPMP (go to application settings and then license), then in the webstore <http://eaton.mybigcommerce.com/power-xpert-protection-manager/> click the link for the testing software that you require and upload the PXPMP generated request file. Add to cart and checkout, you will then get an email during U.S. business hours, save that file and then load it into PXPMP.



IZM63 circuit-breakers, IN63 switch-disconnectors, up to 6300 A

Eaton's series IZM63/IN63 is an innovative line of circuit-breakers up to 6300 A. Engineering and mounting requirements are reduced thanks to the modular design and standard accessories. The highlight of the series IZM63/IN63: The trip unit family PXR trip electronics. It covers a huge amount of applications. And in conjunction with an optional communication on board ensures that operation can be monitored from all round the globe. The innovative IZM63 enables a double wide circuit breaker to be mounted in a switch cabinet.

Series IZM63/IN63 in standard offer up to 690 V

Rated operational current from 5000 to 6300 A, switching capacity $I_{cu} = I_{cs}$ from 85 to 100 kA/690 V AC, 3 or 4 pole, fixed mounted or withdrawable, electronic releases for multiple protection requirements and several additional options.

Extensive mounting accessories for fixed mounting and withdrawable units

Motor operator IZM...M... +++ Shunt release IZM...ST... +++ Closing release IZM...SR... +++ Undervoltage release IZM...UV... +++ Auxiliary contact ON-OFF IZM...AS... +++ Latch check switch IZM...LCS... +++ Overload trip switch IZM...OTS +++ Mechanical interlocks and much more.

Control unit family

The PXR control unit is the answer on the market request of doing individual tests in the field and document it. Therefore Eaton provides an USB link in the trip unit front to be able to correspondent with PC in conjunction with a free download able Power Xpert Protection Manager software.

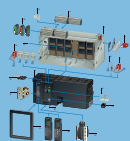
Further more the PXR control unit offers an extensive range of functions. Protection, measuring, analysis, diagnostics and event memory functions that can be shown on an LCD display or transferred remotely via an integrated communication system, displayed on a web page or sent worldwide by email. PXR can be integrated in different data networks together with Eaton's plug & play communication solution: MODBUS, PROFIBUS or Ethernet. Circuit breakers can then be monitored directly via the Internet.

Worldwide novelty ARMS™ – greater safety for maintenance personnel

In the event of an arc fault the patented ARMS™ (Arcflash Reduction Maintenance System) trips faster than a short-circuit release. In conjunction with the series IZM63/IN63, additional components of the ARCON™ arc fault protection system offer additional arc fault protection.

Air Circuit Breakers IZM63/IN63

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Circuit breakers IZM63, switch-disconnectors IN63 up to 6300 A

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Ordering

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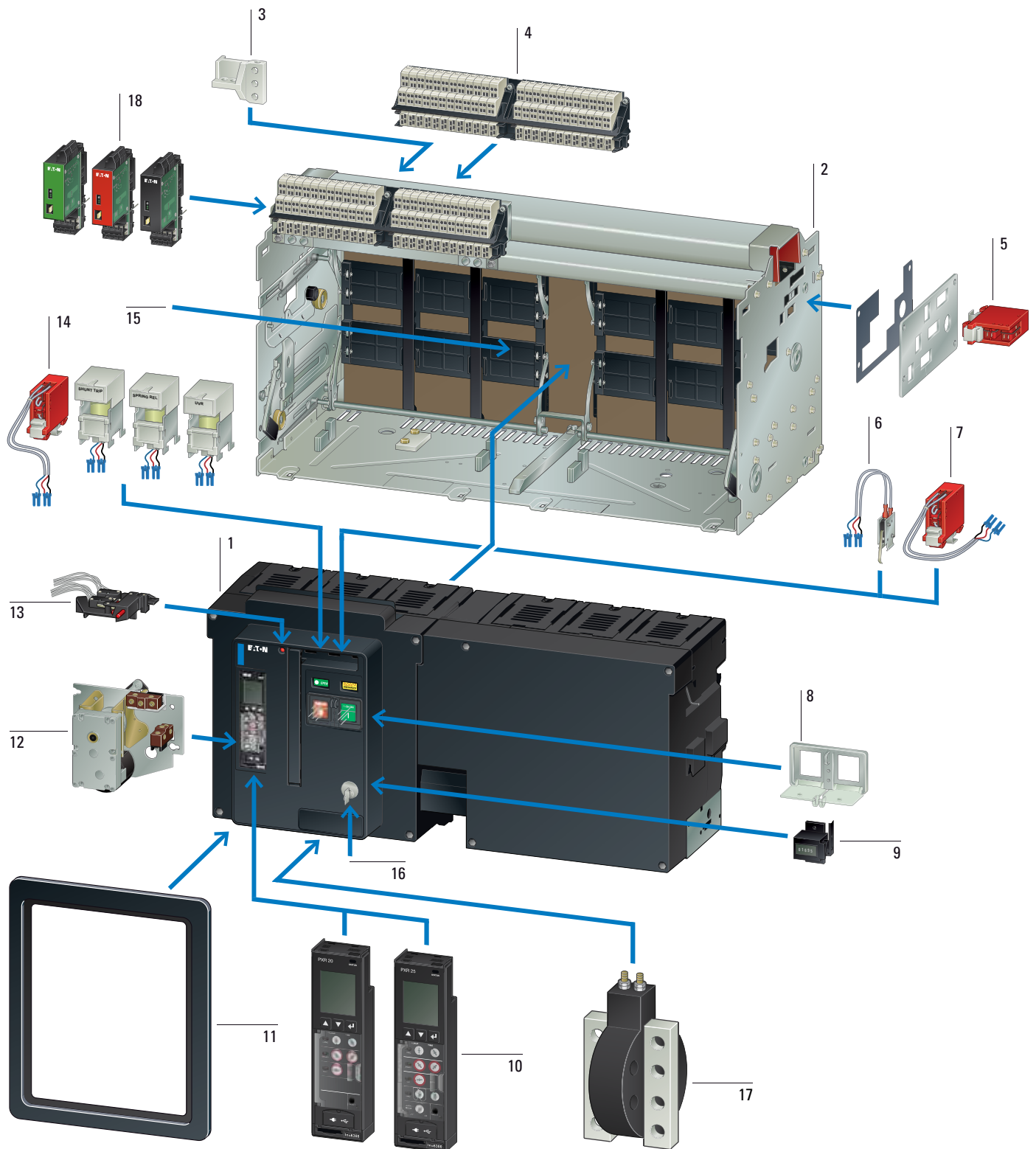
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Dimensions

Circuit breaker IZM63, switch-disconnector IN63	
Fixed mounted	45
Withdrawable units	48
Minimum clearances	53

System overview



IZM Air Circuit Breakers

IZM63/IN63

IZM63/IN63 air circuit breaker	1	Standard change over contacts, 4 CO	7	Red-pop trip indicator	13
IZM63 / IN63: 5000 - 6300 A				Red-pop trip indicator signals a trip of the breaker by the trip unit.	
Cassette for withdrawable units	2	Locking facilities	8	Shunt release, Closing release & Undervoltage releases	14
With complete set of control circuit terminals		Padlockable plastic or metal front covers for ON-OFF pushbuttons		Opens the breaker by an electrical signal / Closes the breaker by an electrical signal / Opens the breaker by a voltage-drop in the control-circuit	
Main terminal kit	3	Switching operations counters	9	Cassette safety shutters	15
Universal terminal for 3- and 4-pole		Counts the number of operations		Shutter for 3- and 4-pole	
Either 2 or 12 units		Spare trip unit	10	Key locking	16
Control circuit terminal units	4	PXR20, V-Type & PXR25, P-Type		Locking of the breaker by a keylock	
Position cell switches	5	Door escutcheon	11	Current sensor for neutral 6 conductor	17
Cell switch signals the position of the breaker inside of the cassette.		Closes the gap between breaker and switchgear door. IP41.		Current sensor for sensing the neutral-conductor-current	
Connect, test and disconnect position		Motor operator	12	Communication modules	18
Latch check switch	6	Automatic charging of the spring force storage for remote or local operations		Profibus DP, Ethernet	
For external application usage					



IZM63

General			
Standards		IEC/EN 60947	
Ambient temperature	Storage	°C	-20 - +70
	Operating (open)	°C	-20 - +70
Mounting position			
Utilization category		B	
Protection type		IP20	
Environment humidity		Comply with GB / T2423.4 Alternating Humidity and Heat Test +55 °C, Relative Humidity 95%, Non-condensing (exceeding standards, cabinet needs to be protected)	
Direction of incoming supply		As required	
Switching capacity			
Rated Current (I _n)		5000A, 6300A	
Type of circuit breaker		N	H
Rated impulse withstand voltage (U _{imp} , VAC)		12000	12000
Rated insulation voltage (U _i , VAC)		1000	1000
Rated operational voltage (U _e , VAC)		690	690
Ultimate breaking capacity (I _{cu} , kA)	440V 50/60Hz	85	100
	690V 50/60Hz	85	100
Rated service breaking capacity (I _{cs} , kA)	440V 50/60Hz	85	100
	690V 50/60Hz	85	100
Rated short-time withstand current (I _{cw} , kA)	1s/3s	85/65	100/65
Rated short-circuit making capacity (I _{cm} , kA)	440V 50/60Hz	187	220
	690V 50/60Hz	187	220
Operating delays (ms)	Closing delay	35	40
	Opening delay	30	35
Maximum operating frequency (Operations/h)		60	60
Durability and installation characteristics			
Lifespan		5000-6300A	
	Mechanical, w/o maintenance	5000	
	Mechanical, w/maintenance	10000	
	Electrical, w/o maintenance	3000	
Dimensions (H × W × D, mm)	Fixed 3P	461×907×372	
	Fixed 4P	461×1161×372	
	Withdrawable 3P	486×926 ×474	
	Withdrawable 4P	486×1180×474	
Weight (kg)	Fixed 3P/4P	125/163	
	Withdrawable 3P/4P	157/200	

Standard plus Selective Protection



V Type (PXR20)
IZMX-PXR
IZM63...V...

Power/Energy Protection



P Type (PXR25)
IZMX-PXR
IZM63...P...

Protection functions	LI, LSI; LSIG/LSIA (Optional)	LI, LSI; LSIG/LSIA (Optional)
Overload protection (L)		
Slopes	$I^{0.5}t, I_t, I^2t, I^4t$	$I^{0.5}t, I_t, I^2t, I^4t$
Overload trip (I_r), $\times I_n$	0.4, 0.5, 0.6, 0.7, 0.75, 0.8, 0.9, 0.95, 0.98, 1.0	0.4, 0.5, 0.6, 0.7, 0.75, 0.8, 0.9, 0.95, 0.98, 1.0
Long delay time t_r ($6 \times I_r$)	0.5, 1, 2, 4, 7, 10, 12, 15, 20, 24 s	0.5, 1, 2, 4, 7, 10, 12, 15, 20, 24 s
Short-time delayed short-circuit protection (S)		
Short delayed pickup (I_{sd}), $\times I_r$	1.5, 2, 2.5, 3, 4, 5, 6, 7, 8, 10	1.5, 2, 2.5, 3, 4, 5, 6, 7, 8, 10
Short delay time, flat characteristic curve (t_{sd})	0.0, 0.1, 0.2, 0.3, 0.4, 0.5 s ¹⁾	0.0, 0.1, 0.2, 0.3, 0.4, 0.5 s ¹⁾
Short delay time at $8 \times I_r$, I^2t curve (t_{sd})	0.1, 0.3, 0.4, 0.5 s	0.1, 0.3, 0.4, 0.5 s
Non-delayed short-circuit protection (I)		
Non-delayed pickup (I_i), $\times I_n$	OFF, 2, 4, 5, 6, 7, 8, 10, 12, 15	OFF, 2, 4, 5, 6, 7, 8, 10, 12, 15
Optional ground fault protection (G)		
Ground/Earth fault alarm (A), $\times I_n$	0.2, 0.4, 0.6, 1.0	0.2, 0.4, 0.6, 1.0
Ground/Earth pickup (I_g), $\times I_n$	OFF, 0.2, 0.4, 0.6, 0.8, 1.0	OFF, 0.2, 0.4, 0.6, 0.8, 1.0
Short delay time, flat characteristic curve (t_g)	0.1, 0.2, 0.3, 0.4, 0.5 s	0.1, 0.2, 0.3, 0.4, 0.5 s
Short delay time at $0.625 \times I_n$, I^2t curve (t_g)	0.1, 0.2, 0.3, 0.4, 0.5 s	0.1, 0.2, 0.3, 0.4, 0.5 s
Over-temperature trip	●	●
Thermal memory	●	●
Zone selectivity ZSI (see next page)	●	●
Making current release (MCR)	●	●
Further functions		
System diagnostic		
Status/Overload LED	●	●
Cause of trip LEDs	●	●
Current at trip point (display indication)	●	●
High load or ground fault alarm contact	●	●
System monitor		
LCD display	● ²⁾	● ²⁾
Current metering accuracy $\pm 1\%$ of Reading	$\pm 1\%$ of Reading	$\pm 1\%$ of Reading
Voltage (%) L to L	—	$\pm 1\%$ of Reading ³⁾
Power and energy (%)	—	$\pm 2\%$ of Reading ³⁾
Apparent power kVA and demand	—	● ³⁾
Reactive power kVAR	—	● ³⁾
Power factor	—	● ³⁾
Communications		
Onboard (ModBus)	○	●
External (CAM Module)	○	○
Power supply requirement	+24 V DC, optional	+24 V DC, optional
Additional functions		
Test Capability	Integral, PC+Power Xpert (free Download)	Integral, PC+Power Xpert (free Download)
Maintenance Mode ARMS (Arc Flash Reduction Maintenance System™)	○	○
Trip log	●	●
Electronic operations counter	●	●
Waveform capture	●	●
Breaker health monitor	●	●

Notes

¹⁾ 0.1s: trip time is 0.06s to 0.1s; 0s: nominal clear time is 25 ms to 85 ms with or without auxiliary power

²⁾ Requires external 24VDC control voltage supply when continuous current below 20% of I_n

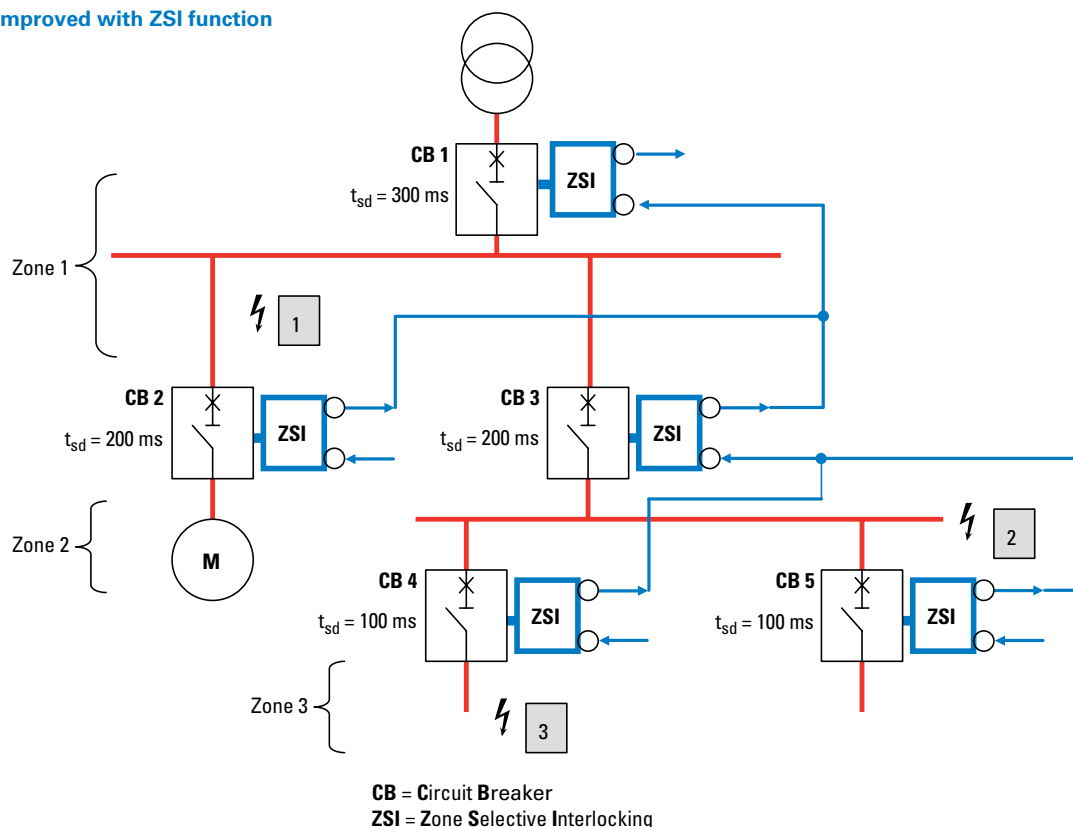
³⁾ Requires external PT module (IZMX-PXR-PTM-1) for voltage sensing input to trip unit

● Standard

○ Optional

— not available

Selectivity-improved with ZSI function



Zone Selective Interlocking (ZSI)

- Zone Selective Interlocking is described in the standard IEC 61912-2 Low voltage switchgear and controlgear.
- The term zone selective interlocking is used to describe a method of controlling circuit breakers to provide selectivity with very short interruption times for the breaker closest to the fault.
- There are different levels (zones) of protection that isolate the fault in the distribution system.
- ZSI may be applied for faults between phases or earth-faults or both.
- ZSI is applied to the short time faults where time selectivity can be achieved with the breakers between the zones.
- Because ZSI does not require auxiliary power or additional modules to operate set up time is minimal and application is easy.

Zone Selective Interlocking (ZSI) Example

Example A – Short-circuit at position 3

- Circuit breakers CB1, CB3, CB4 all see the short circuit current and register a short delay pick-up.
- Circuit breaker CB4 sends a ZSI output blocking signal to CB3 ZSI input. CB3 sends a ZSI output blocking signal to CB1 ZSI input. CB1 sends a ZSI output signal that is not wired. This signal could be wired to a MV relay on the other side of the transformer with a compatible ZSI circuitry.
- CB1 registers the ZSI input signal and starts its timer for 300ms. CB3 registers the ZSI input signal and starts its timer for 200ms. CB4 gets no input from any lower zone circuit breaker. This breaker will then trip immediately without any time delay. CB4 interrupts the fault and CB1 and CB3 stop short delay timing because the fault current is gone.
- If for some reason CB4 does not open and interrupt the fault then at the end of its short delay time CB3 will open and interrupt the fault.

Example B – Short-circuit at position 2

- Circuit breakers CB1, CB3, see the short circuit current and register a short delay pick-up. CB4 and CB5 do not see the fault current and do not send a ZSI output.
- Circuit breaker CB3 sends a ZSI output blocking signal to CB1 ZSI input. CB1 sends a ZSI output signal. In this example that signal is not wired.
- CB1 registers the ZSI input signal and starts a timer for 300ms. CB3 gets no input from any lower zone circuit breaker. This breaker will then trip immediately without any time delay. CB3 interrupts the fault and CB1 stops short delay timing because the fault current is gone. The clearance time is reduced by approximately 150ms.

Example C – Short-circuit at position 1

- Only circuit breaker CB1 sees the short circuit current and registers a short delay pick-up. CB2, CB3, CB4 and CB5 do not see the fault current and do not send ZSI outputs.
- CB1 sends a ZSI output signal. In this example that signal is not wired.
- CB1 gets no input from any lower zone circuit breaker. This breaker will then trip immediately without any time delay. CB1 interrupts the fault and the clearance time is reduced by approximately 250ms.

IzM63 Circuit Breakers, IN63 Switch Disconnectors

Air Circuit Breaker IzM63

Eaton's IzM63, circuit-breakers offer a proven and complete range of air circuit-breakers up to 6300 A. Four sizes enable the ideal circuit-breaker to be selected economically for any project. In this way, only the module width increases with the required rated operational current, enabling the most compact and economical size to be selected.

The particularly rugged circuit-breakers are already in use 100,000 times in harsh industrial environments worldwide. Large material thicknesses and a high short-time withstand current are its characteristic features.

Applications

The circuit-breakers can be used in four main application areas depending on the type of equipment to be protected:

- System protection,
- Motor protection,
- Transformer protection,
- Generator protection.

These key applications make different These key applications make different demands on the switches, which are met with a range of trip units.

Switches with Closing Release

They are particularly suitable for synchronization tasks.

Coupler Switches

Beside the IzM63, circuit-breakers, IN63 switch-disconnectors are available. These are used, for example, as coupler switches between different power supplies.

Modular Design

Because components are installed from the front, retrofitting accessories is especially quick and easy. This allows flexible response to changing requirements within the system.

Communication Capability

The communication capability of the IzM63 type circuit-breakers opens new possibilities in power distribution system. It provides all important operational information and passes this on. This increases system transparency and shortens the response times to states such as overcurrent, phase asymmetry and overvoltage. A rapid intervention in a process can, for example, prevent downtimes and help to schedule maintenance activities and therefore boost plant availability. In addition to Modbus interface, the Profibus interface is offered.

Standard Scope of Delivery as Usual for IzM63/IN63

- With the IzM63, you select a basic device that is already

fitted with an electronic trip unit (no horizontal or vertical wiring terminals equipped, to be supplied to your request)

- Horizontal mounting wiring is standard in the switching cabinet
- With four-pole devices, the neutral conductor is arranged on the left (front view).
- The neutral conductor can be loaded 100% like the phase conductors
- The circuit-breakers are provided with a standard mechanical reclosing lockout. After an overload trip, the fault is usually examined first. After the fault is identified and rectified, the mechanical reclosing lockout is reset by pressing the red mechanical trip indicator on the front of the circuit-breaker.
- An "Automatic Reset" can be ordered as an option. This enables the circuit-breaker to be restored to operation immediately at any time after the spring-operated stored energy mechanism is re-tensioned. In these applications, compulsory fault analysis is intentionally avoided.
- The number of terminals on the terminal bars of the secondary control circuit depends on the accessories fitted.
- 4 COs are provided instead of 2 NOs and 2 NCs
- A coding mechanism between the basic device and the cassette prevents impermissible combinations ("Rejection Interlock").

