

## Circuit-breaker, 4p, 2000 A, fixed

Powering Business Worldwide™

Part no. IZMX40B4-V20F Article no. 149865 Catalog No.

RES6204B52MNMNN2MN1X

## **Delivery programme**

Delivery programme			
Product range			Air circuit-breakers/switch-disconnectors
Product range			Open circuit-breakers
Current Range			Up to 4000 A
Protective function			Selective operation
Installation type			Fixed
Construction size			IZMX40
Release system			Electronic release
Standard/Approval			IEC
Number of poles			4 pole
Degree of Protection			IP20, IP55 with protective cover, IP41 door sealing frame
			suitable for zone selectivity optionally fittable by user with comprehensive accessories
Rated current = rated uninterrupted current	$\boldsymbol{I}_n = \boldsymbol{I}_u$	Α	2000
Breaking capacity Icu = Ics to 440 V 50/60 Hz	I <sub>cu</sub>	kA	66
Breaking capacity Ics to 440 V 50/60 Hz	I <sub>cs</sub>	kA	66
Overload release, min.	I <sub>r</sub>	Α	1000
Overload release, max.	I <sub>r</sub>	Α	2000
Non-delayed  I	$I_i = I_n x \dots$		2 - 12, OFF
Delayed >	$I_{sd} = I_r x \dots$		2 - 10
Notes			
Main terminals not included, need to be ordered separately.			

### **Technical data**

#### General

deliciai			
Standards			IEC/EN 60947
Ambient temperature			
Storage	θ	°C	-40 - +70
Operating (open)		°C	-25 - +70
Mounting position			30° 30°
			30° 30°
Utilization category			В
Degree of Protection			IP20, IP55 with protective cover, IP41 door sealing frame
Direction of incoming supply			as required
Main conducting paths			
Rated current = rated uninterrupted current	$\boldsymbol{I}_n = \boldsymbol{I}_u$	Α	2000

