### **DATASHEET - FAZ-C12/1**



### Miniature circuit breaker (MCB), 12 A, 1p, characteristic: C

Powering Business Worldwide

FAZ-C12/1 Part no. Catalog No. 278558 Alternate Catalog FAZ-C12/1

**EL-Nummer** 0001691085

(Norway)

Similar to illustration

**Delivery program** 

Delivery program			
Basic function			Miniature circuit-breakers
Number of poles			1 pole
Tripping characteristic			C
Application			Switchgear for industrial and advanced commercial applications
Rated current	In	Α	12
Rated switching capacity acc. to IEC/EN 60947-2	I <sub>cu</sub>	kA	15
Product range			FAZ

#### **Technical data Electrical**

Standards  Rated operational voltage  Ue VAC 240/415  Rated voltage according to UL  Rated switching capacity acc. to IEC/EN 60947-2  Breaking capacity according to UL  Max operational voltage according to IEC/EN 60947-2  Rated switching capacity according to IEC/EN 60947-2 (max operational voltage)  Rated service short-circuit breaking capacity according to IEC/EN 60947-2 (max operational voltage)  Rated voltage according to IEC/EN 60989-1  Rated switching capacity according to IEC/EN 60898-1  Un VAC 240  Rated switching capacity according to IEC/EN 60898-1  Icn KA 10				
Rated voltage according to UL  Rated switching capacity acc. to IEC/EN 60947-2  Rated switching capacity according to UL  Rated switching capacity according to UL  Max operational voltage according to IEC/EN 60947-2  Rated switching capacity according to IEC/EN 60947-2 (max operational voltage)  Rated service short-circuit breaking capacity according to IEC/EN 60947-2 (max operational voltage)  Rated voltage according to IEC/EN 60898-1  Rated switching capacity according to IEC/EN 60898-1  Lon  VAC  240  Lon  Lon  Lon  Lon  Lon  Lon  Lon  Lo	Standards			· ·
Rated voltage according to UL  Rated switching capacity acc. to IEC/EN 60947-2  Icu  kA  15  Breaking capacity according to UL  kA  10 (UL1077)  Max operational voltage according to IEC/EN 60947-2  Rated switching capacity according to IEC/EN 60947-2 (max operational voltage)  Rated service short-circuit breaking capacity according to IEC/EN 60947-2 (max operational voltage)  Rated voltage according to IEC/EN 60898-1  Un  V AC  254  7,5 kA  7,5 kA  Pated voltage according to IEC/EN 60898-1  Un  V AC  240  Rated switching capacity according to IEC/EN 60898-1  Icu  kA  10	Rated operational voltage	U <sub>e</sub>	V	
Rated switching capacity acc. to IEC/EN 60947-2  Breaking capacity according to UL  Max operational voltage according to IEC/EN 60947-2  Rated switching capacity according to IEC/EN 60947-2 (max operational voltage)  Rated service short-circuit breaking capacity according to IEC/EN 60947-2 (max operational voltage)  Rated voltage according to IEC/EN 60898-1  Rated switching capacity according to IEC/EN 60898-1  Ica kA 10  V AC 254  7,5 kA  V AC 240  Rated switching capacity according to IEC/EN 60898-1  Ica kA 10		U <sub>e</sub>	V AC	240/415
Breaking capacity according to UL  Max operational voltage according to IEC/EN 60947-2  Rated switching capacity according to IEC/EN 60947-2 (max operational voltage)  Rated service short-circuit breaking capacity according to IEC/EN 60947-2 (max operational voltage)  Rated voltage according to IEC/EN 60898-1  Rated switching capacity according to IEC/EN 60898-1  Icn  Icn  Idn  Idn  Idn  Idn  Idn  Idn	Rated voltage according to UL	$U_{n}$	V AC	277
Max operational voltage according to IEC/EN 60947-2  Rated switching capacity according to IEC/EN 60947-2 (max operational voltage)  Rated service short-circuit breaking capacity according to IEC/EN 60947-2 (max operational voltage)  Rated voltage according to IEC/EN 60898-1  Un  V AC  254  7,5 kA  7,5 kA  Pated switching capacity according to IEC/EN 60898-1  Icn  kA  10	Rated switching capacity acc. to IEC/EN 60947-2	I <sub>cu</sub>	kA	15
Rated switching capacity according to IEC/EN 60947-2 (max operational voltage)  Rated service short-circuit breaking capacity according to IEC/EN 60947-2 (max operational voltage)  Rated voltage according to IEC/EN 60898-1  Un VAC 240  Rated switching capacity according to IEC/EN 60898-1  Icn kA 10	Breaking capacity according to UL		kA	10 (UL1077)
Rated service short-circuit breaking capacity according to IEC/EN 60947-2 (max operational voltage)  Rated voltage according to IEC/EN 60898-1  Rated switching capacity according to IEC/EN 60898-1  I <sub>cn</sub> kA 10	Max operational voltage according to IEC/EN 60947-2		V AC	254
operational voltage)  Rated voltage according to IEC/EN 60898-1  Rated switching capacity according to IEC/EN 60898-1  I <sub>cn</sub> kA  10	Rated switching capacity according to IEC/EN 60947-2 (max operational voltage)	I <sub>cu</sub>	kA	10
Rated switching capacity according to IEC/EN 60898-1  I cn kA 10		I <sub>cs</sub>		7,5 kA
D. J.	Rated voltage according to IEC/EN 60898-1	$U_{n}$	V AC	240
D. J.	Rated switching capacity according to IEC/EN 60898-1	I <sub>cn</sub>	kA	10
Rated service short-circuit breaking capacity according to IEC/EN 60898-1	Rated service short-circuit breaking capacity according to IEC/EN 60898-1	I <sub>cs</sub>		7,5 kA