Expanded Standard Scope of Delivery for IzM63

The following options are now already part of the standard scope of delivery:

- With withdrawable circuit breakers, the door escutcheon is supplied with the cassette option, with no separate ordering required
- On withdrawable units, the circuit breaker can be pulled out to inspect the arc chutes. With fixed units, it is recommended that sufficient space is provided above the circuit breaker to enable inspection. An additional cover is not required.
- All circuit breakers that are provided with protective trip unit function now feature a LCD display.
- On each circuit breaker, the electronic trip unit is factory fitted with a sealable protective cover.
- If a motor operator is ordered, the "Spring-operated stored energy tensioned" indicator auxiliary contact is automatically provided.

ARMS™ Offers Increased Safety for Maintenance Staff

When equipped with the latest patented ARMS (arcflash reduction maintenance system), the IzM63 circuit breakers can ensure immediate breaking in the case of arc flash fault. This is even faster than instantaneous short-circuit tripping. When maintenance staff enter a hazardous area, the ARMS function can be activated directly on the circuit breaker or through an external switch. In conjunction with IzM63, other components of the ARMS enable an expansion of arc fault protection.

Selection Criteria for IzM63 type

Fundamental criteria for the selection of circuit-breakers:

- Max short-circuit current $I_{k\max}$ of the circuit-breaker' point of installation: this value determines the short-circuit breaking capacity or the short-circuit current carrying capacity of the circuit breaker. It is compared with the I_{CU} , I_{CS} and I_{CW} values of the switch and essentially determines its size (see Technical data)
- Rated operational current I_n which should flow through the respective branch circuit: this value must not be greater than the maximum rated operational current of the circuit breaker. The rated operational current can be adjusted down using additional rated operational current modules.
- Ambient temperature of the circuit breaker: this is generally the internal temperature in the control panel. Observe the derating values with increased ambient temperature (see Technical data).
- Circuit-breaker type: fixed mounted or withdrawable units, 3 or 4Ps.
- Minimum short-circuit current which flows through the switching device: the release must recognize this value as a short-circuit and may react with a trip.
- Protection functions of the circuit breaker is determined by the selection of the respective overcurrent release.

Other Benefits of the IzM63 type

- Some applications have demand on the trip unit to offer a power interface for connection to an external control voltage source (see below). A power supply of 240 VAC external control voltage can be equipped
- Based on different mounting positions, a switching operations counter can now

be used independently of a motor operator.

- Withdrawable unit operation: The unit is actuated with a hand crank supplied. This is now possible also with a standard tool (square drive socket 3/8").
- A frame size is available, enabling to provide best devices for different applications. The rated operational voltage cover 5000 to 6300A.
- Phase sequence of IzM63: (NN) AABBC
- 6300A IzM63 circuit breaker: horizontal wiring is supplied as standard, thus simplifying the busbar connection in the switchgear system

External Control Voltage Supply

- The standard protection functions of the IzM63 circuit breakers operate generally independently of an external control voltage supply. The power supply of the electronics unit, for example for overload and short-circuit protection, is implemented via the current transformers integrated in the circuit breaker.
- The trip unit can be fed with an external 24VDC /48VDC or 240VAC supply if required so that the display function can also be used without a load. An external power supply is needed if communication functions are required.

Characteristic Curve Selection Options

The trip characteristics is selected to user settings and the relationship among circuit breakers. For more information, consult EATON's Technical Support.

ARMS™ ARC flash energy reduction technology optimize safety for maintenance personnel

Personnel safety is of paramount importance in today's work environment. Of recent concern is the potential for serious injury due to exposure to electrical arcs. Eaton's IZM Series trip units offer the patented ARMS system (Arcflash Reduction Maintenance System™), which offers a non-delayed immediate disconnection in the event of an arc fault. This disconnection is even faster than that of a non-delayed short-circuit release. This function can be activated directly on the circuit breaker or via an external switch, such as when maintenance personnel enter a hazardous area.

Major Benefits of ARMS:

- Increased personnel safety – by limiting the available arc flash energy
- Simple to operate
- Enabled with circuit breaker door closed by a door mounted lockable switch
- Enabled only for the time required to perform the desired maintenance work
- Preserves overcurrent coordination under normal conditions
- Reduction in incident energy levels may permit reduced levels of Personal Protective Equipment (PPE), therefore improving worker comfort and mobility

Other components of the ARCON arc fault protection system, in conjunction with Series IZM, enable an expansion of arc fault protection in stages.

Selection criteria for circuit breakers

Fundamental criteria for the selection of circuit breakers:

- Max short-circuit current I_k max at the circuit breaker' point of installation: this value determines the short-circuit breaking capacity or the short-circuit current carrying capacity of the circuit breaker. It is compared with the I_{cu} , I_{cs} and I_{cw} values of the switch and essentially determines its size (see technical data).
- Rated operational current I_n which should flow through the respective branch circuit: This value must not be greater than the maximum switch rated operational current of the circuit breaker. The rated operational current can be adjusted down using additional rated operational current modules.
- Ambient temperature of the circuit breaker: This is generally the internal temperature in the control panel. Observe the derating values with increased ambient temperature (see Technical data).
- Circuit breaker type: fixed mounted or withdrawable units, 3 or 4 pole.

Minimum short-circuit current, which flows through the switching device: The release must recognize this value as a short-circuit and may react with a trip.

- Protection functions of the circuit breaker: This is determined by the selection of the respective overcurrent release.

For additional resources and tools for selecting Eaton Air circuit breakers please visit us at www.eaton.com/seriesnrx.

Communication Options for IZM Series

With the respective communication module - PCAM, MCAM or ECAM (Profibus-DP / Modbus/ Ethernet Communications Adapter Module) - every circuit breaker of the IZM series is equipped for modern communication and is fit for the future. The databus not only allows to transmit information, but also

to receive commands/settings. Onboard Modbus communication is standard on the PXR25 (P type) trip unit and optional on the PXR20(V type) trip unit upon order. Additional PCAM, MCAM or ECAM module can be installed externally for PXR25 to expand the communication capability. (No more than one external CAM module can be installed).

PROFIBUS-DP configuration

Communications module IZMX-PCAM has a 9-pin D-Sub socket for connection to PROFIBUS. The module works as a slave on PROFIBUS-DP; the data is defined through a standardized device master data file, which permits smooth integration of IZM in a DP line.

- On the PROFIBUS-DP side the module supports automatic baud rate detection; the PROFIBUS-DP bus address is set through the trip unit's display. The maximum cable length is 2.4 km.
- To operate the IZMX-PCAM, a supply voltage of 24 V DC is required.
- The data connection to the circuit breaker is implemented internally through a serial high-speed data connection.

Data access via PROFIBUS-DP

The data on PROFIBUS-DP are offered according to the profile for low-voltage switchgear (LVSG) of PROFIBUS International (PROFIBUS and PROFINET User Group). Five different data structures with varying numbers of parameters are available through the device master data file. This allows a data filter to be easily implemented, which simplifies integration of the IZM data into the control system.

Modbus configuration

The new PXR has an on board Modbus RTU controller. The device operates as a Modbus slave.

- Baud rate, data format and address (max. 247) for Modbus are set with the input keys of the trip unit. The maximum cable length is 1.2 km.
- The Modbus must be terminated with a 120 Ω terminating

resistor.

- To operate the onboard Modbus, a supply voltage of 24 V DC is required.
- The data connection to the circuit breaker is implemented internally through a serial high-speed data connection.

Data access via Modbus

The data is contained in comprehensive data tables. Each data point is available as floating-point (IEEE) or fixed-point value. This variance allows the integration of the IZM63 to be adapted to the Modbus architecture. This enables a simple means of implementing a data filter, which facilitates the integration of IZMX data in the control system.

Ethernet configuration

Communications module IZMX-ECAM has standard RJ45 socket for connection to Ethernet.

- IP address and related parameters are set through the trip unit's display.
- The data connection to the circuit breaker is implemented internally through a serial high speed data connection.
- To operate the IZMX-ECAM, a supply voltage of 24 V DC is required.

Data access via Ethernet

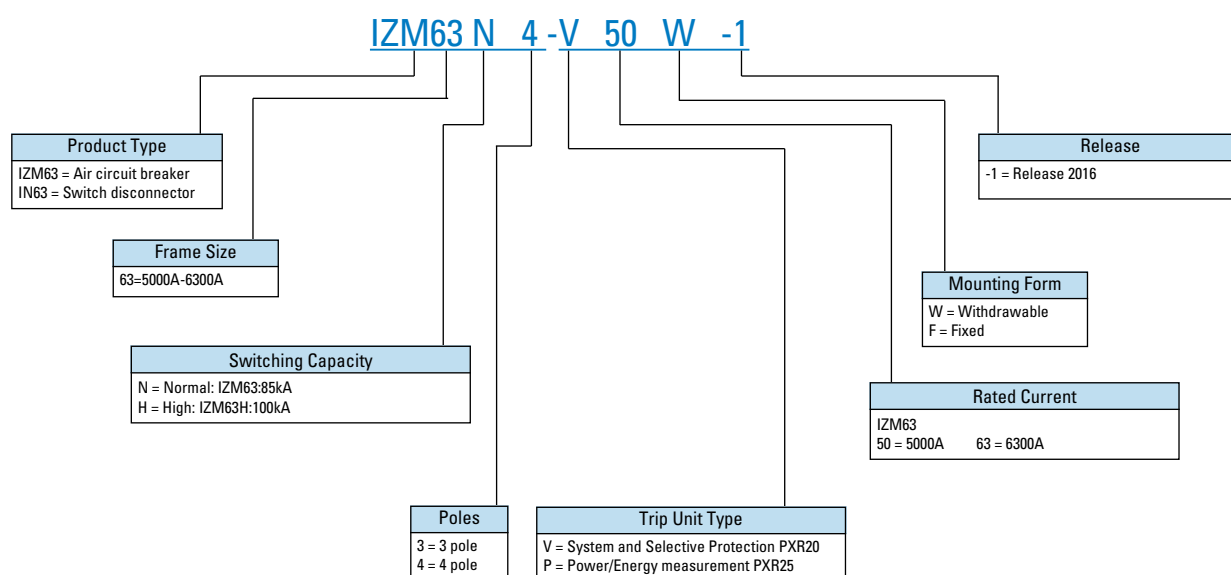
The data is contained in different web pages structured according to the topics „Data View“, „Alarms“, „Logs“ and „Configuration“. This variance allows the integration of the IZM to be adapted to all Ethernet networks supporting http protocol. An „around the world access“ to the breaker becomes reality and using the SNMP protocol alarm messages can be transported everywhere.

Configuration



IZM63 Circuit Breakers, IN63 Switch Disconnectors

IZM63 Air Circuit Breakers Catalog Number



Selection Examples

IZM63 fixed 230VAC electrically operated example:

- | | |
|---------------------|--|
| ① IZM63N3-V50F-1 | Fixed breaker, including 4 CO contacts |
| ② IZM-TV633H-6300-1 | Main terminal adapter – vertical |
| ③ +IZM-M230AC-1 | 208-240 VAC Charging motor |
| ④ +IZM-ST230AD-1 | 208-250VAC/DC Shunt trip |
| ⑤ +IZM-SR230AD-1 | 208-250VAC/DC Closing (spring) release |
| ⑥ +IZM-AS22-1 | Additional 4CO contacts (8CO in total) |
| ⑦ +IZM-OTS-1 | Over current trip switch(OTS) 2CO |

IZM63 withdrawable 230VAC electrically operated example:

- | | |
|---------------------|---|
| ① IZM63N3-V50W-1 * | Withdrawable breaker, including 4 CO contacts |
| ② IZM-TV633H-6300-1 | Main terminal adapter – vertical |
| ③ +IZM-M230AC-1 | 208-240 VAC/DC Charging motor |
| ④ +IZM-ST230AD-1 | 208-250VAC/DC Shunt trip |
| ⑤ +IZM-SR230AD-1 | 208-250VAC/DC Closing (spring) release |
| ⑥ +IZM-AS22-1 | Additional 4CO contacts (8CO in total) |
| ⑦ +IZM-OTS-1 | Over current trip switch(OTS) 2CO |
| ⑧ IZM-CAS633-6300-1 | Cassette |
| ⑨ +IZM-SH633-1 | Safety shutters |

Notes

All „+“ articles are factory installed accessories and ready for use.
All accessory articles without „+“ are complete „field kits“.

THE KITS CONTAIN ALL REQUIRED PARTS, INSTALLATION INSTRUCTION IL AND IN CASE OF ELECTRICAL ACCESSORY THE CONTROL TERMINALS.

* ..W-1: WHERE W = WITHDRAWABLE BREAKER READY TO INSERT INTO CASSETTE. CASSETTE NEEDS TO BE ORDERED SEPARATELY.

Switching capacity	Rated operational current	Frame size	Setting range			Fixed mounted	Withdrawable units	Std. pack
			Overload release	Short-circuit releases				
				Delayed	Non-delayed			
$I_{cu} = I_{cs}$ kA	$I_n = I_u$ A	I_r A	$I_{sd} = I_r \times \dots$	$I_i = I_n \times \dots$				
								

Circuit breaker for system and selective protection

With horizontal terminals as standard. For vertical termination see page 23



3 pole								
85	5000	IZM63	2000 – 5000	1,5 - 10	2 - 15, OFF	IZM63N3-V50F-1 303644	IZM63N3-V50W-1 303648	1 off
	6300		2520 – 6300			IZM63N3-V63F-1 303645	IZM63N3-V63W-1 303649	
100	5000		2000 – 5000			IZM63H3-V50F-1 303646	IZM63H3-V50W-1 303651	
	6300		2520 – 6300			IZM63H3-V63F-1 303647	IZM63H3-V63W-1 303652	

Circuit breaker with power and energy metering

Only one voltage transformer PTM for 1-16 breakers required. With horizontal terminals as standard. For vertical termination see page 23

3 pole								
85	5000	IZM63	2000 – 5000	1,5 - 10	2 - 15, OFF	IZM63N3-P50F-1 303653	IZM63N3-P50W-1 303659	1 off
	6300		2520 – 6300			IZM63N3-P63F-1 303654	IZM63N3-P63W-1 303660	
100	5000		2000 – 5000			IZM63H3-P50F-1 303656	IZM63H3-P50W-1 303661	
	6300		2520 – 6300			IZM63H3-P63F-1 303657	IZM63H3-P63W-1 303662	

IZM circuit-breakers, IN switch-disconnectors

Basic devices

IZM63.. V/P ..., 3/4 pole

Switching capacity	Rated operational current	Frame size	Setting range			Fixed mounted	Withdrawable units	Std. pack
			Overload release	Short-circuit releases				
				Delayed	Non-delayed			
$I_{cu} = I_{cs}$ kA	$I_n = I_u$ A	I_r A	$I_{sd} = I_r \times \dots$	$I_i = I_n \times \dots$				
								

Circuit breaker for system and selective protection

With horizontal terminals as standard. For vertical termination see page 23



4 pole

85	5000	IZM63	2000 – 5000	1,5 - 10	2 - 15, OFF	IZM63N4-V50F-1 303663	IZM63N4-V50W-1 303667	1 off
	6300		2520 – 6300			IZM63N4-V63F-1 303664	IZM63N4-V63W-1 303668	
100	5000		2000 – 5000			IZM63H4-V50F-1 303665	IZM63H4-V50W-1 303669	
	6300		2520 – 6300			IZM63H4-V63F-1 303666	IZM63H4-V63W-1 303670	

Circuit breaker with power and energy metering

Only one voltage transformer PTM for 1-16 breakers required. With horizontal terminals as standard. For vertical termination see page 23

4 pole

85	5000	IZM63	2000 – 5000	1,5 - 10	2 - 15, OFF	IZM63N4-P50F-1 303671	IZM63N4-P50W-1 303675	1 off
	6300		2520 – 6300			IZM63N4-P63F-1 303672	IZM63N4-P63W-1 303676	
100	5000		2000 – 5000			IZM63H4-P50F-1 303673	IZM63H4-P50W-1 303678	
	6300		2520 – 6300			IZM63H4-P63F-1 303674	IZM63H4-P63W-1 303679	

Rated short-circuit making capacity	Rated operational current	Frame size	Rated short-time withstand current	Fixed mounted	Withdrawable units	
			t = 1 s	Part no. Article no.	Part no. Article no.	Std. pack
I_{cm} kA	$I_n = I_U$ A		I_{cw} kA			

Switch disconnectors IN63

With horizontal terminals as standard. For vertical termination see page 23



3 pole

217	5000	IN63	85	IN63N3-50F-1 303680	IN63N3-50W-1 303684	1 off
	5000		100	IN63H3-50F-1 303682	IN63H3-50W-1 303686	
	6300		85	IN63N3-63F-1 303681	IN63N3-63W-1 303685	
	6300		100	IN63H3-63F-1 303683	IN63H3-63W-1 303687	

Switch disconnectors IN63

With horizontal terminals as standard. For vertical termination see page 23

4 pole

217	5000	IN63	85	IN63N4-50F-1 303688	IN63N4-50W-1 303692	1 off
	5000		100	IN63H4-50F-1 303690	IN63H4-50W-1 303694	
	6300		85	IN63N4-63F-1 303689	IN63N4-63W-1 303693	
	6300		100	IN63H4-63F-1 303691	IN63H4-63W-1 303695	

IZM circuit-breakers, IN switch-disconnectors

Electronic releases

IZM-PXRV..., IZM-PXRP...

Type	For use with	Ground Fault Protection ¹⁾ (T)	ARMS (A)	Onboard ModBUS Communication (M)	Part no. Article no.	Price see price list	Std. pack
Additional function for circuit breaker with V trip unit (with LSI protection function, current metering and zone selective protection function ZSI) Ground Fault Protection is programable and can be set to alarm or protection ZSI included.							
	Add ground-fault protection	IZM63...-V... ●	—	—	+IZMX-PXRV-T-1 183926		1
	Add ARMS	IZM63...-V... —	●	—	+IZMX-PXRV-A-1 184948		1
	Add onboard Modbus	IZM63...-V... —	—	●	+IZMX-PXRV-M-1 183930		1
	Add ground-fault protection and ARMS	IZM63...-V... ●	●	—	+IZMX-PXRV-TA-1 183932		1
	Add ground-fault protection and onboard Modbus	IZM63...-V... ●	—	●	+IZMX-PXRV-TM-1 183931		1
	Add ARMS and onboard Modbus	IZM63...-V... —	●	●	+IZMX-PXRV-AM-1 184949		1
	Add ground-fault protection and ARMS and onboard Modbus	IZM63...-V... ●	●	●	+IZMX-PXRV-TAM-1 183933		1
Additional function for circuit breaker with P trip unit (with LSI protection function, power metering²⁾, zone selective protection function and onboard Modbus)							
	Add ground-fault protection	IZM63...-P... ●	—	●	+IZMX-PXRP-T-1 183927		1
	Add ARMS	IZM63...-P... —	●	●	+IZMX-PXRP-A-1 183928		1
	Add ground-fault protection and ARMS	IZM63...-P... ●	●	●	+IZMX-PXRP-TA-1 183929		1
Spare trip unit type V (with LSI protection function, zone selective protection function and onboard Modbus)							
	—	IZM63...-V... —	—	—	IZMX-PXRV-1 183935		1
	Ground-fault protection	IZM63...-V... ●	—	—	IZMX-PXRV-T-1 183982		1
	ARMS	IZM63...-V... —	●	—	IZMX-PXRV-A-1 184950		1
	Onboard Modbus	IZM63...-V... —	—	●	IZMX-PXRV-M-1 183986		1
	Ground-fault protection and ARMS	IZM63...-V... ●	●	—	IZMX-PXRV-TA-1 183988		1
	Ground-fault protection and onboard Modbus	IZM63...-V... ●	—	●	IZMX-PXRV-TM-1 183987		1
	ARMS and onboard Modbus	IZM63...-V... —	●	●	IZMX-PXRV-AM-1 184951		1
	Ground-fault protection and ARMS and onboard Modbus	IZM63...-V... ●	●	●	IZMX-PXRV-TAM-1 183989		1
Spare trip unit type P (with LSI protection function, power metering²⁾, zone selective protection function and onboard Modbus)							
	—	IZM63...-P... —	—	●	IZMX-PXRP-1 183936		1
	Ground-fault protection	IZM63...-P... ●	—	●	IZMX-PXRP-T-1 183983		1
	ARMS	IZM63...-P... —	●	●	IZMX-PXRP-A-1 183984		1
	Ground-fault protection and ARMS	IZM63...-P... ●	●	●	IZMX-PXRP-TA-1 183985		1

Notes

¹⁾ 3pole breaker need an external wired N-conductor current transformer.

²⁾ Power metering requires one external voltage transformer module ...PTM for 1-16 trip units.

General: Articles without „+“ are complete field kits for spare/upgrading purposes.

Articles with „+“ add further factory installed function into the configuration.

