## **DATASHEET - PFIM-40/4/03-MW**



## Residual current circuit breaker (RCCB), 40A, 4p, 300mA, type AC

Powering Business Worldwide

PFIM-40/4/03-MW Part no. Catalog No. 235412

Similar to illustration

Delivery program			
Basic function			Residual current circuit-breakers
Number of poles			4 pole
Application			Residual current circuit-breaker for residential and commercial applications
Rated current	In	Α	40
Rated short-circuit strength	I <sub>cn</sub>	kA	10
Rated fault current	$I_{\Delta N}$	Α	0.3
Туре			Type AC
Tripping		s	non-delayed
Product range			PFIM
Sensitivity			AC current sensitive
Impulse withstand current			Partly surge-proof 250 A

#### **Technical data**

ectrica

Standards         Us         V           Rated operational voltage         Us         V           Bated operating voltage         Us         V AC           Rated frequency         Us         V AC           Rated frequency         V AC         304400           Limit values of the operating voltage         V AC         196 - 456           Shastivity         AC current sensitive           Rated insulation voltage         Us         V AC           Rated short-circuit strength         In         V AC         40           Asted short-circuit strength         In         In         AC current sensitive           Max. back-up fuse         In         A G         30           Max. back-up fuse         A gL/g         50           Max. back-up fuse         A gL/g         50           Max. back-up fuse         A gL/g         2000           Electrical         Operations In         2000           Asted <t< th=""><th>Technical data Electrical</th><th></th><th></th><th></th></t<>	Technical data Electrical			
Rated operational voltage         U <sub>0</sub> V AC           Rated operating voltage         U <sub>0</sub> V AC         20/400           Rated frequency         f         Hz         50           Test circuit         V AC         18-456         456           Sonstivity         AC current sensitive           Rated insulation voltage         U <sub>1</sub> V A         40           Rated insulation voltage         I <sub>1</sub> A         6         6           Overload         G <sub>1</sub> / <sub>2</sub> A         2         2           Max. backup fuse         I <sub>2</sub> A gL/ <sub>2</sub> 2         2           Back-up fuse         I <sub>2</sub> A gL/ <sub>2</sub> <th< td=""><td>Types conform to</td><td></td><td></td><td>IEC/EN 61008</td></th<>	Types conform to			IEC/EN 61008
Rated operating voltage         U <sub>0</sub> V AC         20/400           Rated frequency         f         Hz         5           Test circuit         V AC         196 - 456           Sessivity         AC current sensitive           Rated insulation voltage         U <sub>1</sub> V AC         404           Rated short-circuit strength         U <sub>1</sub> V AC         404           Rated short-circuit strength         I <sub>2</sub> V AC         10           Max. admissible back-up fuse         g/g/L         A         25           Short-circuit strength         g/g/L         A         25           Max. back-up fuse         g/g/L         A         25           Beck-up fuse         g/g/L         A	Standards			IEC/EN 61008
Rated prequency Rated frequency Limit values of the operating voltage  Test circuit  Test circuit  Sensitivity  VAC 1986 - 456  Sensitivity  AC current sensitive  Rated insulation voltage Rated insulation voltage Rated short-circuit strength  Max. admissible back-up fuse  Short-circuit  Noverload  Sologique  Short-circuit  Overload  Overload  Overload  Overload  Saled regular breaking capacity / Rated residual making and breaking	Rated operational voltage	U <sub>e</sub>	٧	
Rated frequency         f         Hz         50           Limit values of the operating voltage         VAC         198 - 456           Sensitivity         VAC         198 - 456           Rated insulation voltage         U <sub>i</sub> VA         40           Rated insulation voltage         U <sub>i</sub> VA         40           Rated short-circuit strength         I <sub>o</sub> KA         10           Max. admissible back-up fuse         V         5         5           Short-circuit         gG/gL         A         6         3           Overload         gG/gL         A         5         3           Max. back-up fuse         A         3,1/√g         5           Max. back-up fuse         A         3,1/√g         5           Back-up fuse         A         3,1/√g         5           Max. back-up fuse         A         3,1/√g         5           Max. back-up fuse         A         3,1/√g         5           Back-up fuse         A         3,1/√g         5           Mechanical         Operations         x         2         400           References         x         x         2         2         2		U <sub>e</sub>	V AC	