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	12
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	$P_{\text{vid}}$	W	2.1
Static heat dissipation, non-current-dependent	$P_{vs}$	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-40
Operating ambient temperature max.		°C	75
			linear, per +1 °C, results in a 0.5% reduction of current carrying capacity
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 7.0**

Belestric engineering, automation, process control engineering / Electrical installation, device / Ministure circuit breaker (MCB) / Ministure circuit breaker (MCB) (actions 10.1-27.1-41-90 (I AAB905014))   Release characteristic	16Cililical uala Ettivi 7.0		
Release characteristic   Number of poles (total)	Circuit breakers and fuses (EG000020) / Miniature circuit breaker (MCB) (EC000042)		
Number of potes (total) Number of protected poles Rated current Rated voltage Rated voltage Rated insulation voltage Ui Rated impulse withstand voltage Uimp Rated short-circuit breaking capacity Icn EN 60898 at 230 V Rated short-circuit breaking capacity Icn EN 60898 at 400 V Rated short-circuit breaking capacity Icn EN 60898 at 400 V Rated short-circuit breaking capacity Icn EN 60898 at 400 V Rated short-circuit breaking capacity Icn EN 60898 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-ci	Electric engineering, automation, process control engineering / Electrical installation (ecl@ss10.0.1-27-14-19-01 [AAB905014])	ı, device / Miniature cir	cuit breaker system (MCB) / Miniature circuit breaker (MCB)
Number of protected poles Rated current Rated voltage Rated voltage Rated insulation voltage Ui Rated insulation voltage Uimp Rated short-circuit breaking capacity Icn EN 60898 at 230 V Rated short-circuit breaking capacity Icn EN 60898 at 400 V Rated short-circuit breaking capacity Icn EN 60898 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 230 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 200 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 200 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 200 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 200 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 200 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 200 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 200 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 200 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 200 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 200 V Rated short-circuit breaking capacity I	Release characteristic		С
Rated current         A         12           Rated voltage         V         230           Rated insulation voltage Ui         V         440           Rated impulse withstand voltage Uimp         kV         4           Rated short-circuit breaking capacity Ion EN 60898 at 230 V         kA         10           Rated short-circuit breaking capacity Ion EN 60898 at 400 V         kA         15           Rated short-circuit breaking capacity Iou IEC 60947-2 at 230 V         kA         15           Rated short-circuit breaking capacity Iou IEC 60947-2 at 400 V         kA         15           Voltage type         AC         AC           Frequency         HZ         50 - 60           Current limiting class         3         No           Suitable for flush-mounted installation         No         No           Concervently switching N-neutral         No         No           Over voltage category         3         3           Pollution degree         2         2           Additional equipment possible         Yes           Width in number of modular spacings         I         1           Built-in depth         mm         70.5           Degree of protection (IP)         25.75           Ambient tempe	Number of poles (total)		1