	Description	For use with	Part no. Article no.	Part no. Article no.	Std. Pack
Voltage transformer					
	Externally mounted voltage transformer to provide voltage sensing input to 1-16 P-Type trip units. Maximum distance = 75m.	IZM63...	IZMX-PXR-PTM-1 184142		1
Power supply					
	Optional for the trip unit in case of breaker is not in operation and - display information is requested or - test simulation with trip	IZM63...	IZMX-DT-PS-1 183969		1
Current sensor for neutral conductor on 3-pole circuit breakers with earth-/ground fault protection					
	Externally mounted neutral sensor for residual ground. * Order 2x the article number for 2x CTs in parallel use. Wire the signal wirings in series, according to the wiring diagram in the shipment on terminal 11, 12.	IZM63...	IZMX-CT40-N-1 183991		
Communication adapter modules					
External modules are equipped with wire harness.					
	Profibus		IZMX-PCAM-1 186875		1
	Ethernet		IZMX-ECAM-1 186874		
	Modbus		IZMX-MCAM-1 186876		
	Spare wire harness		IZMX-CAM-CAB-1 186877		

IZM circuit-breakers, IN switch-disconnectors

Withdrawable units & Accessories for IZM63/ IN63

IZM-CAS..., 3/4 pole

	Rated operational current I_n A	For use with	Part no. Article no. 3 Pole	Part no. Article no. 4 Pole	Std. pack
Cassettes					
Cassettes, can be ordered separately only Following components are fitted to the cassette as standard: • Arc chute cover • Complete set of control circuit terminals • Coding between cassette and switch • Horizontal Connection • Door seal					
	5000 - 6300	IZM63...W IN63...W	IZM-CAS633-6300-1 303696	IZM-CAS634-6300-1 303697	1 off
Cassette safety shutters					
When the breaker is withdrawn from its connected position, the shutters automatically cover the cassette's live main terminals. With 2.5 mm holes for voltage test. IP20					
		IZM63...W IN63...W	IZM-SH633-1 303701	IZM-SH634-1 303703	1 off
		IZM63...W IN63...W	+IZM-SH633-1 303700	+IZM-SH634-1 303702	
Spare secondary 4point terminal block kit for fixed breakers					
	Control circuit terminals, 2 units	IZM63...F IN63...F	IZMX-SEC-TB2-F-1 184239		1
	Control circuit terminals, 12 units	IZM63...F IN63...F	IZMX-SEC-TB12-F-1 184240		1
Spare secondary 4point terminal block kit for withdrawable breakers					
	Control circuit terminals, 2 units	IZM-CAS63...	IZMX-SEC-TB2-W-1 184242		1
	Control circuit terminals, 12 units	IZM-CAS63...	IZMX-SEC-TB12-W-1 184243		1
Secondary terminal					
Replacement kit for old cassettes with Digitrip. Allows updating the cassette in order to receive new breaker with PXR „1“ ending.					
		IZM-CAS...old	IZM-SEC-KIT-W633-1 Y7-500378		1
			IZM-SEC-KIT-W634-1 Y7-500379		1

		For use with	Part no. Article no.	Std. pack	Notes
Cell switches					
One module each with 4 changeover contacts is possible for indication of each position(Disconnect, Test, Connect).					
Only one mounting plate is required per withdrawable unit. Each additional auxiliary contact doesn't require secondary terminals to be ordered.					
Alternatively it can be wired directly to external terminals. If a shutter is used, mounting is possible on the right side only					
	Four changeover contacts: One module without mounting plate	IZM63...W IN63...W	IZM-CS4-1 303704	1 off	-
	Four changeover contacts: One module with mounting plate		IZM-CS4MB-1 303705		
	Eight changeover contacts: Two modules with mounting plate		IZM-CS8MB-1 303706		
	Twelve changeover contacts: Three modules with mounting plate		IZM-CS12MB-1 303707		

IZM Circuit Breakers, IN Switch Disconnectors

Electrical accessories for IZM63/ IN63

	For use with	Part no. Article no.	Price See price list	Std. pack	Notes
Motor operator The motor operator electrically tensions the spring-operated stored energy mechanism. For electrical remote On and Off switching, a closing release and a voltage release are required. A signaling switch labeled "Spring-operated stored energy mechanism tensioned" is included as standard.					
	IZM63... IN63...	IZM-M24DC-1 303745		1 off	If ordered separately the secondary terminals are not necessary to be ordered.
		+IZM-M24DC-1 303744			
		IZM-M48DC-1 303752			
		+IZM-M48DC-1 303746			
		IZM-M60DC-1 303756			
		+IZM-M60DC-1 303754			
		IZM-M110DC-1 303767			
		+IZM-M110DC-1 303753			
		IZM-M220DC-1 303769			
		+IZM-M220DC-1 303768			
		IZM-M110AC-1 303771			
		+IZM-M110AC-1 303770			
		IZM-M230AC-1 303776			
		+IZM-M230AC-1 303774			
Switching cycle counter Counts the number of On-Off operations. Can also be used without motor operator.					
	IZM63... IN63...	IZM-OC-1 303850		1 off	
		+IZM-OC-1 303849			

	Rated control voltage	For use with	Part no. Article no.	Std. pack	Notes
	U _s V				
Shunt releases					
A closing release can be combined with a shunt release and an undervoltage release or with a second shunt release. (100% duty). Suited for uninterrupted operation, which ensures electrical interlocking in Off position.					
	24 DC	IZM63... IN63...	IZM-ST24DC-1 303780	1 off	If ordered separately the secondary terminals are not necessary to be ordered.
	24 DC		+IZM-ST24DC-1 303778		
	48 DC		IZM-ST48DC-1 303784		
	48 DC		+IZM-ST48DC-1 303782		
	60 DC		IZM-ST60DC-1 303787		
	60 DC		+IZM-ST60DC-1 303786		
	110 - 125 DC 110 - 127 AC		IZM-ST110AD-1 303789		
	110 - 125 DC 110 - 127 AC		+IZM-ST110AD-1 303788		
	220 - 250 DC 208 - 240 AC		IZM-ST230AD-1 303791		
	220 - 250 DC 208 - 240 AC		+IZM-ST230AD-1 303790		
2nd shunt release Can not be combined with an undervoltage release.					
	24 DC	IZM63... IN63...	+IZM-ST24DC-1 303792	1 off	If ordered separately the secondary terminals are not necessary to be ordered.
	48 DC		+IZM-ST48DC-1 303793		
	60 DC		+IZM-ST60DC-1 303794		
	110 - 127 DC 110 - 127 AC		+IZM-ST110AD-1 303795		
	208 - 250 DC 208 - 250 AC		+IZM-ST230AD-1 303796		

IZM circuit-breakers, IN switch-disconnectors

Electrical Accessories for IZM63/ IN63

IZM-UVR..., IZM-UVR-TD...

	Rated control voltage	For use with	Part no. Article no.	Std. pack	Notes
	U_s V				
Closing releases A closing release can be combined with a shunt release and an undervoltage release or with a second shunt release. (100% duty). Suited for uninterrupted operation, which ensures electrical interlocking in Off position.					
	24 DC	IZM63... IN63...	IZM-SR24DC-1 303798	1 off	-
	24 DC		+IZM-SR24DC-1 303797		
	48 DC		IZM-SR48DC-1 303800		
	48 DC		+IZM-SR48DC-1 303799		
	60 VDC		IZM-SR60DC-1 303804		
	60 VDC		+IZM-SR60DC-1 303801		
	110 - 125 DC 110 - 127 AC		IZM-SR110AD-1 303807		
	110 - 125 DC 110 - 127 AC		+IZM-SR110AD-1 303806		
	220 - 250 DC 208 - 240 AC		IZM-SR230AD-1 303809		
	220 - 250 DC 208 - 240 AC		+IZM-SR230AD-1 303808		

	Rated control voltage	For use with	Part no. Article no.	Std. pack	Notes
	U_s V				

Undervoltage releases

A closing release can be combined with a shunt release and an undervoltage release or with a second shunt release. (100% duty). Suited for uninterrupted operation, which ensures electrical interlocking in Off position.



24 DC	IZM63... IN63...	IZM-UVR24DC-1 303815	1 off	If ordered separately the secondary terminals are not necessary to be ordered.
24 DC		+IZM-UVR24DC-1 303814		
32 DC		IZM-UVR32DC-1 303817		
32 DC		+IZM-UVR32DC-1 303816		
48 DC		IZM-UVR48DC-1 303819		
48 DC		+IZM-UVR48DC-1 303818		
60 DC		IZM-UVR60DC-1 303821		
60 DC		+IZM-UVR60DC-1 303820		
110 - 125 DC		IZM-UVR110DC-1 303823		
110 - 125 DC		+IZM-UVR110DC-1 303822		
220 - 250 DC		IZM-UVR220DC-1 303825		
220 - 250 DC		+IZM-UVR220DC-1 303824		
110 - 127 AC		IZM-UVR110AC-1 303827		
110 - 127 AC		+IZM-UVR110AC-1 303826		
208 - 240 AC		IZM-UVR230AC-1 303831		
208 - 240 AC		+IZM-UVR230AC-1 303830		
380 - 415 AC		IZM-UVR400AC-1 303833		
380 - 415 AC		+IZM-UVR400AC-1 303832		

Time delay modules

For combination with an undervoltage release.

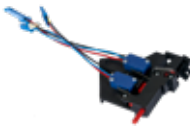
Delay times: 0.1 s, 0.5 s, 1.0 s, 2.0 s



Only in combination with IZM-UVR110AC-1	120 AC	IZM63... IN63...	IZM-UVR-TD-120AC-1 122956	1 off
Only in combination with IZM-UVR230AC-1	230 AC		IZM-UVR-TD-230AC-1 122957	1 off

IZM circuit-breakers, IN switch-disconnectors

Accessories for IZM63/IN63

		For use with	Part no. Article no.	Std. pack	Notes
Auxiliary contacts					
Standard auxiliary switch for On-Off signaling 4 CO contacts are already contained in the basic device. Maximum, for IZM63: 12 CO contacts (corresponds with an additional AS44).					
	Additionally 4 CO contacts	IZM63... IN63...	IZM-AS22-1 303836	1 off	Cannot be combined with a second shunt release;
	Additionally 4 CO contacts		+IZM-AS22-1 303834		If ordered separately the secondary terminals are not necessary to be ordered.
	Additionally 8 CO contacts		+IZM-AS44-1 303835		
Latch check switch Latch check switch with one changeover contact.					
	-	IZM63... IN63...	IZM-LCS-SR-1 303813	1 off	For internal wiring with closing release & for external keypad Indication
			+IZM-LCS-SR-1 303812		
			IZM-LCS-1 303811		
			+IZM-LCS-1 303810		
Trip indication and reset options					
Trip-indicating auxiliary switch (OTS) Two changeover contacts					
	-	IZM63...	IZM-OTS-1 303839	1 off	If ordered separately the secondary terminals are not necessary to be ordered.
			+IZM-OTS-1 303838		
Automatic reset The circuit-breaker is immediately ready to close again. Not fitted with mechanical trip indicator (red pin). Can not be combined with remote reset.					
	-	IZM63...	IZM-RA-1 303841	1 off	-
			+IZM-RA-1 303840		

	Rated control voltage	For use with	Part no. Article no.	Std. pack	Notes
	U_s V				
Trip indicator remote reset					
The remote reset allows resetting the trip indicator remotely by an electrical signal					
	24 V DC	IZM63...	IZM-RR24DC-1 303846	1 off	If ordered separately a secondary terminal block IZM-SEC... is necessary for connection. Order separately if required.
			+IZM-RR24DC-1 303842		
	208-250VAC/DC		IZM-RR230AD-1 303848		
			+IZM-RR230AD-1 303847		

IZM circuit-breakers, IN switch-disconnectors

Accessories for IZM63/IN63

		For use with	Part no. Article no.	Std. pack
Locking facilities				
Padlockable cover of ON/OFF buttons ON-Off pushbutton cover sealable with lead seal and lockable with padlock.				
	Metal, On pushbutton blocked	IZM63... IN63...	+IZM-PLPC-CB-M-1 303712	1 off
	Plastic, On pushbutton blocked		+IZM-PLPC-CB-P-1 303711	
	Metal		IZM-PLPC-M-1 303720	
			+IZM-PLPC-M-1 303718	
			IZM-PLPC-P-1 303717	
			+IZM-PLPC-P-1 303714	
The "Safe OFF" interlock prevents switching on. Neither remote nor local switching on is possible.				
	CES installation kit, without lock cylinder and key	IZM63... IN63...	IZM-KLP-SO-CES-1 303733	1 off
	Kirk installation kit, without lock cylinder and key		IZM-KLP-SO-KIRK-1 303739	
	Castell installation kit, without lock cylinder and key		IZM-KLP-SO-CASTELL-1 303731	
	Ronis installation kit, without lock cylinder and key		IZM-KLP-SO-RONIS-1 303741	
Cassette key locking facility This device is fitted to the cassette and prevents a switch being switched on in its operating (Connected) position.				
	Installation on right, without lock cylinder and key	IZM63...W IN63...W	IZM-KLP-CASS-R-1 303709	1 off
	Installation on left, without lock cylinder and key		IZM-KLP-CASS-L-1 303708	1 off

Notes

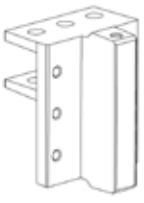
Lock cylinder and key are required for installation.

Ronis lock: #1351-10B

CES lock: Cylinder #5256-LAG; Key #90134

Castell lock: Cylinder #CL1019, Modified to 90° + „letter“; Key #FKV4-NI, + „letter“

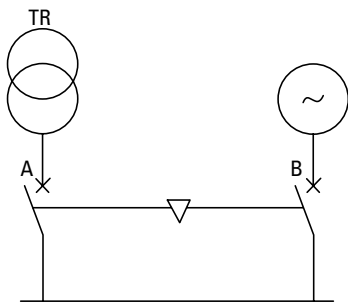
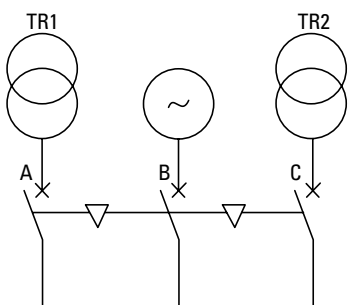
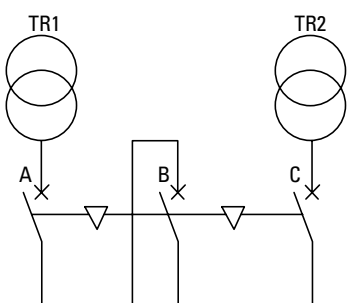
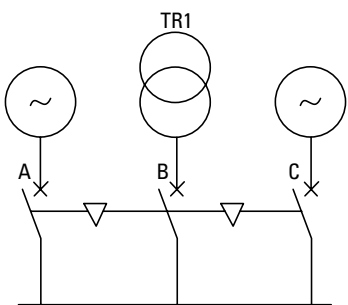
Kirk lock: #KC40

	Rated operational current I_n A	Rated ultimate short-circuit breaking capacity I_{cu} kA	Pole	For use with	Part no. Article no.	Std. pack
Main terminal kits						
Each basic device of the IZM63 /IN63 series is supplied with horizontal terminals as standard. For vertical termination the (90°) following adapter kit is required. Each set contains for top and bottom 3-pole = 12 off; 4-pole =16 off.						
	5000 - 6300	100	3	IZM63... IN63...	IZM-TV633H-6300-1 303698	1 off
	5000 - 6300	100	4	IZM63... IN63...	IZM-TV634H-6300-1 303699	
General accessories						
Spare door escutcheon, IP41 Spare part; the door escutcheon is supplied as standard with the basic unit or cassette.				IZM63... IN63...	IZM-DEG-1 303743 IZM-DC-1 303742	1 off
						
Lifting yoke for lifting Consists of two specially shaped steel hooks that engage in the molded lifting handles in the basic unit of the switch closure.						
			3	IZM63... IN63...	IZM633-8651C91G05-1 303852	
			4	IZM63... IN63...	IZM634-8651C91G08-1 303853	

IZM circuit-breakers, IN switch-disconnectors

Accessories for IZM63/IN63

	For use with	Part no. Article no.	Std. pack	
Locking facilities				
Mechanical interlock, withdrawable units. Select one kit (article) per frame/breaker				
	Type 2, for 2 circuit-breakers: A normal power supply (A) and an emergency mains supply (B). 1 set of cables also required.	IZM63...F IN63...F	IZMX-MIL23133C-F63-1 184402	1 off
	Type 31, for 3 circuit-breakers: Two normal power supplies (A, C) and an emergency network supply (B). When B in Off, A and C can be switched on. B can be switched on only when A and C are in Off. Two sets of cables required in addition.			
	Type 33, for 3 circuit-breakers: Three power supplies (A, B, C), normal or emergency network. Only one of the three circuitbreakers can be switched on at any one time. Three sets of cables are required in addition.			
	Type 32, for 3 circuit-breakers: Two normal power supplies (A, C) and a coupling (B). Any one or two circuit-breakers can be closed at the same time. Three sets of cables are required in addition.		IZMX-MIL32C-F63-1 184403	
Mechanical interlock, withdrawable units. Select one kit (article) per frame/breaker				
	Type 2, for 2 circuit-breakers: A normal power supply (A) and an emergency network supply (B). 1 set of cables also required.	IZM63...W IN63...W	IZMX-MIL23133C-W63-1 184404	1 off
	Type 31, for 3 circuit-breakers: Two normal power supplies (A, C) and an emergency network supply (B). When B in Off, A and C can be switched on. B can be switched on only when A and C are in Off. Two sets of cables required in addition.			
	Type 33, for 3 circuit-breakers: Three power supplies (A, B, C), normal or emergency network. Only one of the three circuitbreakers can be switched on at any one time. Three sets of cables are required in addition.			
	Type 32, for 3 circuit-breakers: Two normal power supplies (A, C) and a coupling (B). Any one or two circuit-breakers can be closed at the same time. Three sets of cables are required in addition.		IZMX-MIL32C-W63-1 184405	
Cable sets for mechanical interlock				
Depending on the type of interlock, a particular number of cable connectors is required. With the flexible cable connectors, various different switch arrangements can be implemented. One set contains two cables.				
	1520 mm	IZM63... IN63...	IZMX-MIL-CAB1520-1 184218	1 off
	1830 mm		IZMX-MIL-CAB1830-1 184219	
	2440 mm		IZMX-MIL-CAB2440-1 184220	
	3050 mm		IZMX-MIL-CAB3050-1 184221	

	Type of interlock	Typical circuit	Interlocks possible																								
Mechanical Interlock configurations																											
Type 2	Across Two Circuit Breakers One normal power supply and one emergency power supply.	 Interlock: A against B	Circuit breaker A can only be closed if B is open and vice versa., A = Normal power supply B = Emergency power supply. <table><tr><th>A</th><th>B</th></tr><tr><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td></tr><tr><td>0</td><td>1</td></tr></table>	A	B	0	0	1	0	0	1																
A	B																										
0	0																										
1	0																										
0	1																										
Type 31	Across Three Circuit Breakers Two normal power supplies and one emergency power supply.	 Interlock: A, C against B	Circuit breaker A and C can only be closed if B is open. B can only be closed when A and C are open. <table><tr><th>A</th><th>B</th><th>C</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr></table>	A	B	C	0	0	0	1	0	0	0	1	0	0	0	1	1	0	1						
A	B	C																									
0	0	0																									
1	0	0																									
0	1	0																									
0	0	1																									
1	0	1																									
Type 32	Across Three Circuit Breakers The two half-bus bars can be powered by a single transformer (bustie closed) or by both at the same time (bus-tie open).	 Interlock: 2 against 1 or max. 2 of 3	One of two circuit breakers out of three can be closed at the same time. <table><tr><th>A</th><th>B</th><th>C</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr></table>	A	B	C	0	0	0	1	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1	0	1
A	B	C																									
0	0	0																									
1	0	0																									
0	1	0																									
0	0	1																									
1	1	0																									
0	1	1																									
1	0	1																									
Type 33	Across Three Circuit Breakers Three power supplies (generators or transformers) on the same bus bar, making operation in parallel impossible.	 Interlock: 1 against 2 or max. 1 of 3	Only one of three circuit breakers can be closed. <table><tr><th>A</th><th>B</th><th>C</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td></tr></table>	A	B	C	0	0	0	1	0	0	0	1	0	0	0	1									
A	B	C																									
0	0	0																									
1	0	0																									
0	1	0																									
0	0	1																									

IZM circuit-breakers, IN switch-disconnectors

Terminal assignment of control circuit terminals, Switch states

IZM63

IZM63 Control Circuit Terminal Assignment

Secondary terminal positions occupied when standard device ordered (With PXR 20/25 & 4 CO contacts)

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47
E01 +		OT1C	OT1B	OT2C	N1	ALMC	ALM2	G1	+24V	ZIN	ZCOM	CMM1	CMM3	PTVA	PTVC	MODB	MODG	ZCMM	ZCMM	ARCO			
E02 -	SC	OT1M	OT2B	OT2M	N2	ALM1	ALM3	G2	AGND	ARMS	ZOUT	CMM2	CMM4	PTVB	PTVN	MODB	ZCMM	ZCMM	ARCO	ARCO			
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48

1, 2	Motor operator	21, 23, 24	Zone selectivity ZSI
4	Message: Spring energy store tension	20, 22	ARMs
5~7	Overload trip switch 1 (OTS) (5-COM, 6-N.O, 7-N.C.)	25-28	External CAM module
8~10	Overload trip switch 2 (OTS) /(8-N.C., 9-COM, 10-NO)	29~32	PT module
11, 12	External neutral sensor	33~35	Onboard ModBus
13~16	Alarm	36~39	External CAM module (reserved)
17, 18	Reserved	40~42	ARCON
19, 20	Control voltage supply 24VDC	3, 88, 95, 96, 43~48	- reserved

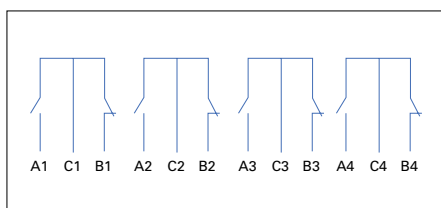
Secondary terminal positions occupied when standard device ordered (With PXR 20/25 & 4 CO contacts)

49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95
C1	B1	C2	C3	B3	C4	C5	B5	C6	C7	B7	C8	C9	B9	C10	C11	B11	C12	LCC	LCB	ST1	SRI	UV1+	
A1	B2	A2	A3	B4	A4	A5	B6	A6	A7	B8	A8	A9	B10	A10	A11	B12	A12	LCM		ST2	SR2	UV2	
50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96

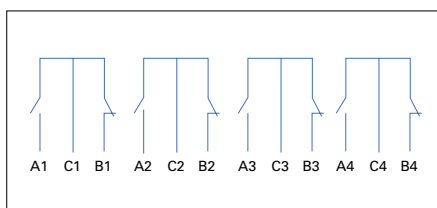
49~84	Auxiliary contact (C-COM, A- NO, B-NC)	91, 92	Spring closing release
85~87	Latch check switch (85-COM, 86-NO, 87-NC)	93, 94	UVR/2nd shunt trip
89, 90	Shunt trip		

Terminal Assignment of Cell Switch

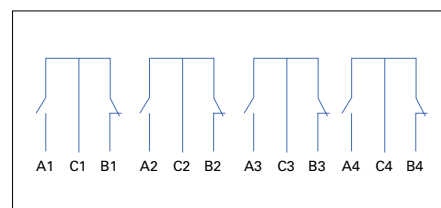
Disconnect



Test

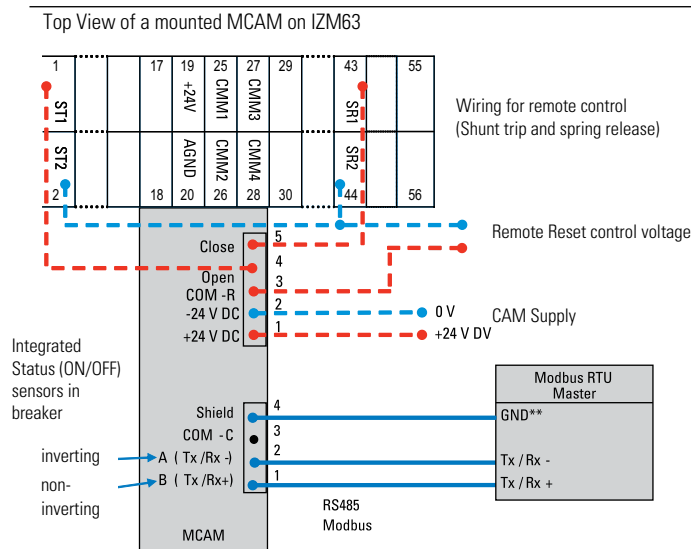


Connect

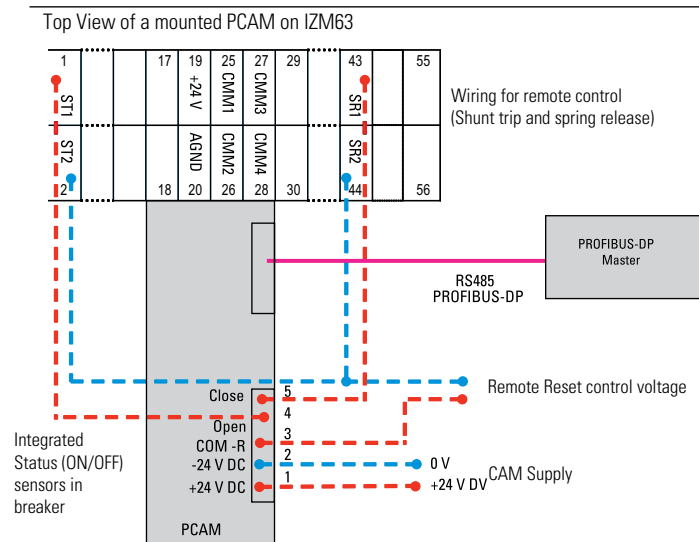
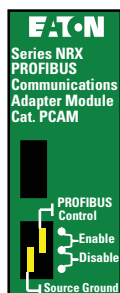


Type of Conductor	Tension Clamp Connection	Recommended Length
Solid cross section (min - max)	0.5 - 4 mm ²	Strip length 10 - 12 mm (0.39 - .47 in.)
Flexible cross section (min - max)	0.5 - 4 mm ²	Strip length 10 - 12 mm (0.39 - .47 in.)
American wire gauge - AWG (min - max)	20 - 12 AWG	Strip length 10 - 12 mm (0.39 - .47 in.)
Flexible cross-section with wire end ferrule		
without plastic sleeve - DIN 46228/1 (min - max)	0.5 - 2.5 mm ² (20-14 AWG)	Ferrule length 10 - 12 mm (0.39 - .47 in.)
Flexible cross-section with wire end ferrule		
with plastic sleeve - DIN 46228/4 (min - max)	0.5 - 1.5 mm ² (24-16 AWG)	Ferrule length 16 - 18 mm (0.63 - .71 in.)