Limit values of the operating voltage  Test circuit  Sensitivity  Rated insulation voltage  Act current sensitive  Rated insulation voltage  Ui  Vi  Vi  440  Rated insulation voltage  Rated short-circuit strength  Vi  Vi  Vi  Vi  Vi  Vi  Vi  Vi  Vi  V	Rated operating voltage	U <sub>e</sub>	V AC	230/400
Test circuit         V AC         196 - 455           Sensitivity         AC current sensitive           Rated insulation voltage         U <sub>i</sub> V         440           Rated impulse withstand voltage         U <sub>imp</sub> kV         4           Rated short-circuit strength         I <sub>c</sub> kA         10           Max. admissible back-up fuse         Short-circuit         GG/gL         A         63           Overload         gG/gL         A         50         50           Rated making and breaking capacity / Rated residual making and breaking and break	Rated frequency	f	Hz	50
Sensitivity Rated insulation voltage Rated insulation voltage Rated impulse withstand voltage Rated impulse withstand voltage Rated short-circuit strength Max. admissible back-up fuse  Short-circuit Short-circuit Short-circuit Rated short-circuit strength  Max. admissible back-up fuse  Short-circuit Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated with subsequent installation Rechanical  Poperations  Rated making and breaking capacity / Rated residual making and breaking Rated with subsequent installation Remote control and automatic switching device  Compact enclosure  Sealing cover set  Mechanical  Standard front dimension  Rated impulse withstand voltage  Rated short-circuit standard voltage  Rated short-circuit standard voltage  Rated short-circuit standard voltage  Rated short-circuit protective device  Rated sh	Limit values of the operating voltage			
Rated insulation voltage  Rated insulation voltage  Rated insulation voltage  Rated short-circuit strength  Max. admissible back-up fuse  Short-circuit  Short-circuit  Short-circuit  Short-circuit  Short-circuit  Ge/gL  A  63  Covarload  Ovarload  Rated making and breaking capacity / Rated residual making and breaking capacity  Max. back-up fuse  Rasck-up fuse  Back-up fuse  Back-up fuse  Back-up fuse  Back-up fuse  Remained  Goperations  Goperations  Goperations  Filed Ficial  Mechanical  Remote control and automatic switching device  Compact enclosure  Compact enclosure  Sealing cover set  Wechanical  Standard front dimension  Value  Value  A 9U/96	Test circuit		V AC	196 - 456
Rated impulse withstand voltage  Rated short-circuit strength  Max. admissible back-up fuse  Short-circuit  Overload  Rated making and breaking capacity / Rated residual making and breaking capacity  Max. back-up fuse  Maximum max. as short-circuit protective device  Back-up fuse  Back-up fuse  Meximum max. as short-circuit protective device  Back-up fuse  Operations  Electrical  Mechanical  Residerences  Auxiliary switch for subsequent installation  Tripping signal contact for subsequent installation  Remote control and automatic switching device  Compact enclosure  Sealing cover set  Mechanical  Sealing cover set  Mechanical  Standard front dimension  Mechanical  Standard front dimension  Jump  Aux  Agu  5  6  6  6  6  6  6  6  6  6  6  6  6	Sensitivity			AC current sensitive
Rated short-circuit strength  Max. admissible back-up fuse  Short-circuit Overload  Ge/gL  A 63  Coverload  Ge/gL  A 25  Rated making and breaking capacity / Rated residual making and breaking apacity Max. back-up fuse  Max. back-up fuse  Maximum max. as short-circuit protective device  Back-up fuse  Gereance  Flectrical  Mechanical  Operations  Operations  Auxiliary switch for subsequent installation  Tripping signal contact for subsequent installation  Remote control and automatic switching device  Compact enclosure  Sealing cover set  Vechanical  Standard front dimension  Max. admissible back-up fuse  Gereances  RA gL  A gL  G  G  G  A gL  G  G  A gL  C  A gL  C  A gL  C  C  C  C  C  C  C  C  C  C  C  C  C	Rated insulation voltage	Ui	V	440