Rated voltage         V         230           Rated insulation voltage Ui         V         440           Rated impulse withstand voltage Uimp         kV         4           Rated short-circuit breaking capacity Icn EN 60898 at 230 V         kA         10           Rated short-circuit breaking capacity Icn EN 60898 at 400 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 200 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V         kA         15           Voltage type         AC         AC           Current limiting class         3         3           Suitable for flush-mounted installation         No         No           Concurrently switching N-neutral         No         No           Over voltage category         3         3           Pollution degree         2         2           Additional equipment possible         Yes           Width in number of modular spacings         I         1           Bull-in depth         mm         70.5           Degree of protection (IP)         Poly         25 - 75           Ambient temperature during operating         °C         25 - 75           Connectable conductor cross section multi-wired	Number of protected poles		1
Name of insulation voltage Ui	Rated current	А	12
Rated impulse withstand voltage Ulimp Rated short-circuit breaking capacity Icn EN 60898 at 230 V Rated short-circuit breaking capacity Icn EN 60898 at 400 V Rated short-circuit breaking capacity Icn EN 60898 at 400 V Rated short-circuit breaking capacity Icn IEC 60947-2 at 230 V Rated short-circuit breaking capacity Icn IEC 60947-2 at 230 V Rated short-circuit breaking capacity Icn IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icn IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icn IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icn IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icn IEC 60947-2 at 230 V Rated short-circuit breaking capacity Icn IEC 60947-2 at 200 V Rated short-circuit breaking capacity Icn IEC 60947-2 at 200 V Rated short-circuit breaking capacity Icn IEC 60947-2 at 230 V R	Rated voltage	V	230
Rated short-circuit breaking capacity Icn EN 60898 at 230 V Rated short-circuit breaking capacity Icn EN 60898 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 230 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Voltage type  Received by type  Rece	Rated insulation voltage Ui	V	440
Rated short-circuit breaking capacity Icn EN 60898 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 230 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Voltage type Reted short-circuit breaking capacity Icu IEC 60947-2 at 400 V Voltage type Reted short-circuit breaking capacity Icu IEC 60947-2 at 400 V Voltage type Reted short-circuit breaking capacity Icu IEC 60947-2 at 400 V Reted short-circuit breaking capacity Icu IEC 60947-2 at 400 V Reted short-circuit breaking capacity Icu IEC 60947-2 at 400 V Reted short-circuit breaking capacity Icu IEC 60947-2 at 400 V Reted short-circuit breaking capacity Icu IEC 60947-2 at 200 V Reted short-circuit breaking capacity Icu IEC 60947-2 at	Rated impulse withstand voltage Uimp	kV	4
Rated short-circuit breaking capacity Icu IEC 60947-2 at 230 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Voltage type  Requency  Lournent limiting class Suitable for flush-mounted installation Concurrently switching N-neutral Over voltage category Pollution degree Additional equipment possible Width in number of modular spacings Built-in depth Degree of protection (IP) Ambient temperature during operating Connectable conductor cross section multi-wired  RA  15  RA  RA  RA  15  RA  RA  15  RA  RA  RA  RA  RA  RA  RA  15  RA  RA  RA  RA  RA  RA  RA  RA  RA  R	Rated short-circuit breaking capacity Icn EN 60898 at 230 V	kA	10
Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Voltage type  AC  AC  Frequency  Hz  50 - 60  Current limiting class Suitable for flush-mounted installation  Concurrently switching N-neutral  Over voltage category  Pollution degree Additional equipment possible  Width in number of modular spacings  Built-in depth  Degree of protection (IP)  Ambient temperature during operating  Connectable conductor cross section multi-wired  KA  15  AC  AC  AC  AC  AC  AC  AC  AC  AC  A	Rated short-circuit breaking capacity Icn EN 60898 at 400 V	kA	10