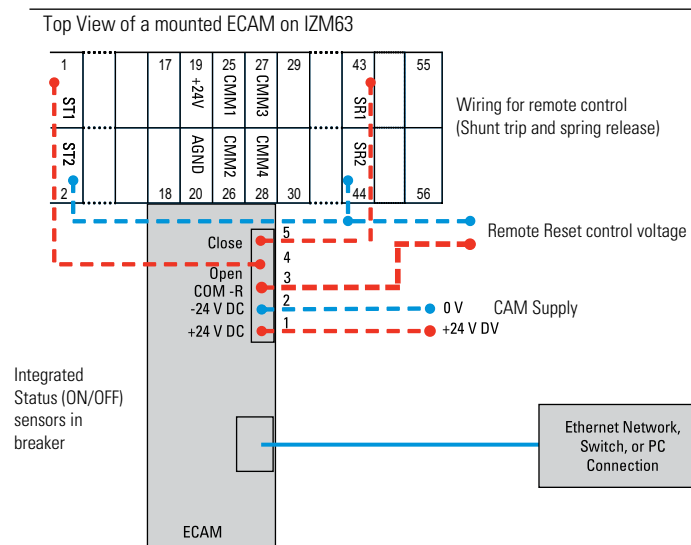
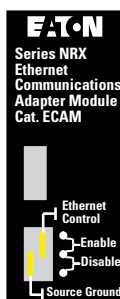
Front View of MCAM



Front View of PCAM



Front View of ECAM

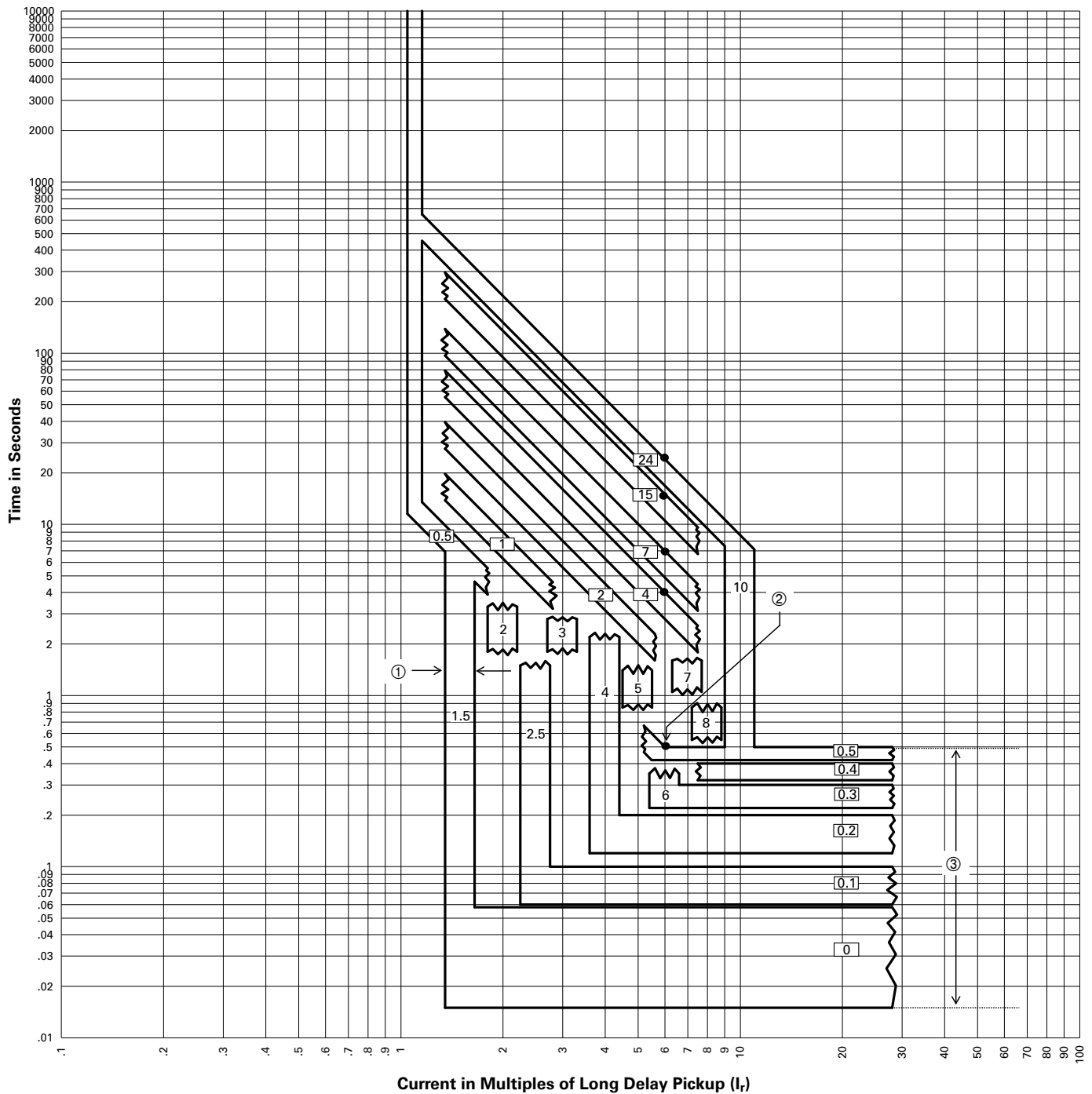


IZM circuit-breakers, IN switch-disconnectors

Tripping Curves

IZM63...V(U)...PXR20/25 Long Delay(L) and Short Delay(S) Curves

L-Protection: I^2t -Characteristic curve and S-Protection: Flat characteristic curve

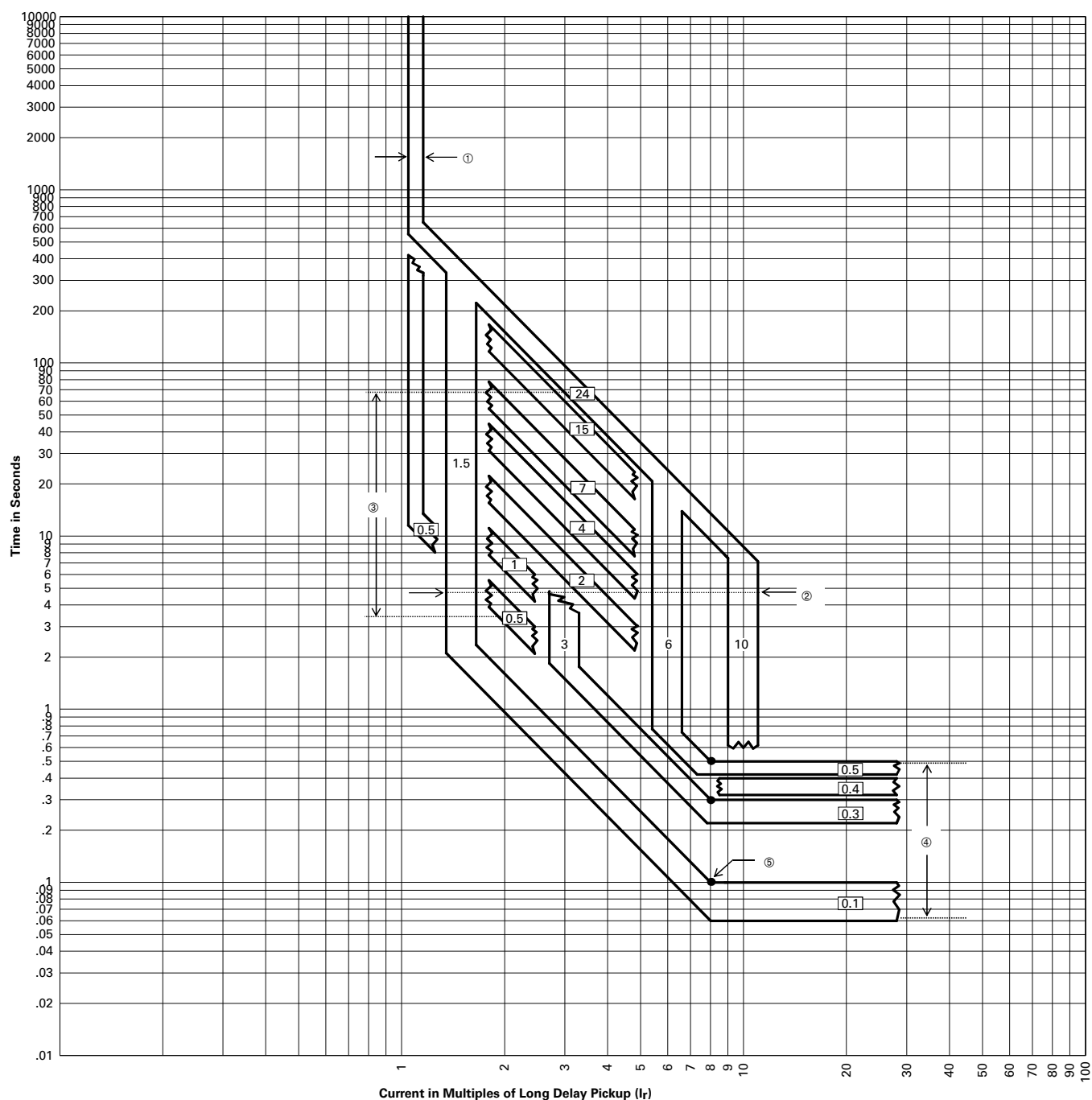


Notes:

1. Short slope: Flat, the actual pickup point has 100% $\pm$ 10% tolerance.
2. Long delay I^2t slopes flattens out at 6x of I_r .
3. Short time delay from 0(50ms) to 0.5s, with +0 / -80ms tolerance except 0.1s and 0s setting
0.1s setting, trip time is 0.06s to 0.1s
0s setting, nominal clear time is 60ms with auxiliary power and 120ms without.
4. If long delay thermal memory is enabled, trip times may be shorter than indicated in this chart.
5. Curves applies from -20°C to +70°C ambient. Temperatures above +85°C will cause over temperature trip.
6. This curve is for 50Hz, 60Hz applications.
7. These curves are comprehensive for series IZM63 circuit breakers including all frame sizes, ratings, and constructions.
The total clearing times shown include the response time for trip unit, the breaker opening and the interruption of the current

IZM63...V(U)...PXR20/25 Long Delay(L) and Short Delay(S) Curves

S-Protection with: I^2t -Characteristic curve ON



Notes:

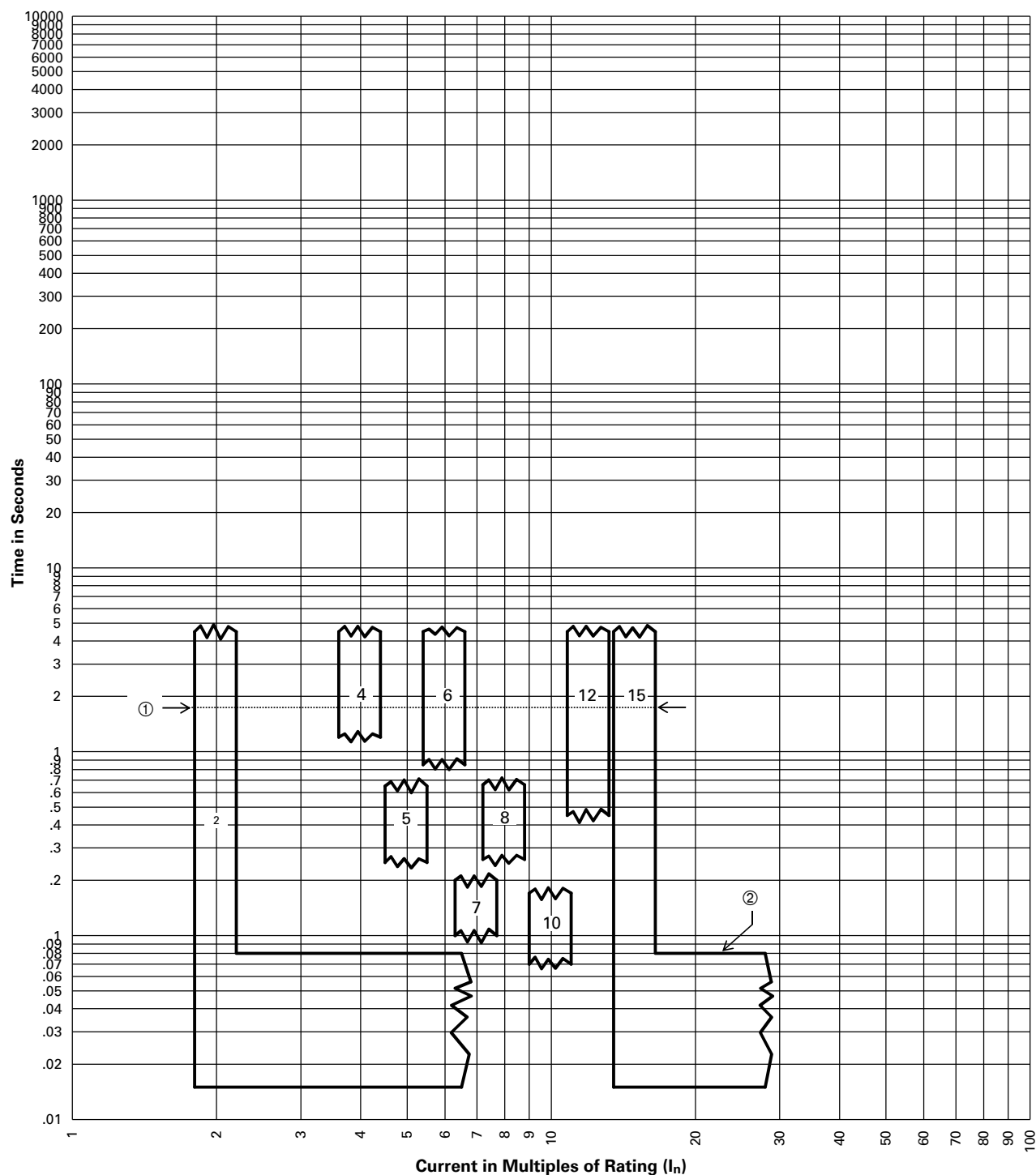
1. This curve shown as a multiple of the LONG PU setting(I_r). The actual pickup point occurs at 110% of the I_r , with $\pm 5\%$ tolerance.
2. SDPU = $1.5 \times$ to $10 \times$ of I_r , have 100% $\pm 10\%$ tolerance.
3. LD Time = 0.5s to 24s, have 100% $+0 / -30\%$ tolerance.
4. SD Slope = I^2T . The short pickup points have $\pm 10\%$ tolerance.
time setting from 0.1s to 0.5s, with steps of 0.1s, except 0.2s.
tolerance is 100% $+0 / -30\%$ except 0.1s, has tolerance 100% $+0 / -40\%$.
5. I^2T slopes flattens out at $8 \times$ of I_r for top of band with FLAT time minimum value prevailing for bottom of band. For all curves the lower flat response time value projected to I^2T line will determine the other break point and shape of the curve.
6. If long delay thermal memory is enabled, trip times may be shorter than indicated in this chart.
7. Curves applies from -20°C to $+70^\circ\text{C}$ ambient. Temperatures above $+85^\circ\text{C}$ will cause over temperature trip.
8. This curve is for 50Hz, 60Hz applications.
9. These curves are comprehensive for series IZM63 circuit breakers including all frame sizes, ratings, and constructions.

IZM circuit-breakers, IN switch-disconnectors

Tripping Curves

IZM63...V(U)...PXR20/25 Instantaneous(I) Curves

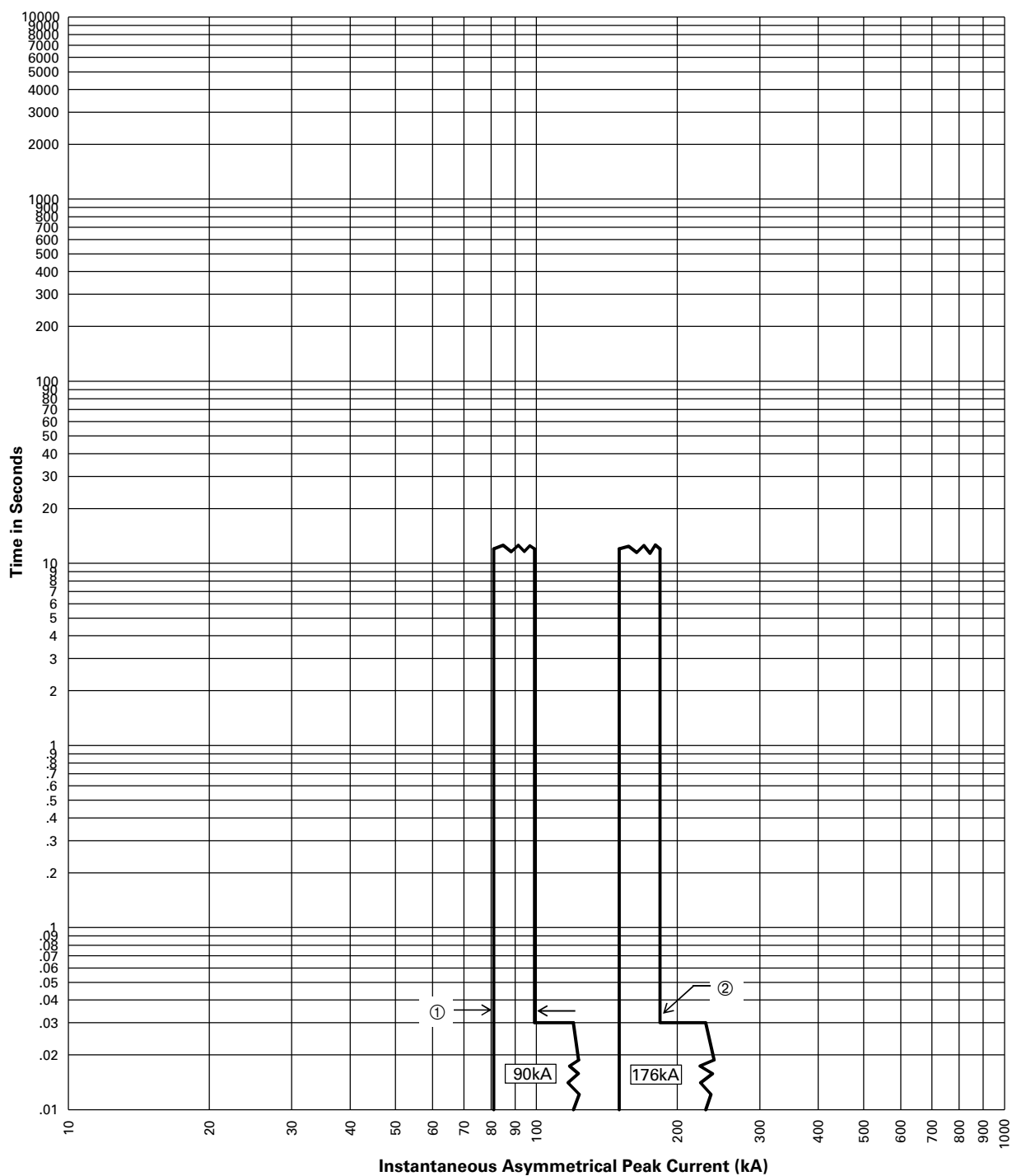
I-Protection: Adjustable



Notes:

1. The Instantaneous settings have conventional 100% $\pm 10\%$ as the pickup points.
 2. The nominal Instantaneous trip time is 60ms with auxiliary power supply and 100ms without.
 3. Instantaneous protection could be disabled by setting Instantaneous PU switch to OFF position.
 4. The curve is shown as a multiple of the Current Rating (I_n).
 5. The end of the curve is determined by the interrupting rating of the circuit breaker.
 6. Curves applies from -20°C to $+70^{\circ}\text{C}$ ambient. Temperatures above $+85^{\circ}\text{C}$ will cause over temperature trip.
 7. This curve is for 50Hz, 60Hz applications.
 8. These curves are comprehensive for series IZM63 circuit breakers including all frame sizes, ratings, and constructions.
- The total clearing times shown include the response time for trip unit, the breaker opening and the interruption of the current.