Rated uninterrupted current at 50 °C

Rated uninterrupted current at 60 °C

Α

2000

2000

Iu

the temperature around the circuit-breaker, which is influenced by the amb temperature, the degree of protection (IP), the mounting height, the partition any external ventilation. Depending on the specific switchgear design, this result in derating, which can then be compensated for by increasing the crossectional area. Temperature rise tests in the specific switchgear can provide specific and detailed information.  Permissible continuous current for circuit-breakers operating in switchboa at various internal ambient temperatures. The switchboard's internal ambient temperatures.	Rated uninterrupted current at 70 °C	Iu	Α	2000
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Use in     Intercencial power networks up to U = Nat V		·	V AC	690
Overrotrage category/pollution degree  Rated instaltion voltage  U, V 1000  Note of the control				
Rated inselation voltage  Ui V 1000  Switching capacity  on to 440 V 5000 Hz	· · ·	'11	IO C	
Switching capacity Rated short-circuit making capacity  up to 460 V 58000 Hz  up to 460 V 58000 Hz  t = 1 s  t = 3 s  Rated short-circuit breaking capacity I <sub>co</sub> t = 1 s  t = 3 s  Rated short-circuit breaking capacity I <sub>co</sub> IECUR 6964 Coparating sequence I <sub>co</sub> 0+0 C0  up to 240 V 58000 Hz  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  up to 460 V 58000 Hz  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s  up to 460 V 58000 Hz  lecur 1 s s		H-	V	
Reted short-circuit making capacity   Imm		O <sub>I</sub>	V	1000
up to 440 V 50/50 Hz  up to 893 V 58/00 Hz  to 1		I <sub>cm</sub>		
Up to 680 V 5060 Hz	up to 440 V 50/60 Hz		kA	145
Rated short-time withstand current \$0,000 Hz	up to 690 V 50/60 Hz		kA	145
Test   S		CIII		
tis 3 s   Iow   KA   53    Rated short-circuit breaking capacity I <sub>co</sub>   I <sub>co</sub>   I <sub>co</sub>    IEC/EN 80947 operating sequence I <sub>co</sub> 0×CO    up to 240 V 5080 Hz   I <sub>co</sub>   KA   66    up to 480 V 5080 Hz   I <sub>co</sub>   KA   66    up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   66    Up to 890 V 5080 Hz   I <sub>co</sub>   KA   I <sub>co</sub>		l <sub>ow</sub>	kA	66
Rated short-circuit breaking capacity I <sub>ca</sub> IEC/EN 80947 operating sequence I <sub>ca</sub> 0-t-C0  up to 240 V 5000 Hz  up to 440 V 5000 Hz  up to 440 V 5000 Hz  lca  Rated Short-Circuit breaking capacity I <sub>ca</sub> I <sub>ca</sub> RA  RA  RA  RA  RA  RA  RA  RA  RA  R				
IEC/EN 65947 operating sequence   c				
up to 240 V 50,800 Hz up to 440 V 50,800 Hz up to 680 V 50,800 Hz up to 680 V 50,800 Hz up to 680 V 50,800 Hz lEC/EN 6847 operating sequence I <sub>cs</sub> 0-t-C0-t-C0 up to 240 V 50,800 Hz les kA 66 up to 440 V 50,800 Hz les kA 66  Qperating times  Closing delay via spring release Total opening delay via shunt release Total opening delay via undervoltage release Total opening delay on non-delayed short-circuit release (up to complete arc quenching) W 220  Weight Fixed mounting W 220  Weight Fixed mounting  Black  Black  Maximum operating frequency  Ag 43 Ag 56  Terminal capacities  Copper bar Fixed mounting  Black  Maximum operating frequency  Ag 43 Ag 56  Terminal capacities  Copper bar Fixed mounting  Black  Maximum operating frequency  Ag 43 Ag 45 Ag	2 1 2	·cn		
up to 440 V 50/60 Hz  up to 690 V 50/60 Hz  leu  up to 690 V 50/60 Hz  les  kA  66  lEC/EN 69947 operating sequence les  up to 440 V 50/60 Hz  up to 440 V 50/60 Hz  up to 440 V 50/60 Hz  les  kA  66  Operating times  Closing delay via spring release  Total opening delay via spring release  Total opening delay via undervoltage release  Total opening delay on non-delayed short-circuit release (up to complete arc quenching)  Maximum operating frequency  Operations/h  Fixed mounting  W  220  Weight  Fixed mounting  Spole  4-pole  56  Fixed mounting  Black  M  Derminal capacities  Copper bar  Fixed mounting  Black  Fixed mounting  Pixed mounting  Black  Pixed mounting  Pix			kΛ	29
up to 890 V 50/80 Hz  IEC/EN 80947 operating sequence I <sub>cs</sub> 0-t-C0-t-C0  up to 240 V 50/80 Hz  up to 440 V 50/80 Hz  up to 490 V 50/80 Hz  lcs  kA  66  Operating times  Closing delay via spring release  Total opening delay via sundervoltage release  Total opening delay via undervoltage release  ### 45  ###	,			
IEC/EN 60947 operating sequence   c <sub>s</sub> O-t-COt-CO				
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up to 690 V 50/60 Hz  Operating times  Closing delay via spring release  Total opening delay via shunt release  Total opening delay via undervoltage release  ms 35  Total opening delay via undervoltage release  ms 37  Total opening delay on non-delayed short-circuit release (up to complete arc quenching)  Maximum operating frequency  Operations/h  Fixed mounting  W 220  Weight  Fixed mounting  3-pole  kg 43  4-pole  4-pole  Fixed mounting  Black  mm 2 x 80 x 10  These are values used in separate switchgear. The actual values will deper the temperature, are degree of protection (IP). The mounting height, the partitio any external ventilation. Depending on the specific switchgear classing the partition are ventilation. Depending on the specific switchgear classing the partition are ventilation. Depending on the specific switchgear classing the or sectional area. Temperature rise tests in the specific switchgear can provid specific and detailed information.  Permissible continuous current for circuit-breaker speciating in switchboa at various internal ambient temperatures. The switchboard's internal ambient temperatures.	up to 240 V 50/60 Hz	I <sub>cs</sub>	kA	66
Operating times  Closing delay via spring release  Total opening delay via shunt release  Total opening delay via undervoltage release  ms 22  Total opening delay on non-delayed short-circuit release (up to complete arc quenching)  Maximum operating frequency  Operations/h  Fixed mounting  W 220  Weight  Fixed mounting  3-pole  4g 43  4-pole  Terminal capacities  Copper bar  Fixed mounting  Black  mm 2 x 80 x 10  These are values used in separate switchgear. The actual values will deper the temperature around the circuit-breaker, which is influenced by the anthe temperature around the circuit-breaker, which is influenced by the anthe temperature around the circuit-breaker, which is influenced by the anthe temperature around the circuit-breaker, which is influenced by the anthe temperature around the circuit-breaker, which is influenced by the anthe temperature around the circuit-breaker, which is influenced by the anthe temperature around the circuit-breaker sperating the or sectional area. Temperature rise tests in the specific switchgear can provid specific and detailed information.  Permissible continuous current for circuit-breakers operating in switchboa at various internal ambient temperatures. The switchboard's internal ambient temperatures.	up to 440 V 50/60 Hz	I <sub>cs</sub>	kA	66
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4-pole  Terminal capacities  Copper bar  Fixed mounting  Black  mm 2 x 80 x 10  These are values used in separate switchgear. The actual values will deper the temperature around the circuit-breaker, which is influenced by the amb temperature, the degree of protection (IP), the mounting height, the partition any external ventilation. Depending on the specific switchgear design, this result in derating, which can then be compensated for by increasing the cross sectional area. Temperature rise tests in the specific switchgear can provide specific and detailed information.  Permissible continuous current for circuit-breakers operating in switchboar at various internal ambient temperatures. The switchboard's internal ambient temperatures.				
Terminal capacities  Copper bar  Fixed mounting  Black  mm 2 x 80 x 10  These are values used in separate switchgear. The actual values will deper the temperature around the circuit-breaker, which is influenced by the amb temperature, the degree of protection (IP), the mounting height, the partition any external ventilation. Depending on the specific switchgear design, this result in derating, which can then be compensated for by increasing the crus sectional area. Temperature rise tests in the specific switchgear can provide specific and detailed information.  Permissible continuous current for circuit-breakers operating in switchboa at various internal ambient temperatures. The switchboard's internal ambient temperatures.	3-pole		kg	43
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at various internal ambient temperatures. The switchboard's internal ambie				These are values used in separate switchgear. The actual values will depend on the temperature around the circuit-breaker, which is influenced by the ambient temperature, the degree of protection (IP), the mounting height, the partitions, and any external ventilation. Depending on the specific switchgear design, this may result in derating, which can then be compensated for by increasing the cross-sectional area. Temperature rise tests in the specific switchgear can provide specific and detailed information.
tomporatary should be solutioned using the sandatator methods or less regarded.				Permissible continuous current for circuit-breakers operating in switchboards at various internal ambient temperatures. The switchboard's internal ambient temperature should be estimated using the calculation methods of IEC regulation.

# Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	2000
Equipment heat dissipation, current-dependent	$P_{\text{vid}}$	W	220
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	70

IEC/EN 61439 design verification	
10.2 Strength of materials and parts	
10.2.2 Corrosion resistance	Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures	Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat	Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects	Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation	Meets the product standard's requirements.
10.2.5 Lifting	Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact	Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions	Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES	Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances	Meets the product standard's requirements.
10.5 Protection against electric shock	Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components	Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections	Is the panel builder's responsibility.
10.8 Connections for external conductors	Is the panel builder's responsibility.
10.9 Insulation properties	
10.9.2 Power-frequency electric strength	Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage	Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material	Is the panel builder's responsibility.
10.10 Temperature rise	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## **Technical data ETIM 6.0**

Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation prot. (EC000228)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecl@ss8.1-27-37-04-09 [AJZ716010])

Rated permanent current lu	А	2000
Rated voltage	V	690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	66
Overload release current setting	Α	1000 - 2000
Adjustment range short-term delayed short-circuit release	Α	4000 - 20000
Adjustment range undelayed short-circuit release	А	4000 - 24000
Integrated earth fault protection		No
Type of electrical connection of main circuit		Rail connection
Device construction		Built-in device fixed built-in technique
Suitable for DIN rail (top hat rail) mounting		No
DIN rail (top hat rail) mounting optional		No
Number of auxiliary contacts as normally closed contact		0
Number of auxiliary contacts as normally open contact		0
Number of auxiliary contacts as change-over contact		2
Switched-off indicator available		Yes
With under voltage release		No
Number of poles		4
Position of connection for main current circuit		Back side
Type of control element		Push button
Complete device with protection unit		Yes
Motor drive integrated		No
Motor drive optional		Yes
Degree of protection (IP)		IP20