Max. admissible back-up fuse  Short-circuit  Overload  g6/gL  A  25  Rated making and breaking capacity / Rated residual making and breaking capacity  Max. back-up fuse  Max. back-up fuse  Maximum max. as short-circuit protective device  Back-up fuse  Back-up fuse  A gL  A gL  Back-up fuse  Ifespan  Electrical  Operations  Querations  Querations  Querations  A gL  A gL	Rated impulse withstand voltage	U <sub>imp</sub>	kV	4
Short-circuit 96/gL A 55 Overload 96/gL A 25 Rated making and breaking capacity / Rated residual making and break	Rated short-circuit strength	I <sub>cn</sub>	kA	10
Overload  Select making and breaking capacity / Rated residual making and breaking capacity  Max. back-up fuse  Maximum max. as short-circuit protective device  Back-up fuse  Back-up fuse  Back-up fuse  Back-up fuse  A gL  A gL  G3  Capacity  Ca	Max. admissible back-up fuse			
AgLyg 25  Max. back-up fuse AgLyg 25  Maximum max. as short-circuit protective device AgL Back-up fuse Back-up fu	Short-circuit	gG/gL	Α	63
Max. back-up fuse  Maximum max. as short-circuit protective device  Back-up fuse  Back-up fuse  A gL  Back-up fuse  Back-up fuse  Back-up fuse  A gL  Back-up fuse  Back-up f	Overload	gG/gL	Α	25
Maximum max. as short-circuit protective device A gL   Back-up fuse A gL   63   lifespan Felectrical   Mechanical Operations ≥ 4000   Mechanical Operations ≥ 20000   References   Auxiliary switch for subsequent installation Z-HK 248432   Tripping signal contact for subsequent installation Z-NHK 248434   Remote control and automatic switching device Z-FW/LP 248296   Compact enclosure KLV-TC-4 276241   Sealing cover set Z-RC/AK-4MU 101062   Wechanical mm 45	Rated making and breaking capacity / Rated residual making and breaking capacity	$I_m/I_{\Delta m}$	Α	500
Back-up fuse  A gL  A g	Max. back-up fuse		A gL/gG	25
Electrical Operations ≥ 4000  Mechanical Operations ≥ 20000  Mechanical Operations ≥ 20000  References  Auxiliary switch for subsequent installation Z-HK 248432  Tripping signal contact for subsequent installation Z-NHK 248434  Remote control and automatic switching device Z-FW/LP 248296  Compact enclosure KLV-TC-4 276241  Sealing cover set Z-RC/AK-4MU 101062  Mechanical Standard front dimension mm 45	Maximum max. as short-circuit protective device		A gL	
Electrical Operations ≥ 4000  Mechanical Operations ≥ 20000  References  Auxiliary switch for subsequent installation  Tripping signal contact for subsequent installation  Remote control and automatic switching device  Compact enclosure  Sealing cover set  Mechanical  Standard front dimension  Derations ≥ 4000  Z-NHK 248432  Z-HK 248432  Z-NHK 248434  Z-FW/LP 248296  KLV-TC-4 276241  Z-RC/AK-4MU 101062	Back-up fuse		A gL	63
Mechanical Operations ≥ 20000   References Z-HK 248432   Auxiliary switch for subsequent installation Z-HK 248434   Tripping signal contact for subsequent installation Z-NHK 248434   Remote control and automatic switching device Z-FW/LP 248296   Compact enclosure KLV-TC-4 276241   Sealing cover set Z-RC/AK-4MU 101062   Vechanical mm 45	lifespan			
Auxiliary switch for subsequent installation Z-HK 248432 Tripping signal contact for subsequent installation Z-NHK 248434 Emote control and automatic switching device Z-FW/LP 248296 Compact enclosure KLV-TC-4 276241 Sealing cover set Z-RC/AK-4MU 101062  Vechanical Standard front dimension mm 45	Electrical	Operations		≧ 4000
Auxiliary switch for subsequent installation  Z-HK 248432  Z-NHK 248434  Z-FW/LP 248296  Compact enclosure  KLV-TC-4 276241  Sealing cover set  Mechanical  Standard front dimension  Z-HK 248432  Z-RK 248434  Z-FW/LP 248296  KLV-TC-4 276241  Z-RC/AK-4MU 101062	Mechanical	Operations		≧ 20000
Tripping signal contact for subsequent installation  Remote control and automatic switching device  Compact enclosure  Sealing cover set  Vechanical  Standard front dimension  Z-NHK 248434  Z-FW/LP 248296  KLV-TC-4 276241  Z-RC/AK-4MU 101062  Mechanical	References			
Remote control and automatic switching device  Compact enclosure  KLV-TC-4 276241  Z-RC/AK-4MU 101062  Vechanical  Standard front dimension  mm 45	Auxiliary switch for subsequent installation			Z-HK 248432
Compact enclosure  KLV-TC-4 276241  Sealing cover set  Z-RC/AK-4MU 101062  Mechanical  Standard front dimension  mm 45	Tripping signal contact for subsequent installation			Z-NHK 248434
Sealing cover set Z-RC/AK-4MU 101062  Wechanical Standard front dimension mm 45	Remote control and automatic switching device			Z-FW/LP 248296
Mechanical Standard front dimension mm 45	Compact enclosure			KLV-TC-4 276241
Standard front dimension mm 45	Sealing cover set			Z-RC/AK-4MU 101062
	Mechanical			
Device height mm 80	Standard front dimension		mm	45
	Device height		mm	80