IZM63...V(U)...PXR20/25 Instantaneous(I) Curves Instantaneous Trip at High Fault Currents



Notes:

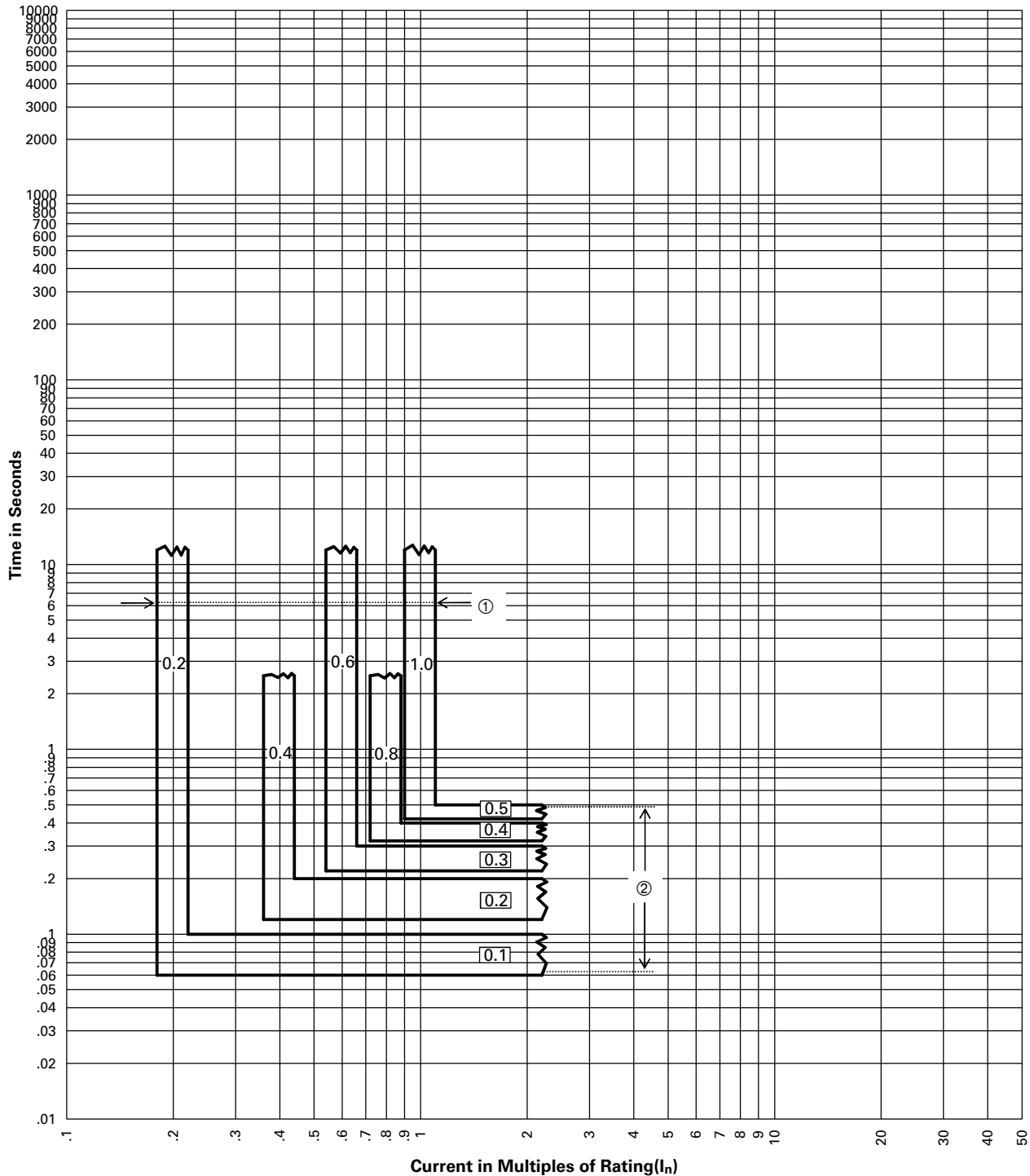
1. Fixed High Instantaneous Trip function is provided in the circuit breaker for Series IZM63 set to pickup at 90kA. Instantaneous peak current level. The tolerance is 100% $\pm$ 10% as the pickup points.
2. The peak current level setting for IZM99 is fixed at 176kA.
3. This protection is functional even when the Instantaneous is set to the OFF position.
4. The PXR will light the Instantaneous LED for a High Instantaneous trip.
5. The total Instantaneous 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 under factors that contribute to worst case conditions, like: maximum rated voltages, single phase interruption, and minimum power factor. Faster clearing times are possible depending on the specific system conditions, the type of circuit breaker applied, and if any arc reduction settings are employed.

IZM circuit-breakers, IN switch-disconnectors

Tripping Curves

IZM63...V(U)...PXR20/25 Ground(G) Curves

G: Ground fault protection - Flat characteristic curve

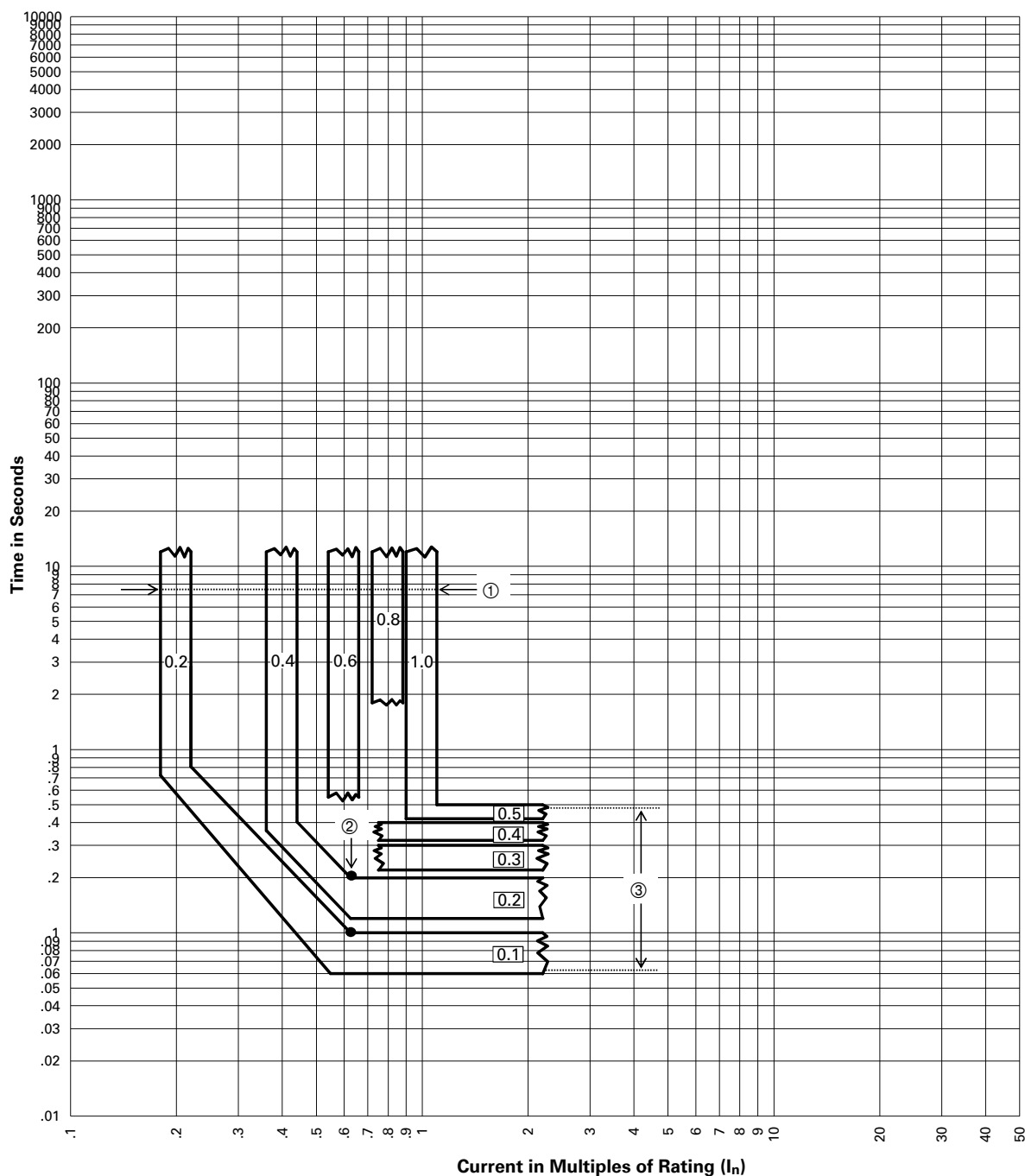


Notes:

1. Ground PU setting from 0.2 to 1.0 of I_n with steps of 0.2, have tolerance of 100% $\pm$ 10%.
2. Ground Flat time from 0.1s to 0.5s, with 0.1s increments.
3. Ground slope: Flat, trip time tolerance is +0 / -80ms for all settings except 0.1s setting is 0.06s to 0.1s.
4. The curve is shown as a multiple of the Current Rating (I_n).
5. The end of the curve is determined by the interrupting rating of the circuit breaker.
6. Curves applies from -20°C to +70°C ambient. Temperatures above +85°C will cause over temperature trip.
7. This curve is for 50Hz, 60Hz applications.
8. These curves are comprehensive for series IZM63 breakers including all frame sizes, ratings, and constructions.
The total clearing times shown include the response time for trip unit, the breaker opening and the interruption of the current.

IZM63...V(U)...PXR20/25 Ground(G) Curves

G: Ground fault protection-I²t-Characteristic curve ON



Notes:

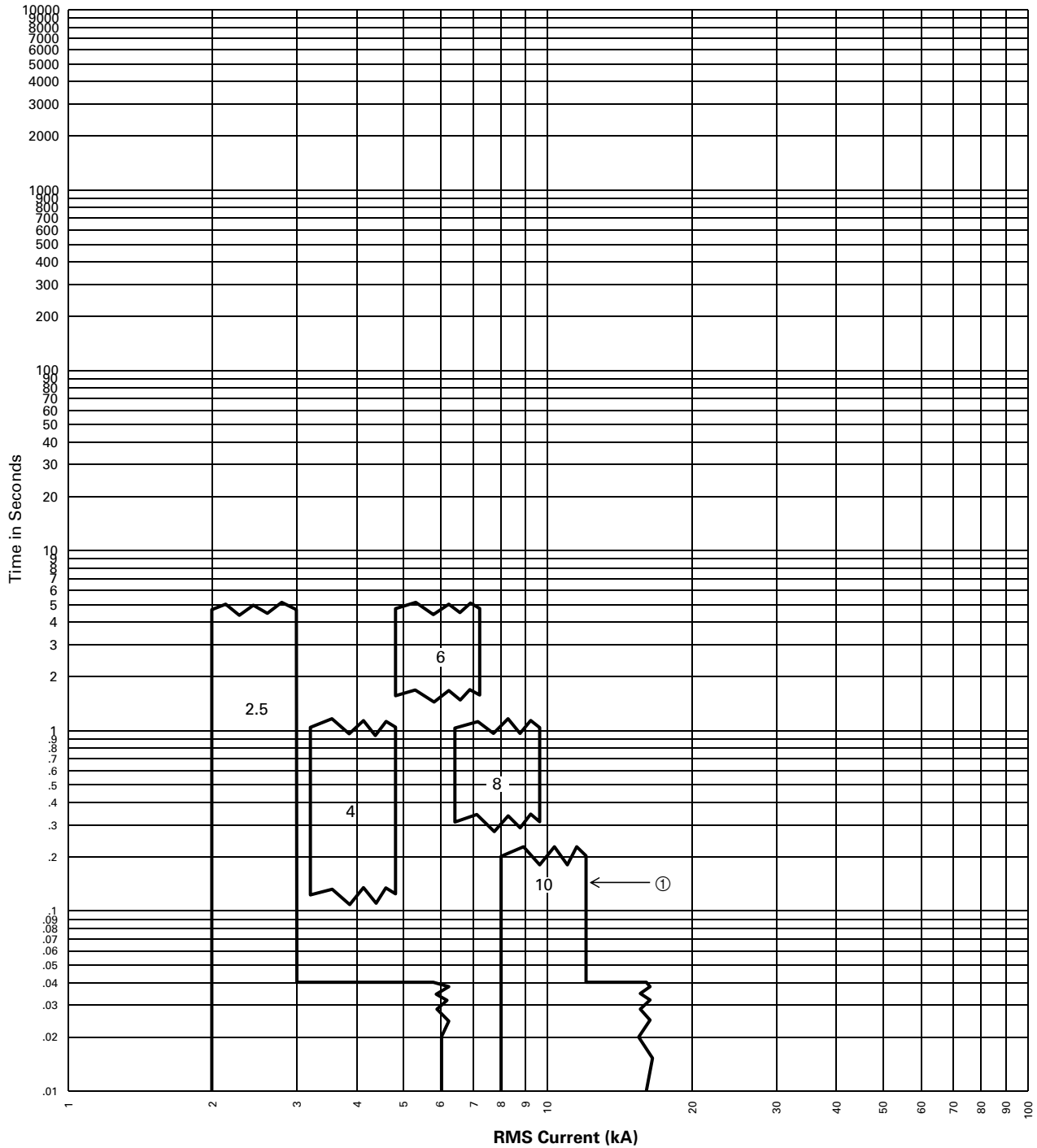
1. Ground PU setting from 0.2 to 1.0 of I_n with steps of 0.2, have tolerance of 100%± 10%.
2. Beak points at 0.625 x I_n to flat.
3. Ground I²T time from 0.1s to 0.5s, with 0.1s increments.
4. Ground slope: Flat, trip time tolerance is +0 / -80ms for all settings except 0.1s setting is 0.06s to 0.1s.
Ground slope: I²T, tolerance is
0.1s, 0.2s : +0 / -40%
0.3s, 0.4s, 0.5s : +0 / -30%
5. The curve is shown as a multiple of the Current Rating (I_n).
6. The end of the curve is determined by the interrupting rating of the circuit breaker.
7. Curves applies from -20 °C to +50°C ambient. Temperatures above +85 °C will cause over temperature trip.
8. This curve is for 50Hz ,60Hz applications.
9. These curves are comprehensive for series IZM97/99 circuit breakers including all frame sizes, ratings, and constructions.
The total clearing times shown include the response time for trip unit, the breaker opening and the interruption of the current.

IZM circuit-breakers, IN switch-disconnectors

Tripping Curves

IZM63...V(U)...PXR20/25 Maintenance Mode Curve

Arc-flash Reduction Maintenance Mode for IZM63 up to 5000A

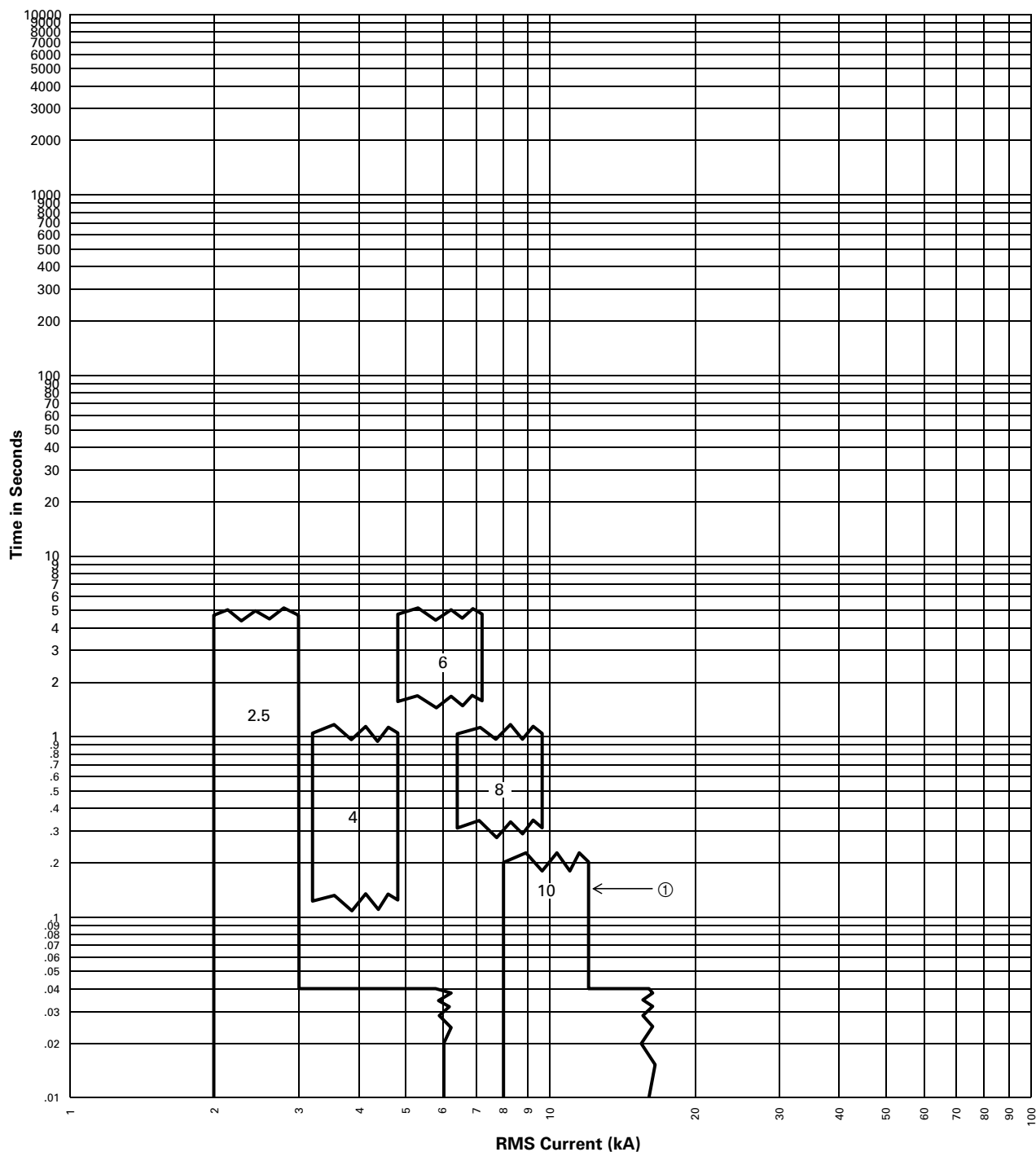


Notes:

- Nominal reduction values have a tolerance of $\pm 20\%$.
- The nominal ARMs trip time is 40ms with auxiliary power supply.
- The Maintenance Mode feature must be ENABLED via setting Maintenance Mode switch to ON position remote switch, or communications for these curves to apply.
Maintenance Mode is in use being shown by blue LED.
- The PXR will light the Instantaneous LED for a Maintenance Mode Trip.
- The end of the curve is determined by the interrupting rating of the circuit breaker.
- Curves applies from -20°C to $+70^{\circ}\text{C}$ ambient. Temperatures above $+85^{\circ}\text{C}$ will cause over temperature trip.
- This curve is for 50Hz, 60Hz applications.
- These curves are comprehensive for series IZM63 circuit breakers including all frame sizes, ratings, and constructions.
The total clearing times shown include the response time for trip unit, the breaker opening and the interruption of the current.

IZM63...V(U)...PXR20/25 Maintenance Mode Curve

Arc-flash Reduction Maintenance Mode for IZM63 up to 6300A



Notes:

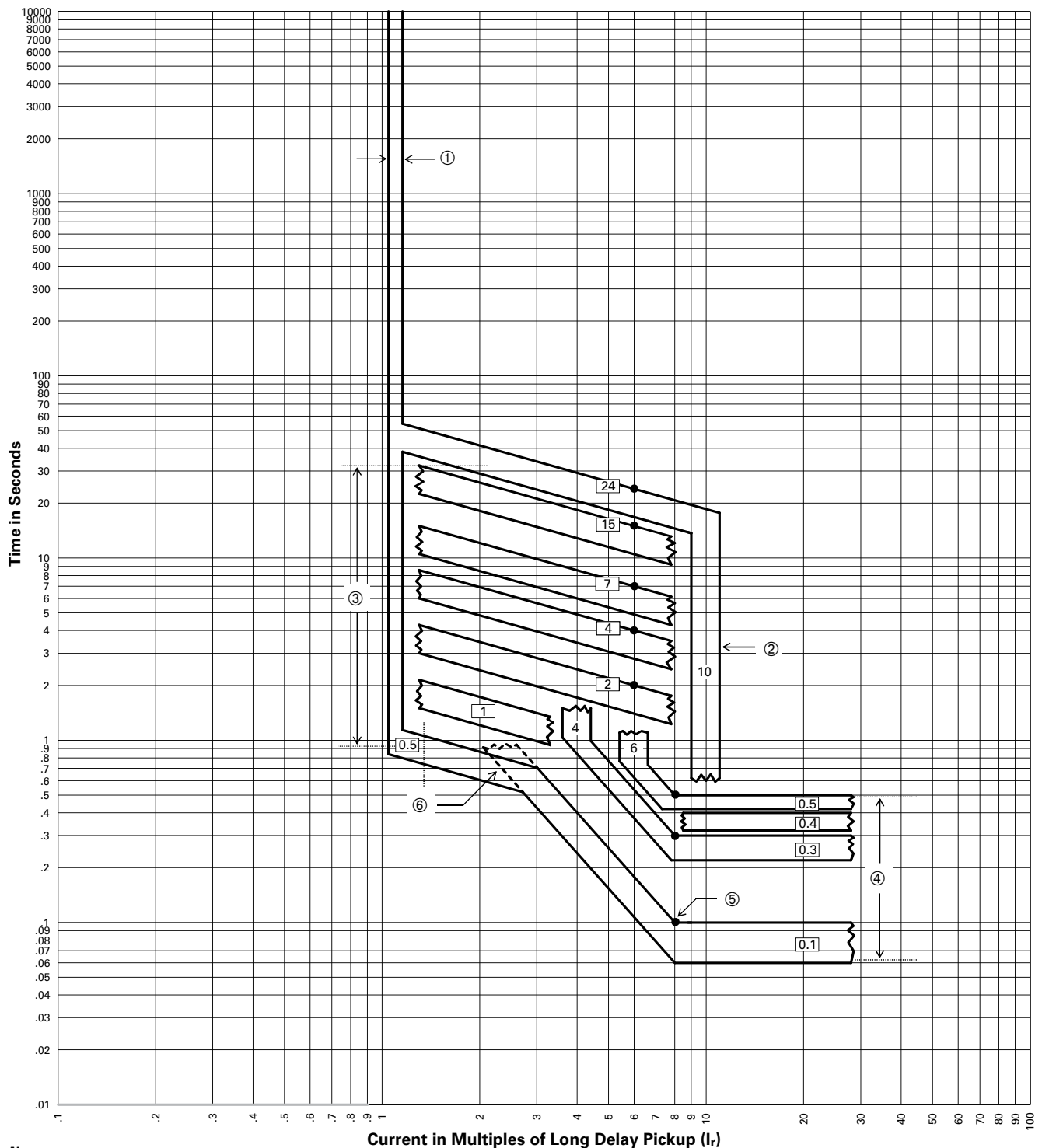
1. Nominal reduction values have a tolerance of $\pm 20\%$.
2. The nominal ARMs trip time is 40ms with auxiliary power supply.
3. The Maintenance Mode feature must be ENABLED via setting Maintenance Mode switch to ON position remote switch, or communications for these curves to apply.
Maintenance Mode is in use being shown by blue LED.
4. The PXR will light the Instantaneous LED for a Maintenance Mode Trip.
5. The end of the curve is determined by the interrupting rating of the circuit breaker.
6. Curves applies from -20°C to $+70^{\circ}\text{C}$ ambient. Temperatures above $+85^{\circ}\text{C}$ will cause over temperature trip.
7. This curve is for 50Hz, 60Hz applications.
8. These curves are comprehensive for series IZM63 circuit breakers including all frame sizes, ratings, and constructions.
The total clearing times shown include the response time for trip unit, the breaker opening and the interruption of the current.

IZM circuit-breakers, IN switch-disconnectors

Tripping Curves

IZM63...V(U)...PXR20/25 Long Delay(L) Curves

L-Protection: $I^{0.5}t$ -Characteristic curve



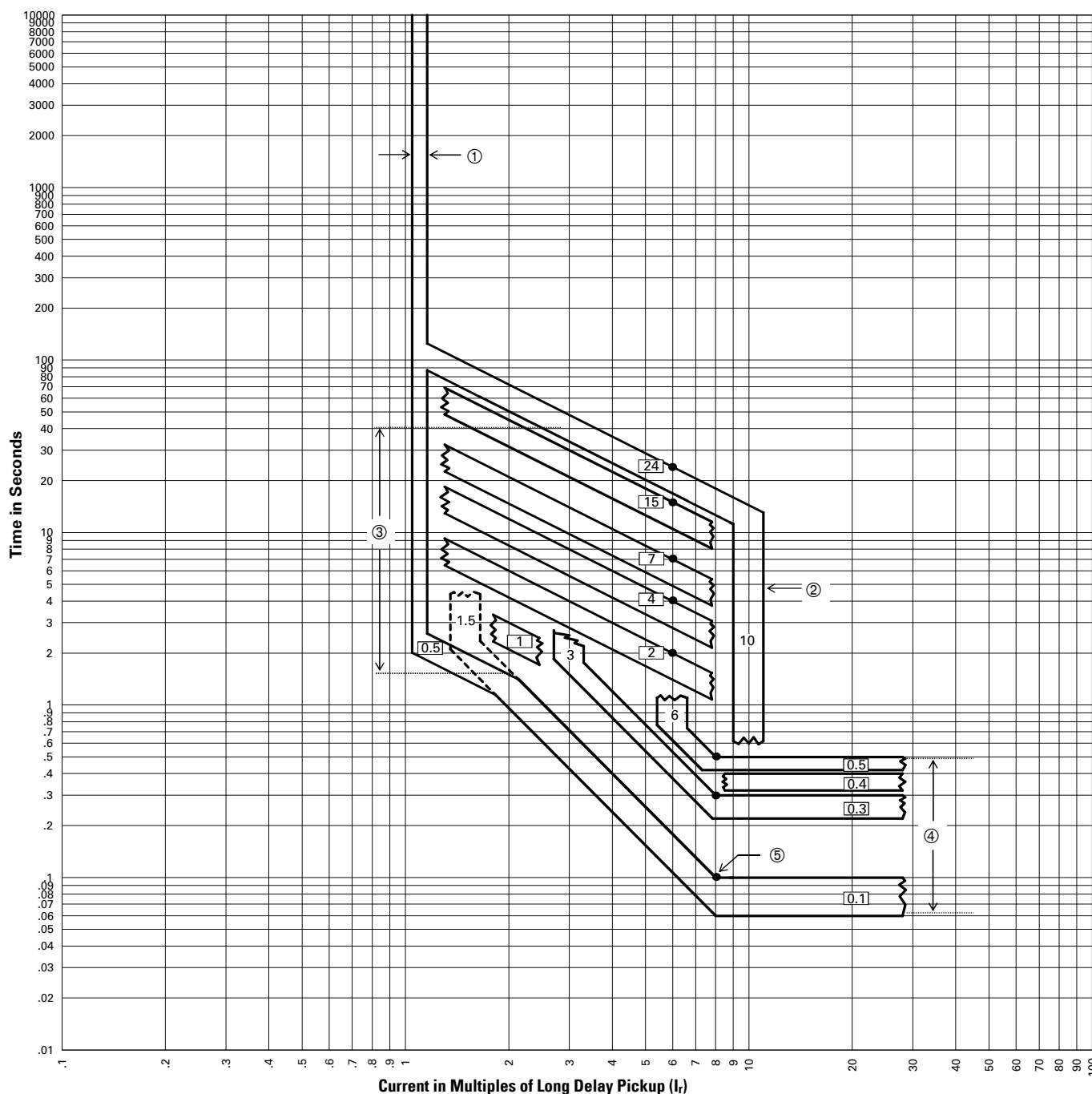
Notes:

1. This curve shown as a multiple of the LONG PU setting (I_r). The actual pickup point occurs at 110% of the I_r , with $\pm 5\%$ tolerance.
2. SDPU = $1.5 \times$ to $10 \times$ of I_r , have $100\% \pm 10\%$ tolerance.
3. LD Time = 0.5s to 24s, have $100\% +0 / -30\%$ tolerance.
4. SD Slope = I^2T . The short pickup points have $\pm 10\%$ tolerance. time setting from 0.1s to 0.5s, with steps of 0.1s, except 0.2s. tolerance is $100\% +0 / -30\%$ except 0.1s, has tolerance $100\% +0 / -40\%$.
5. I^2T slopes flattens out at $8 \times$ of I_r for top of band with FLAT time minimum value prevailing for bottom of band. For all curves the lower flat response time value projected to I^2T line will determine the other break point and shape of the curve.
6. If the short delay time is longer than long delay time, the short delay trip time will follow the long time setting.
7. If long delay thermal memory is enabled, trip times may be shorter than indicated in this chart.
8. Curves applies from -20°C to $+70^\circ\text{C}$ ambient. Temperatures above $+85^\circ\text{C}$ will cause over temperature trip.
9. This curve is for 50Hz, 60Hz applications.
10. These curves are comprehensive for series IZM63 circuit breakers including all frame sizes, ratings, and constructions.

The total clearing times shown include the response time for trip unit, the breaker opening and the interruption of the current.

IZM63...V(U)...PXR20/25 Long Delay(L) Curves

L-Protection: I²t-Characteristic curve



Notes:

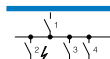
1. This curve shown as a multiple of the LONG PU setting (I_r). The actual pickup point occurs at 110% of the I_r with ±5% tolerance.
2. SDPU = 1.5x to 10x of I_r, have 100% ± 10% tolerance.
3. LD Time = 0.5s to 24s, have 100% +0 / -30% tolerance.
4. SD Slope = I²T. The short pickup points have ±10% tolerance.
time setting from 0.1s to 0.5s, with steps of 0.1s, except 0.2s.
tolerance is 100% +0 / -30% except 0.1s, has tolerance 100% +0 / -40%.
5. I²T slopes flattens out at 8x of I_r for top of band with FLAT time minimum value prevailing for bottom of band. For all curves the lower flat response time value projected to I²T line will determine the other break point and shape of the curve.
6. If long delay thermal memory is enabled, trip times may be shorter than indicated in this chart.
7. Curves applies from -20°C to +70°C ambient. Temperatures above +85°C will cause over temperature trip.
8. This curve is for 50Hz, 60Hz applications.
9. These curves are comprehensive for series IZM63 circuit breakers including all frame sizes, ratings, and constructions.

Tripping Curves

L-Protection: I⁴t-Characteristic curve



- Eaton Corporation CA0135003EN



I_n : Rated operational current
 I_u : Rated uninterrupted current
 I_{cu} : Rated short-circuit breaking capacity
 I_i : Set value non-delayed short-circuit releases

Selectivity 415 V AC between circuit-breakers enables the separate isolation of faulty system sections. Selectivity exists between incoming circuitbreaker 1 and outgoing breaker 2 trips at position 2 during a short-circuit. System sections 3 and 4 continue to operate.

Selection:
 Provided that the short-circuit current does not exceed those values specified (I_{cc} rms). These details represent the limits of selectivity. Both circuit-breakers will switch off with higher short-circuit currents. On IZM circuit-breakers with V, P releases, the delay time tsd must be at least 100 ms longer than the delay time of the next downstream levels (2, 3, 4).

	Upstream		IZM63.-V..						IZM63.-P..					
		I_n [A]	4000	4000	5000	5000	6300	6300	4000	4000	5000	5000	6300	6300
Downstream		I_{cu} [kA]	85	100	85	100	85	100	85	100	85	100	85	100
		I_i [A]	60000	60000	75000	75000	94500	94500	60000	60000	75000	75000	94500	94500
	I_n [A]	$I_{cu(415V)}$ [kA]	N	H	N	H	N	H	N	H	N	H	N	H
Selectivity-limit current Is [kA]														
NZM..1 all versions	20	25 - 100	T	T	T	T	T	T	T	T	T	T	T	T
	25	25 - 100	T	T	T	T	T	T	T	T	T	T	T	T
	1000	25 - 100	T	T	T	T	T	T	T	T	T	T	T	T
	32	25 - 100	T	T	T	T	T	T	T	T	T	T	T	T
	40	25 - 100	T	T	T	T	T	T	T	T	T	T	T	T
	50	25 - 100	T	T	T	T	T	T	T	T	T	T	T	T
	63	25 - 100	T	T	T	T	T	T	T	T	T	T	T	T
	80	25 - 100	T	T	T	T	T	T	T	T	T	T	T	T
	100	25 - 100	T	T	T	T	T	T	T	T	T	T	T	T
	125	25 - 100	T	T	T	T	T	T	T	T	T	T	T	T
NZM..2 all versions	160	25 - 100	T	T	T	T	T	T	T	T	T	T	T	T
	20	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	25	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	32	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	40	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	50	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	63	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	80	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	90	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	100	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	125	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	140	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	160	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	200	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	220	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	250	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	300	25 - 150	T	T	T	T	T	T	T	T	T	T	T	T
NZM..3 all versions	220	36 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	250	36 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	320	36 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	350	36 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	400	36 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	450	36 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	500	36 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	630	36 - 150	T	T	T	T	T	T	T	T	T	T	T	T
	550	50 - 85	T	T	T	T	T	T	T	T	T	T	T	T
	630	50 - 85	T	T	T	T	T	T	T	T	T	T	T	T
NZM..4 all versions	800	50 - 85	T	T	T	T	T	T	T	T	T	T	T	T
	875	50 - 85	T	T	T	T	T	T	T	T	T	T	T	T
	1000	50 - 85	T	T	T	T	T	T	T	T	T	T	T	T
	1250	50 - 85	T	T	T	T	T	T	T	T	T	T	T	T
	1400	50 - 85	T	T	T	T	T	T	T	T	T	T	T	T
	1600	50 - 85	T	T	T	T	T	T	T	T	T	T	T	T

Notes
 1) Data in this table are applicable to both, IZM63.-1 version with PXR trip units and also older versions IZM63.. with Digitrip
 2) Coordination of breakers with various settings of trip units should be evaluated by use of xSpider software (Tripping characteristics).

T	Total selectivity
-	No selectivity

IZM circuit-breakers, IN switch-disconnectors

Circuit-breaker IZM63/IN63

IZM63...

				IZM63N...50...	IZM63N...63...	IZM63H...50...	IZN63H...63...
General							
Standards				IEC/EN 60947			
Ambient temperature	Storage	°C		-20 - +70	-20 - +70	-20 - +70	-20 - +70
	Operation (open)	°C		-20 - +70	-20 - +70	-20 - +70	-20 - +70
Built-in position							
Utility category				B	B	B	B
Protection type				IP20, IP54 with protective cover			
Direction of incoming supply				Any			
Main contacts							
Rated operational current = Rated uninterrupted current		$I_n = I_u$	A	5000	6300	5000	6300
Rated uninterrupted current at 50 °C ¹⁾		I_u	A	5000	6200	5000	6200
Rated uninterrupted current at 60 °C ¹⁾		I_u	A	5000	5600	5000	5600
Rated uninterrupted current at 70 °C ¹⁾		I_u	A	5000	5100	5000	5100
Rated impulse withstand voltage		U_{imp}	V AC	8000	8000	8000	8000
Rated operational voltage		U_e	V AC	690	690	690	690
Use in IT electrical power networks up to U = 440 V		I_{IT}	kA	85	85	100	100
Overvoltage category/pollution degree				III/3	III/3	III/3	III/3
Rated insulation voltage		U_i	V	1000	1000	1000	1000
Switching capacity							
Rated short-circuit making capacity	Up to 440 V 50/60 Hz	I_{cm}	kA	179	179	210	210
	Up to 690 V 50/60 Hz	I_{cm}	kA	179	179	210	210
Rated short-time withstand current 50/60 Hz	t = 1 s	I_{cw}	kA	85	85	100	100
	t = 3 s	I_{cw}	kA	65	65	65	65
Rated short-circuit breaking capacity I_{cn}							
IEC/EN 60947 Operating sequence I_{cu} O-t-CO							
Up to 240 V 50/60 Hz		I_{cu}	kA	85	85	100	100
Up to 440 V 50/60 Hz		I_{cu}	kA	85	85	100	100
Up to 690 V 50/60 Hz		I_{cu}	kA	85	85	100	100
Up to 1100 V 50/60 Hz		I_{cu}	kA	-	-	-	-
IEC/EN 60947 Operating sequence I_{cs} O-t-CO-t-CO							
Up to 240 V 50/60 Hz		I_{cs}	kA	85	85	100	100
Up to 440 V 50/60 Hz		I_{cs}	kA	85	85	100	100
Up to 690 V 50/60 Hz		I_{cs}	kA	85	85	100	100
Up to 1100 V 50/60 Hz		I_{cs}	kA	-	-	-	-
Switching times							
Total opening delay			ms	40	40	40	40
Closing delay			ms	35	35	35	35
Closing delay electrical (via closing release)			ms	40	40	40	40
Opening delay electrical (via shunt release / undervoltage release)			ms	35/70	35/70	35/70	35/70
Opening delay via trip electronics (non-delayed short-circuit release)			ms	35	35	35	35
Durability							
Mechanical, without maintenance		Operations		5000	5000	5000	5000
Mechanical, with maintenance		Operations		8000	8000	8000	8000
Electrical, without maintenance		Operations		3000	3000	3000	3000
Electrical, with maintenance		Operations		3000	3000	3000	3000
Maximum operating frequency		Operations/h		60	60	60	60
Heat dissipation at rated operational current In 3-phase symmetric loading	Fixed	W		400	620	400	620
	Withdrawable	W		1000	1550	1000	1550
Weight							
Fixed	3 pole	kg		125	125	125	125
	4 pole	kg		163	163	163	163
Withdrawable	3 pole	kg		157	157	157	157
	4 pole	kg		200	200	200	200
Empty cassette	3 pole	kg		60	60	60	60
	4 pole	kg		73	73	73	73

Notes

¹⁾ Permissible continuous current for circuit-breakers used at different temperatures within switchgear. The expected internal temperatures can be estimated according to the applicable IEC regulations.

				IN63N...50...	IN63N...63...	IN63H...50...	IN63H...63...
General							
Standards				IEC/EN 60947			
Ambient temperature	Storage	°C		-20 - +70	-20 - +70	-20 - +70	-20 - +70
	Operation (open)	°C		-20 - +70	-20 - +70	-20 - +70	-20 - +70
Built-in position							
Utility category				B	B	B	B
Protection type				IP20, IP54 with protective cover			
Direction of incoming supply				Any			
Main contacts							
Rated operational current = Rated uninterrupted current		$I_n = I_u$	A	5000	6300	5000	6300
Rated uninterrupted current at 50 °C ¹⁾		I_u	A	5000	6200	5000	6200
Rated uninterrupted current at 60 °C ¹⁾		I_u	A	5000	5600	5000	5600
Rated uninterrupted current at 70 °C ¹⁾		I_u	A	5000	5100	5000	5100
Rated impulse withstand voltage		U_{imp}	V AC	8000	8000	8000	8000
Rated operational voltage		U_e	V AC	690	690	690	690
Use in IT electrical power networks up to $U = 440$ V		I_{IT}		YES	YES	YES	YES
Overvoltage category/pollution degree				III/3	III/3	III/3	III/3
Rated insulation voltage		U_i	V	1000	1000	1000	1000
Switching capacity							
Rated short-circuit making capacity	Up to 440 V 50/60 Hz	I_{cm}	kA	187	187	220	220
	Up to 690 V 50/60 Hz	I_{cm}	kA	187	187	220	220
Rated short-time withstand current 50/60 Hz	$t = 1$ s	I_{cw}	kA	85	85	100	100
	$t = 3$ s	I_{cw}	kA	65	65	65	65
Switching times							
Total opening delay			ms	40	40	40	40
Closing delay			ms	35	35	35	35
Closing delay electrical (via closing release)			ms	40	40	40	40
Opening delay electrical (via shunt release / undervoltage release)			ms	35/70	35/70	35/70	35/70
Durability							
Mechanical, without maintenance		Operations		5000	5000	5000	5000
Mechanical, with maintenance		Operations		8000	8000	8000	8000
Electrical, without maintenance		Operations		3000	3000	3000	3000
Electrical, with maintenance		Operations		3000	3000	3000	3000
Maximum operating frequency		Operations/h		60	60	60	60
Heat dissipation at rated operational current In 3-phase symmetric loading	Fixed	W		400	620	400	620
	Withdrawable	W		1000	1550	1000	1550
Weight							
Fixed	3 pole	kg		125	125	125	125
	4 pole	kg		163	163	163	163
Withdrawable	3 pole	kg		157	157	157	157
	4 pole	kg		200	200	200	200
Empty cassette	3 pole	kg		103	103	103	103
	4 pole	kg		103	103	103	103

Notes

¹⁾ Permissible continuous current for circuit-breakers used at different temperatures within switchgear. The expected internal temperatures can be estimated according to the applicable IEC regulations.

IZM circuit-breakers, IN switch-disconnectors

Accessories for IZM63/IN63

IZM-AS, IZM-OTS, IZM-CS, IZM-S...