Built-in width	mm	70 (4TE)
Mounting		Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715
Degree of Protection		IP20, IP40 with suitable enclosure
Terminals top and bottom		Open mouthed/lift terminals
Terminal protection		DGUV VS3, EN 50274
Terminal cross-section		
Solid	$mm^2$	1.5 - 35
Stranded	mm <sup>2</sup>	2 x 16
Thickness of busbar material	mm	0.8 - 2
Permissible storage and transport temperatures	°C	-35 - +60
Climatic proofing		25-55°C/90-95% relative humidity according to IEC 60068-2
Thickness of busbar material	mm	
Material thickness	mm	0.8 - 2

# Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	40
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	8.4
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
			Starting at 40 °C, the max. permissible continuous current decreases by 2.5% for every 1 °C
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 b observed.
10.12 Electromagnetic compatibility			Is the panel builder's responsibility. The specifications for the switchgear must b observed.
10.13 Mechanical function			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## **Technical data ETIM 7.0**

Circuit breakers and fuses (EG000020) / Residual current circuit breaker (RCCB) (EC000003)

2/3

Electric engineering, automation, process control engineering / Electrical installation, device / Residual current protection system / Residual current circuit breaker (RCCB) (ecl@ss10.0.1-27-14-22-01 [AAB906014])		
Number of poles		4
Rated voltage	V	400
Rated current	Α	40
Rated fault current	mA	300
Rated insulation voltage Ui	V	440
Rated impulse withstand voltage Uimp	kV	4
Mounting method		DIN rail
Leakage current type		AC
Selective protection		No
Short-time delayed tripping		No
Short-circuit breaking capacity (Icw)	kA	10
Surge current capacity	kA	0.25
Frequency		50 Hz
Additional equipment possible		Yes
With interlocking device		Yes
Degree of protection (IP)		IP20
Width in number of modular spacings		4
Built-in depth	mm	70.5
Ambient temperature during operating	°C	-25 - 60
Pollution degree		2
Connectable conductor cross section multi-wired	mm²	1.5 - 16
Connectable conductor cross section solid-core	mm²	1.5 - 35