			Auxiliary contact, overload trip switch and cell signalling switch		
			IZM-AS...	IZM-OTS	IZM-CS...
Rated breaking capacity					
Inductive load					
250 V AC	A		10	10	10
125 V DC	A		0.5	0.5	0.5
250 V DC	A		0.25	0.25	0.25

			Voltage releases				
			IZM-ST24DC IZM-ST24DC	IZM-ST48DC IZM-ST48DC	IZM-ST60DC	IZM-ST110AD IZM-ST110AD	IZM-ST230AD IZM-ST230AD
Rated control voltage							
AC 50/60 Hz	U _s	V	-	-	-	110 - 127	208 - 240
DC	U _s	V	24	48	60	110 - 125	220 - 250
Power consumption							
AC	VA		-	-	-	(pick-up 450)	(pick-up 450)
DC	W		(pick-up 250)	(pick-up 250)	(pick-up 250)	(pick-up 450)	(pick-up 450)
Response time of the circuit-breaker with U _s			35	35	35	35	35
Operating range							
Drop-out voltage							
AC operated 50/60 Hz	Drop-out	x U _c	-	-	-	-	-
pick-up voltage							
	pick-up	x U _c	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard

			Closing releases				
			IZM-SR24DC	IZM-SR48DC	IZM-SR60DC	IZM-SR110AD	IZM-SR230AD
Rated control voltage							
AC 50/60 Hz	U _s	V	-	-	-	110 - 127	208 - 240
DC	U _s	V	24	48	60	110 - 125	220 - 250
Power consumption							
AC	VA		-	-	-	(pick-up 450)	(pick-up 450)
DC	W		(pick-up 250)	(pick-up 250)	(pick-up 250)	(pick-up 450)	(pick-up 450)
Response time of the circuit-breaker with U _s			40	40	40	40	40
Operating range							
Drop-out voltage							
AC operated 50/60 Hz	Drop-out	x U _c	-	-	-	-	-
pick-up voltage							
	pick-up	x U _c	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard

			Undervoltage releases			
			IZM-UVR24DC	IZM-UVR32DC	IZM-UVR48DC	IZM-UVR60DC
Rated control voltage						
AC 50/60 Hz	U_s	V	-	-	-	-
DC	U_s	V	24	32	48	60
Power consumption						
AC		VA	-	-	-	-
DC		W	18 (pick-up 250)	15 (pick-up 275)	18 (pick-up 275)	18 (pick-up 275)
Response time of the circuit-breaker with U_s		ms	70	70	70	70
Operating range						
Drop-out voltage						
AC operated 50/60 Hz	Drop-out	$x U_c$	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard
pick-up voltage						
	pick-up	$x U_c$	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard

			Undervoltage releases				
			IZM-UVR110AC	IZM-UVR110DC	IZM-UVR220DC	IZM-UVR230AC	IZM-UVR400AC
Rated control voltage							
AC 50/60 Hz	U_s	V	110 - 127	-	-	208 - 240	380 - 415
DC	U_s	V	-	110 - 125	220 - 250	-	-
Power consumption							
AC		VA	10 (pick-up 450)	-	-	10 (pick-up 400)	10 (pick-up 480)
DC		W	-	10 (pick-up 450)	10 (pick-up 450)	-	-
Response time of the circuit-breaker with U_s		ms	70	70	70	70	70
Operating range							
Drop-out voltage							
AC operated 50/60 Hz	Drop-out	$x U_c$	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard
pick-up voltage							
	pick-up	$x U_c$	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard	Acc. to IEC standard

			Motor operator						
			IZM-M24DC	IZM-M48DC	IZM-M60DC	IZM-M110DC	IZM-M220DC	IZM-M110AC	IZM-M230AC
Rated control voltage									
AC 50/60 Hz	U_s	V	-	-	-	-	-	110 - 127	208 - 240
DC	U_s	V	24	48	60	110 - 125	220 - 250	-	-
Necessary time required for charging of the spring-operated stored energy mechanism at $1 \times U_s$		s	5	5	5	5	5	5	5
Rated operational current		A	12	5	5	2	1	2	1
Starting current		A	36	25	25	12	6	12	6
Power consumption									
AC 50/60 Hz		VA	300	250	250	250	250	250	250
DC		W	300	250	250	250	250	250	250

IZM circuit-breakers, IN switch-disconnectors

Communication modules

IZMX-PCAM, IZMX-MCAM, IZMX-ECAM

Technical data

		IZMX-PCAM	IZMX-MCAM	IZMX-ECAM
General				
Dimensions (W x H x D)	mm	24 x 105 x 802	4 x 105 x 802	4 x 105 x 80
Mounting		Auxiliary terminals	Auxiliary terminals	Auxiliary terminals
Protection type		IP20	IP20	IP20
Power supply	V DC	24 V DC	24 V DC	24 V DC
LED display		Status	Status	Status
		SF	Transmit	
		BF	Receive	
Network				
Ethernet		–	–	RJ45, socket
PROFIBUS		SUB-D 9 pole, socket	–	–
Modbus		–	Plug-in screw terminals	–
Function		Slave	Slave	TCP/IP user
Interfaces		RS485	RS485	Ethernet
Protocol		PROFIBUS DP	Modbus-RTU	Modbus TCP, http(s), SMTP
Baud Rates		automatic search up to 12 MBit/s	1200/4800/9600/19200 Bit/s, adjustable via Digitrip	automatic search up to 100 MBit/s
Bus terminating resistors		In plug as required	120 Ω external	–
Bus addresses		1 - 127, can be set via Digitrip	1 - 247, can be set via Digitrip	IP, can be set via Digitrip
Maximum distance		2.4 km	1.2 km	100 m
Supported functions		Cyclical data transfer	Function:: 03 = read register 04 = read word variables 08 = connection test 16 = write register	Webserver on board

Altitude Derating Factors

Altitude [m]	Voltage Correction	Current Correction
2000	1.000	1.000
2150	0.989	0.998
2300	0.976	0.995
2450	0.963	0.993
2600	0.950	0.990
2750	0.933	0.987
2900	0.917	0.983
3050	0.900	0.980
3200	0.883	0.977
3350	0.867	0.973
3500	0.850	0.970
3650	0.833	0.967
3800	0.817	0.963
3950	0.800	0.960
5000	0.700	0.940

Altitude factors

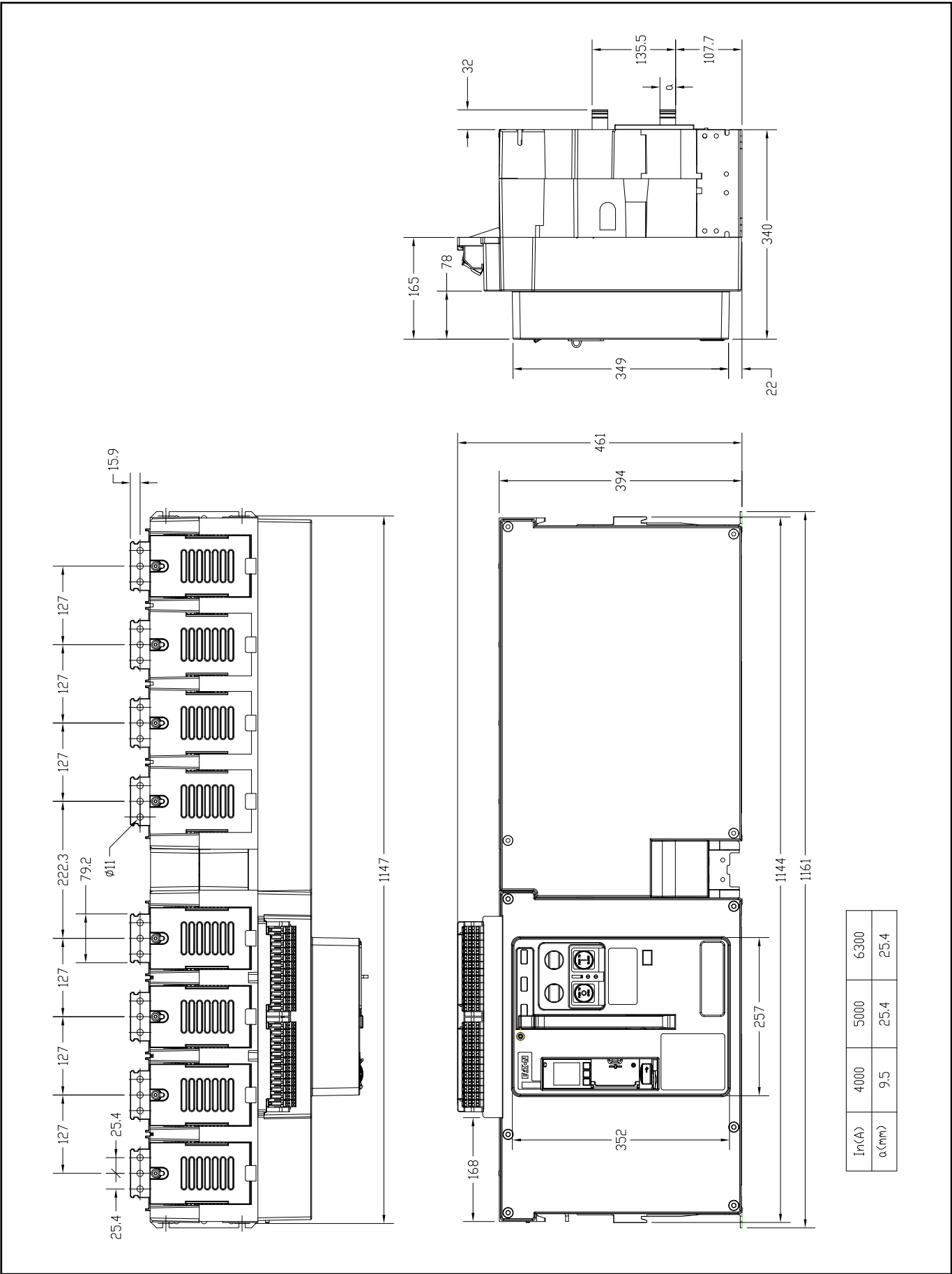
IZM series circuit breakers can be applied at their full voltage and current ratings up to a maximum altitude of 2000 meters above sea level. When installed at higher altitudes, the ratings are subject to correction factors. Short circuit current is not affected as long as the voltage is rated in accordance with the table.

The technical drawings illustrate the dimensions of the T6000 server rack from three perspectives:

- Front View (Top):** Shows the width of the rack as 892.8 mm. The depth is divided into sections of 127 mm, 222.3 mm, 127 mm, 127 mm, 127 mm, and 127 mm. Other dimensions include 25.4 mm, 79.2 mm, 123.4 mm, 15.9 mm, and a total depth of 349 mm.
- Side View (Bottom):** Shows the height of the rack as 886.5 mm. The width is divided into sections of 41.4 mm, 890 mm, and 907 mm. Other dimensions include 165 mm, 78 mm, 32 mm, 135.5 mm, 107.7 mm, and a total width of 340 mm.
- Top View (Left):** Shows the internal layout with dimensions 461 mm, 394 mm, 352 mm, 257 mm, 890 mm, and 907 mm.

	4000	5000	6300
In(A)	9.5	25.4	25.4
a.(mm)			

IZM63 Fixed Type Dimensions and Horizontal Board Dimensions (4P, 5000~6300A)

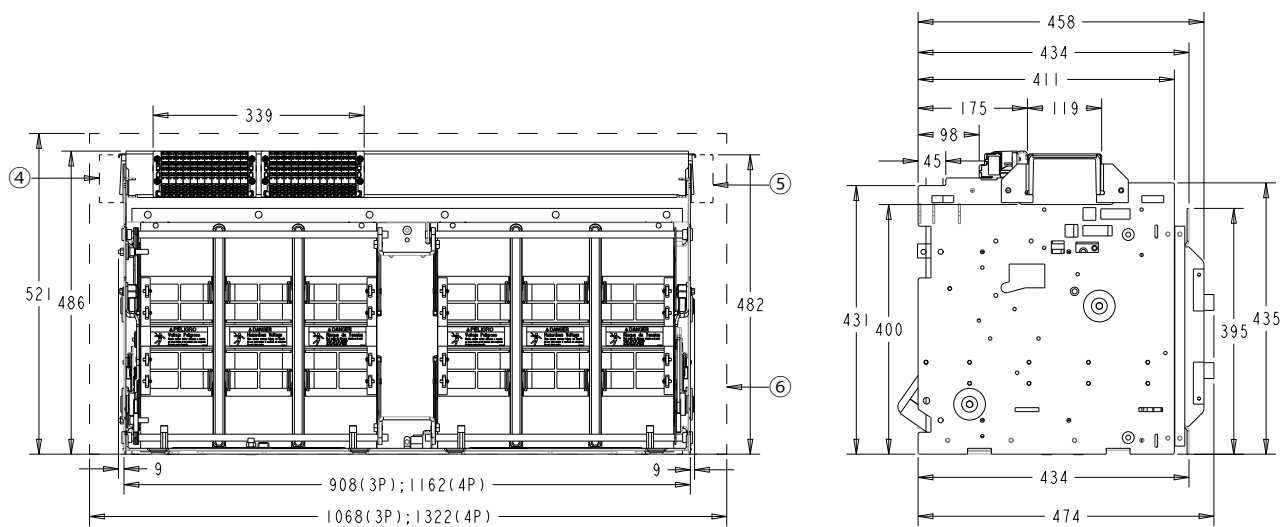


[illegible]

IZM circuit-breakers, IN switch-disconnectors

Basic devices IZM63/IN63

IZM63 Withdrawable Type Dimensions (3P and 4P, 5000~6300A)



Notes: ④⑤ Drawer switch position ⑥ Recommended minimum mounting space

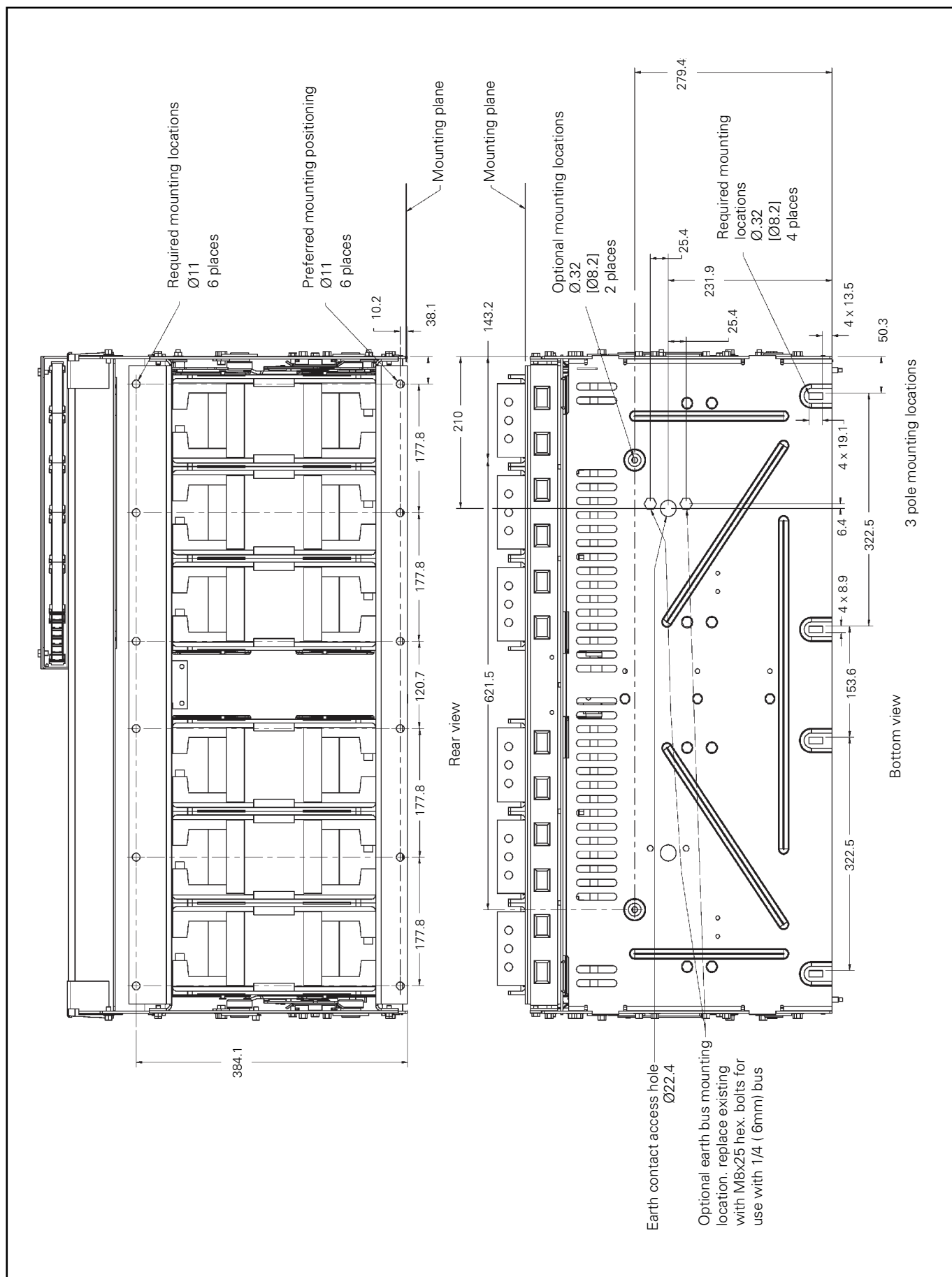
ITEM	D
3 POLE	5.50 [141.3]
4 POLE	11.50 [292.7]

Front View

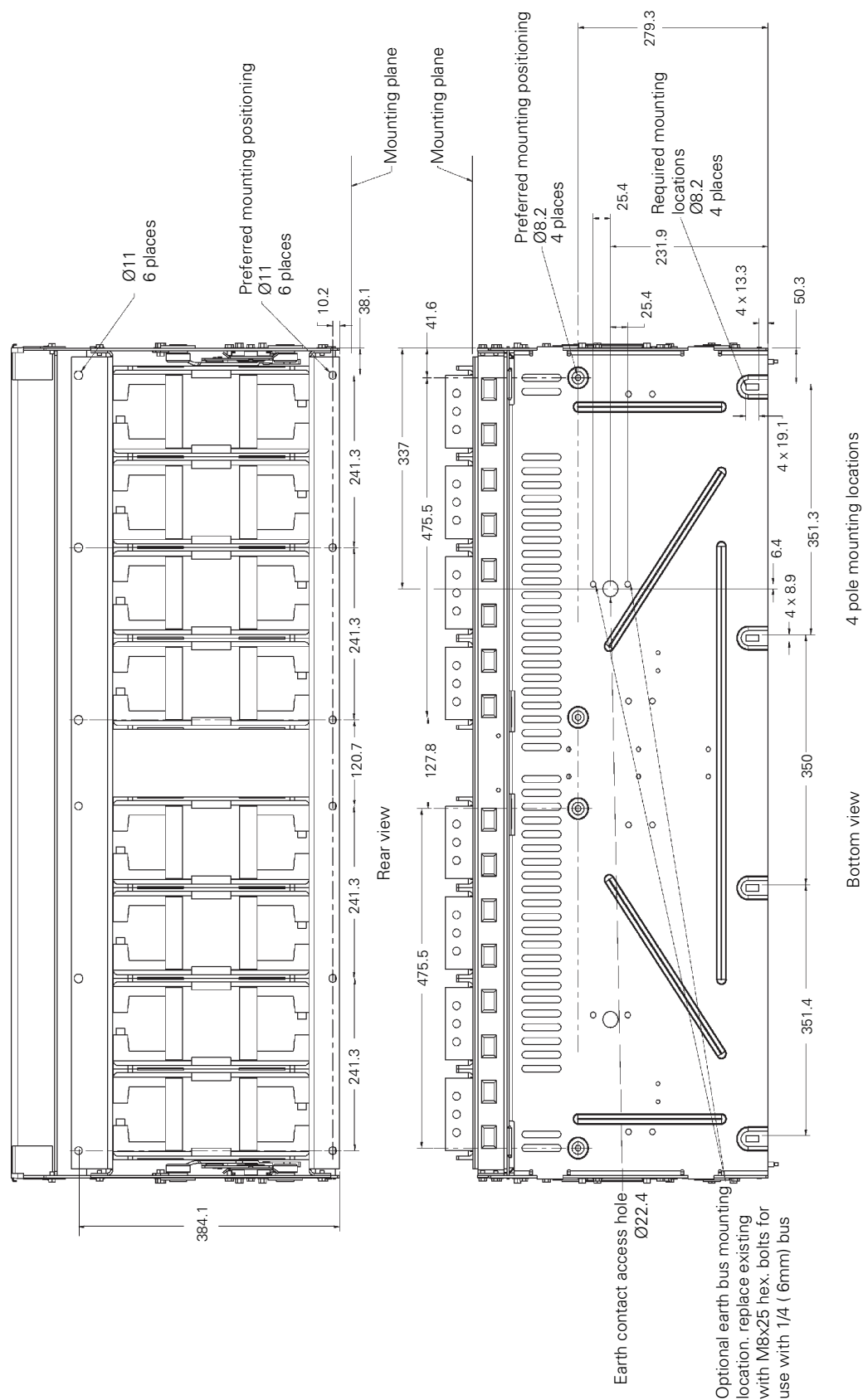
Dimensions (mm) and (inches):

- Door cut out: 278.4 (10.9)
- Mounting hole: 120.19 (4.7)
- Door cut out: 11.34 (0.45)
- Mounting hole: 7.775 (0.306)
- Mounting hole: 8.34 (0.328)
- Mounting hole: 10.16 (0.399)
- Mounting hole: 11.34 (0.446)
- Mounting hole: 12.7 (0.5)
- Mounting hole: 15.24 (0.6)
- Mounting hole: 16.51 (0.65)
- Mounting hole: 18.29 (0.72)
- Mounting hole: 20.32 (0.8)
- Mounting hole: 22.86 (0.9)
- Mounting hole: 25.4 (1.0)
- Mounting hole: 27.94 (1.1)
- Mounting hole: 30.48 (1.2)
- Mounting hole: 33.02 (1.3)
- Mounting hole: 35.56 (1.4)
- Mounting hole: 38.1 (1.5)
- Mounting hole: 40.64 (1.6)
- Mounting hole: 43.18 (1.7)
- Mounting hole: 45.72 (1.8)
- Mounting hole: 48.26 (1.9)
- Mounting hole: 50.8 (2.0)
- Mounting hole: 53.34 (2.1)
- Mounting hole: 55.88 (2.2)
- Mounting hole: 58.42 (2.3)
- Mounting hole: 60.96 (2.4)
- Mounting hole: 63.5 (2.5)
- Mounting hole: 66.04 (2.6)
- Mounting hole: 68.58 (2.7)
- Mounting hole: 71.12 (2.8)
- Mounting hole: 73.66 (2.9)
- Mounting hole: 76.2 (3.0)
- Mounting hole: 78.74 (3.1)
- Mounting hole: 81.28 (3.2)
- Mounting hole: 83.82 (3.3)
- Mounting hole: 86.36 (3.4)
- Mounting hole: 88.9 (3.5)
- Mounting hole: 91.44 (3.6)
- Mounting hole: 93.98 (3.7)
- Mounting hole: 96.52 (3.8)
- Mounting hole: 99.06 (3.9)
- Mounting hole: 101.6 (4.0)
- Mounting hole: 104.14 (4.1)
- Mounting hole: 106.68 (4.2)
- Mounting hole: 109.22 (4.3)
- Mounting hole: 111.76 (4.4)
- Mounting hole: 114.3 (4.5)
- Mounting hole: 116.84 (4.6)
- Mounting hole: 119.38 (4.7)
- Mounting hole: 121.92 (4.8)
- Mounting hole: 124.46 (4.9)
- Mounting hole: 127.0 (5.0)
- Mounting hole: 129.54 (5.1)
- Mounting hole: 132.08 (5.2)
- Mounting hole: 134.62 (5.3)
- Mounting hole: 137.16 (5.4)
- Mounting hole: 139.7 (5.5)
- Mounting hole: 142.24 (5.6)
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- Mounting hole: 147.32 (5.8)
- Mounting hole: 149.86 (5.9)
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- Mounting hole: 154.94 (6.1)
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- Mounting hole: 175.26 (6.9)
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- Mounting hole: 241.3 (9.5)
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- Mounting hole: 246.38 (9.7)
- Mounting hole: 248.92 (9.8)
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- Mounting hole: 436.88 (17.2)
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- Mounting hole: 441.96 (17.4)
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- Mounting hole: 449.58 (17.7)
- Mounting hole: 452.12 (17.8)
- Mounting hole: 454.66 (17.9)</

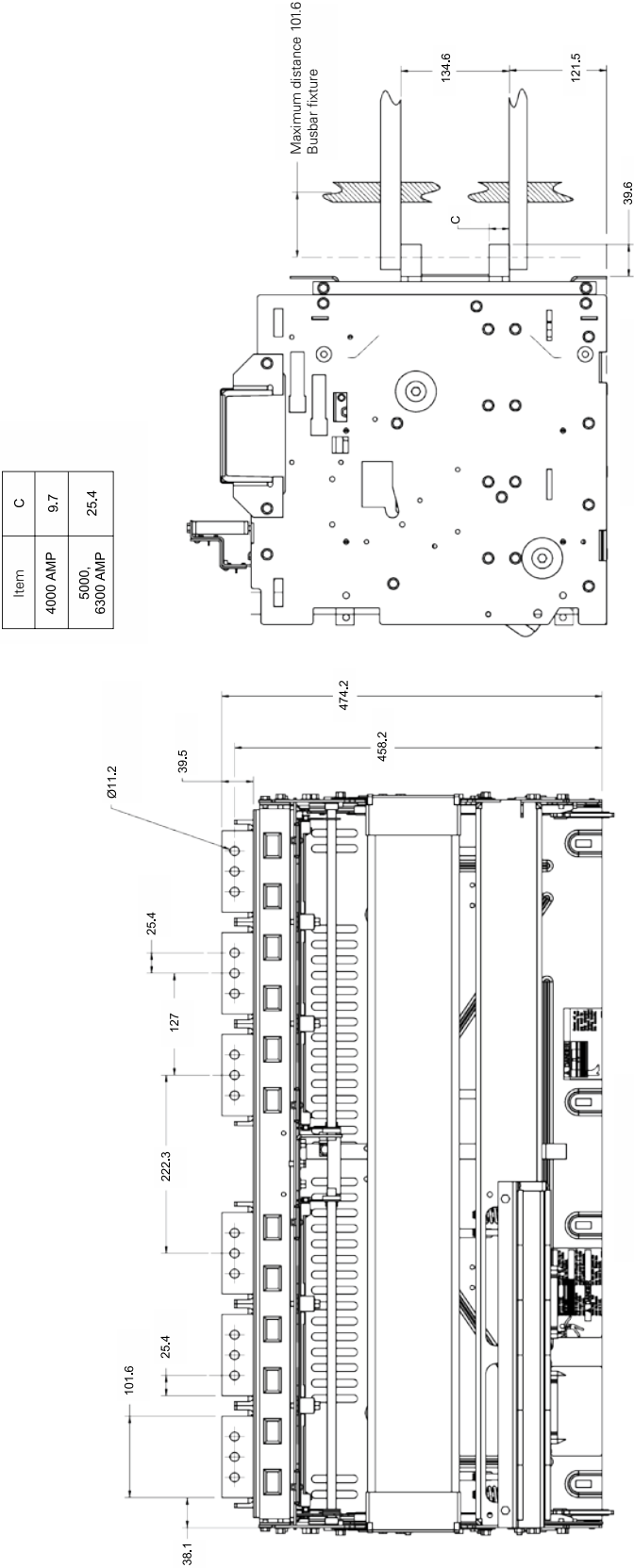
IZM63 Withdrawable Type Cassette Dimensions and Mounting Dimensions (3P, 5000–6300A)



IZM63 Withdrawable Type Cassette Dimensions and Mounting Dimensions (4P, 5000–6300A)



IZM63 Withdrawable Type Cassette Horizontal Board Wiring Dimensions (3P - 5000~6300A)



3P

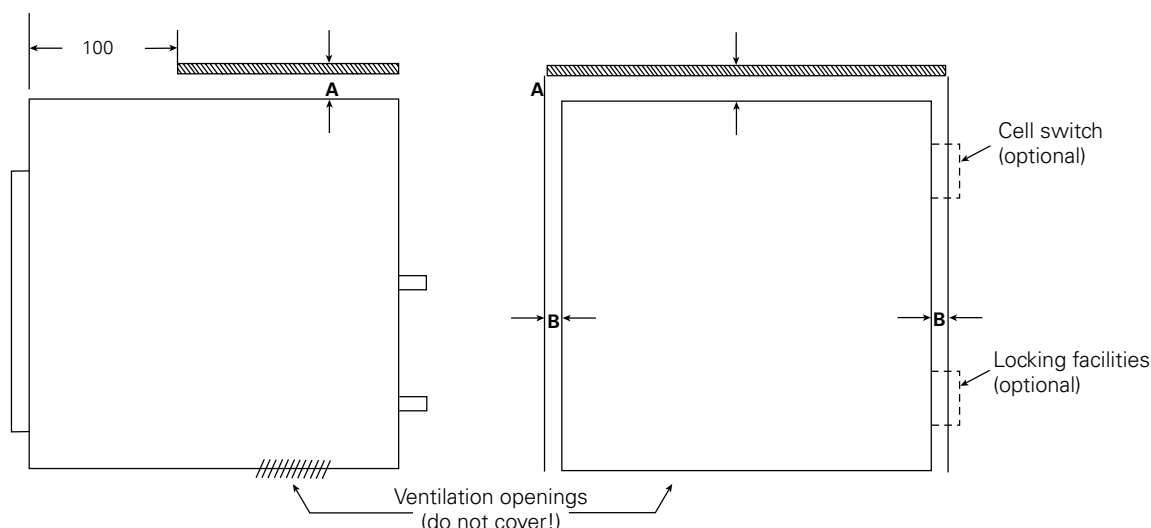
Electrical clearance

The following information about electrical clearance is intended to provide a guideline for the installation of fixed type or drawout type circuit breakers in an enclosure. The diagram and related dimensions can be used for reference.

Electrical clearance dimension (mm)

Breaker type	Enclosure clearance	To insulated surface	To grounded metal surface	With cell switch or locking facilities
Withdrawable	A	0	0	0
	B	25	25	25/75
Fixed	A	150	250	-
	B	30	70	-

Recommended safety clearances

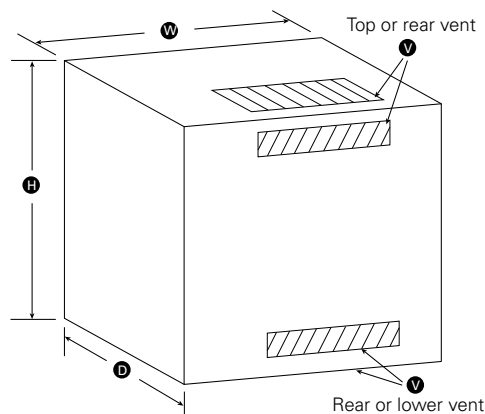


Recommended enclosure clearance and ventilation

The typical enclosure drawing and dimension table is intended as a guideline for designing a circuit breaker enclosure. The enclosure dimensions and required ventilation openings should be considered at the designing phase.

Recommended enclosure/ventilation opening dimensions

W Width	Width of cassette + 75 mm
H Height	550 mm
D Depth	450 mm (front control panel bay)
V Ventilation holes	320 cm ² (4000-6300A)

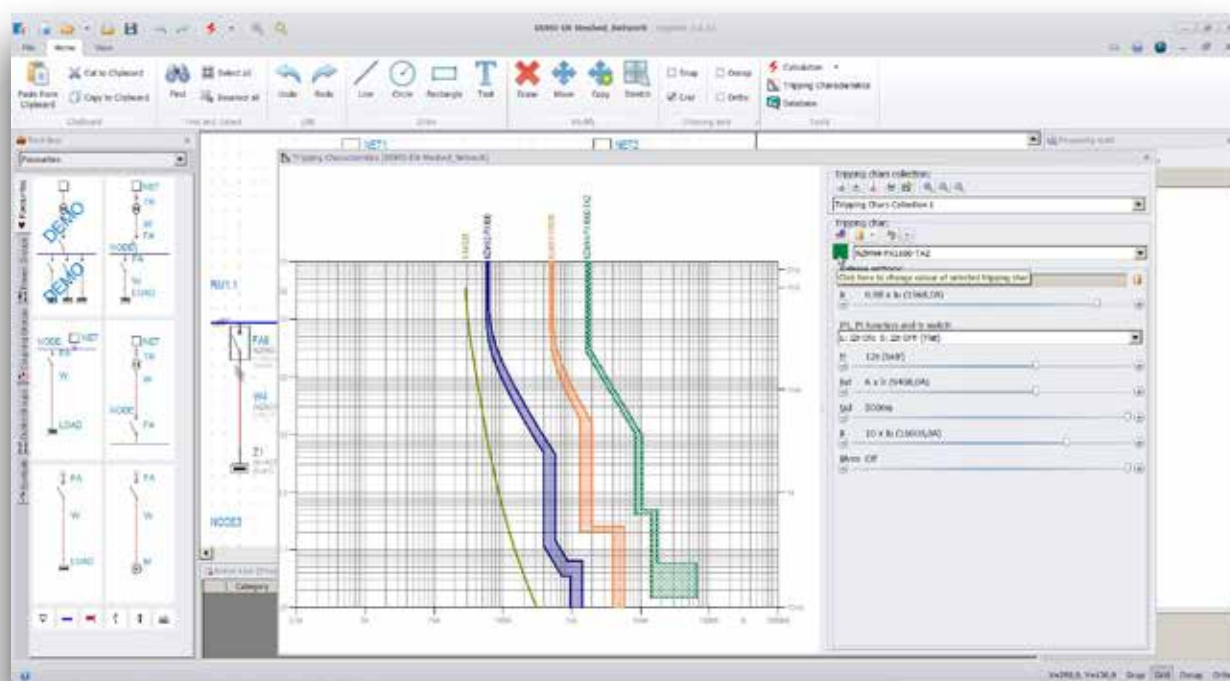




xSpider creates your networks

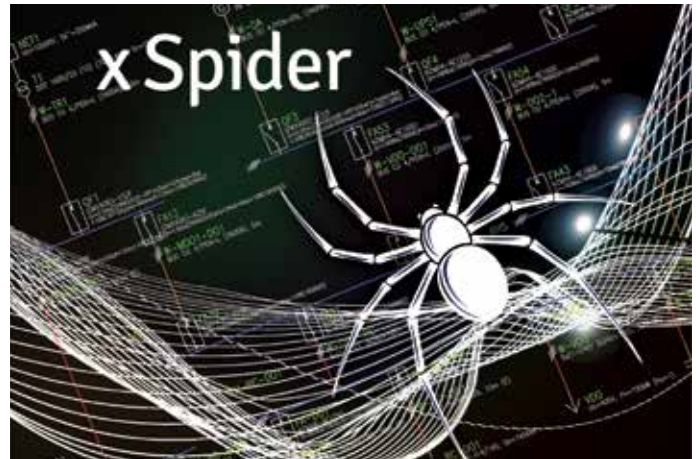
The xSpider software is a graphic-oriented design system for dimensioning of low-voltage networks fitted with Eaton brand circuit protection equipment.

The software is intended primarily for designers and computational engineers. It includes a new graphics and computing core as well as a new user interface.



General Features

- Suitable for TN / IT / TT network systems of different voltage systems up to 1,000 V.
- Design of radial as well as meshed networks.
- Operating status manager for simulating various operating states of the network (ON/OFF status of sources and loads).
- Database of components with transparent tree structure, allowing user-defined additions.
- All calculations are based on IEC standards.
- Coordination of protective devices (selectivity, backup protection).
- Tripping characteristics available for all protective devices.
- Generation of documentation (wiring diagram with calculation results, calculation report etc.).



Calculations

- **Voltage drops** in nodal points of the network.
- Load distribution in the network lines.
- Power factor calculation for meshed networks.
- **Three-phase symmetric short circuit** according to IEC 60909.
- Backup protection – checking the breaking capacities of the out-going protective components at the outgoers.
- Selectivity assessment of circuit breakers according to tripping

characteristics and selectivity tables.

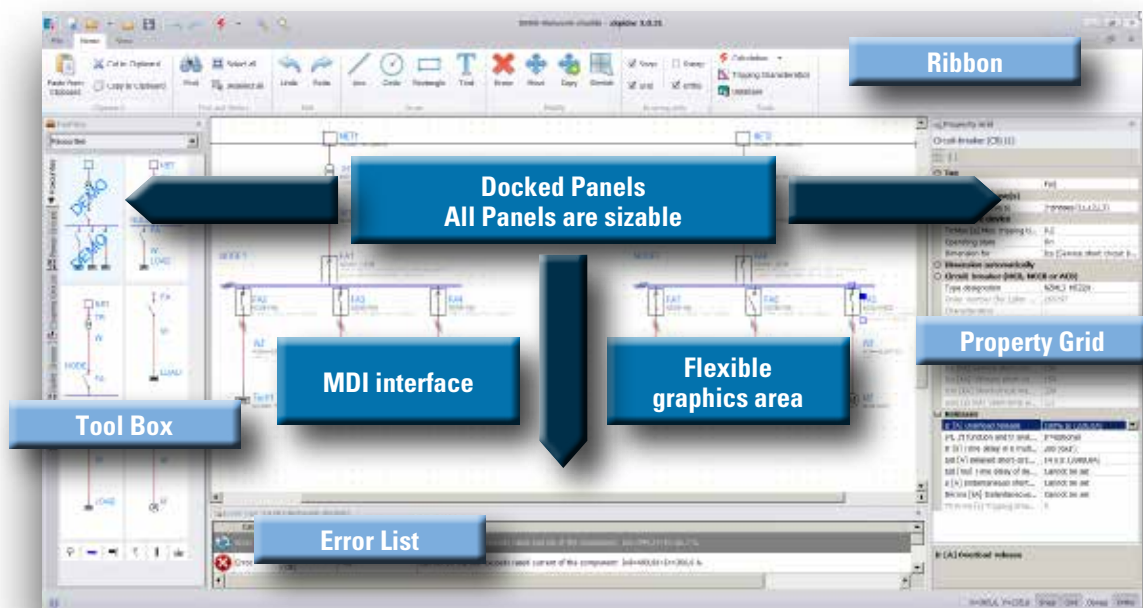
- **Single-phase asymmetrical short circuit current.**
- Calculation of the disconnection time and check on compliance with the requirements of IEC 60364-4-41.

Displaying of results

- Calculation is followed by a display of the list of non-compliant elements (in parallel with the wiring diagram).
- After the calculation has been performed, the calculated values will be displayed for the individual components in the network wiring diagram.
- The results diagram is printable. It can be printed on any

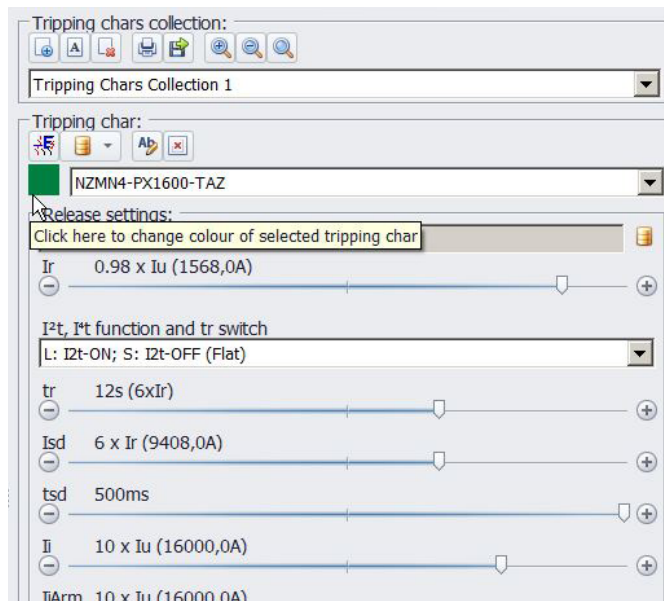
output device, for which a driver is available in Windows (printer, plotter).

- After calculation, a comprehensive report on the calculation can be generated and printed.



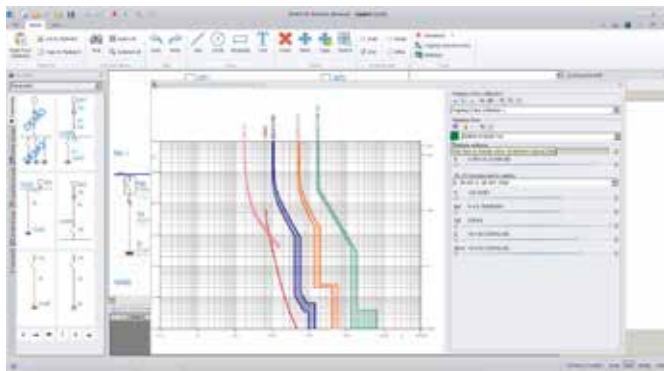
User operation similar to standard CAD systems (AutoCAD)

Working with tripping characteristics

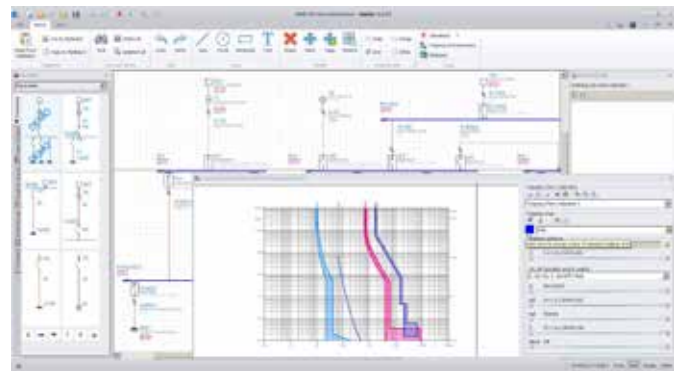


Setting of parameters for selected circuit breaker tripping characteristic

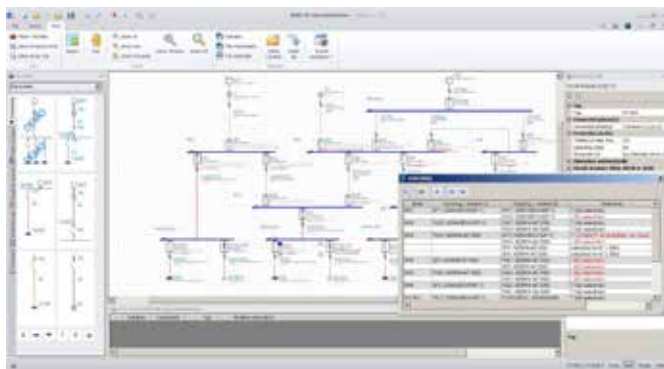
- The dialogue box with the tripping characteristics is shown in parallel with the wiring diagram.
- Selection of a protective device from the database and rendering of its tripping characteristic (including tolerance range if the necessary data is available).
- Selection of protective equipment from the network wiring diagram and drawing of its tripping characteristics – selectivity assessment possible.
- If a circuit protection device is equipped with adjustable releases, it is possible to modify all available parameters. If this was a device from the wiring diagram, the change of the release parameter setting is transferred back into the wiring diagram.
- It is also possible to work with the tripping characteristics independently, i.e. without drawing a wiring diagram.



Tripping characteristic of protective devices



Tripping characteristic with activated Arc Reduction Maintenance System (ARMS)



Complex evaluation of selectivity and backup protection



Calculation of short circuit current values in various nodes of electrical installations.

How to obtain the xSpider software

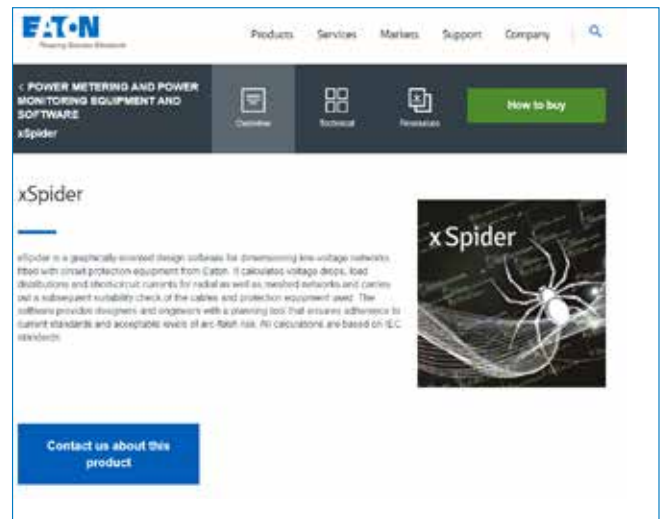
Go to the xSpider homepage:

- 1) www.eaton.com/xspider
- 2) Search with any explorer (Google) for terms such as: xSpider, or xSpider Eaton etc.

- Download the xSpider software *)
- Installation of xSpider to a computer
- xSpider icon is displayed on the screen – click on it
- Start

*) available also:

- PowerPoint presentations – quick overview of features
- User manual is part of installation or available separately as a PDF file
- Instruction videos help to quickly understand operation.



www.eaton.com/xspider

How to start the first job

The most effective way for quick learning is to start with the selected "DEMO Network" drawing, then look at Videos and follow the User manual, Part III.

1 DEMO drawing

Ready drawings with explanation of basic features. The DEMO drawing contains all basic components and allows immediate work with all xSpider features.

2 Videos

Typical situations in the everyday use of xSpider

3 User manual

Step-by-step explanation in Part III:
Part I: Theoretical Introduction
Part II: Program Operation
Part III: Solved Examples



The Eaton online catalogue

THE PRODUCT GROUP TREE

- ▶ Information
- ▶ Control circuit devices
- ▶ (Safety) position switches/sensors
- ▶ Pressure switches
- ▶ Cam switches, switch-disconnectors up to 315 A
- ▶ Timing and measuring relays
- ▶ Safety relays, safety control relays
- ▶ Control relays, multi-function-display
- ▶ Terminal panel, PLC, I/O expansion
- ▶ Contactors
- ▶ Overload relays
- ▶ Motor-protective circuit-breakers
- ▶ Motor-starter combinations
- ▶ Soft starters
- ▶ frequency inverters
- ▶ distributed drives engineering
- ▶ Compact circuit-breakers up to 1600 A
- ▶ Compact switch-disconnectors up to 1600 A
- ▶ Circuit breakers up to 6300 A
- ▶ Switch-disconnectors up to 6300 A
- ▶ Miniature circuit-breakers
- ▶ Transformers

The product group tree:
Clear layout of the
Eaton products
in product groups.

The one-dimensional product structure ensures the user can easily locate the product with a few clicks.

SELECTION AIDS



THE SEARCH

- | |
|------------------------------------|
| Contactors |
| adapter for contactor |
| amplifier module for contactor |
| auxiliary contactor |
| auxiliary contactor relay |
| bridge for contactor |
| cable terminal block for contactor |
| capacitor contactor |
| coil for contactor |
| connector for contactor |
| contactor |
| contactor accessories |
| contactor amplifier module |
| contactor coil |
| contactor |

[illegible]

Search/result list: high performance search with suggestion list by "Entry".

A suggestion list brings the search an above-average success rate, because nothing makes less sense than a 0-hit result.

The selection tools:
3 clicks to product

Selection-relevant features allow users to locate their products easily, without problems. From general to specific to product – 3 clicks!

The catalogue portal is the entry page to the Online Catalogue. Important elements include the powerful search function and the graphical navigation. The clearly designed user interface makes the application particularly easy to use.

Continuous updating ensures that you will always find the latest product data and news.
<https://ecat.eaton.com/>



Catalog Page	Article number	Part number	Description	Instruction Leaflet (IL) number
Main breaker including cassettes:				
9 - 11	IZM63, IN63 including cassette			MN013014EN
Accessories:				
12	PXR Trip units			MN013003EN

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For more information, visit [Eaton.com](https://www.eaton.com).



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