Voltage type Frequency Hz 50 - 60  Current limiting class Suitable for flush-mounted installation Concurrently switching N-neutral Over voltage category Pollution degree Additional equipment possible Width in number of modular spacings Built-in depth Degree of protection (IP) Ambient temperature during operating Connectable conductor cross section multi-wired  AC  Hz 50 - 60  No  No  No  2  2  4  7  8  9  1  1  1  1  1  1  1  1  1  1  1  1	Rated short-circuit breaking capacity Icu IEC 60947-2 at 230 V	kA	15
Frequency  Hz 50-60 Current limiting class Suitable for flush-mounted installation Concurrently switching N-neutral Over voltage category 3 Pollution degree Additional equipment possible Width in number of modular spacings Width in number of modular spacings Built-in depth Degree of protection (IP) Ambient temperature during operating Connectable conductor cross section multi-wired  Hz 50-60  No  No  No  1  PO  PO  PO  PO  PO  PO  PO  PO  PO	Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V	kA	15
Current limiting class Suitable for flush-mounted installation Concurrently switching N-neutral Over voltage category Over voltage category Pollution degree Additional equipment possible Width in number of modular spacings Built-in depth Degree of protection (IP) Ambient temperature during operating Connectable conductor cross section multi-wired  3 No No No No 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1	Voltage type		AC
Suitable for flush-mounted installation  Concurrently switching N-neutral  Over voltage category  Pollution degree  Additional equipment possible  Width in number of modular spacings  Built-in depth  Degree of protection (IP)  Ambient temperature during operating  Connectable conductor cross section multi-wired  No  No  No  No  1  POL  POL  POL  POL  POL  POL  POL	Frequency	Hz	50 - 60
Concurrently switching N-neutral  Over voltage category  Pollution degree  Additional equipment possible  Width in number of modular spacings  Width in number of modular spacings  In mm  To.5  Degree of protection (IP)  Ambient temperature during operating  Connectable conductor cross section multi-wired  No  No  No  1  Pol  Pos  Pos  Pos  Pos  Pos  Pos  Pos	Current limiting class		3
Over voltage category  Over voltage category  3  Pollution degree  2  Additional equipment possible  Width in number of modular spacings  Built-in depth  Degree of protection (IP)  Ambient temperature during operating  °C  -25-75  Connectable conductor cross section multi-wired  3  Yes  Yes  1  IP20  Ambient temperature during operating  °C  -25-75  Connectable conductor cross section multi-wired  mm²  1-25	Suitable for flush-mounted installation		No
Pollution degree 2 Additional equipment possible Yes Width in number of modular spacings 1 Built-in depth mm 70.5 Degree of protection (IP) IP20 Ambient temperature during operating °C -25 -75 Connectable conductor cross section multi-wired mm² 1 - 25	Concurrently switching N-neutral		No
Additional equipment possible  Width in number of modular spacings  Built-in depth  Degree of protection (IP)  Ambient temperature during operating  Connectable conductor cross section multi-wired  Yes  1  1  1  20  70.5  1P20  Ambient temperature during operating  "C -25 - 75  Connectable conductor cross section multi-wired  mm² 1 - 25	Over voltage category		3
Width in number of modular spacings  Built-in depth  mm 70.5  Degree of protection (IP)  Ambient temperature during operating  °C -25 - 75  Connectable conductor cross section multi-wired  mm² 1 - 25	Pollution degree		2
Built-in depth mm 70.5  Degree of protection (IP) IP20  Ambient temperature during operating °C -25 - 75  Connectable conductor cross section multi-wired mm² 1 - 25	Additional equipment possible		Yes
Degree of protection (IP)  Ambient temperature during operating  °C  -25 - 75  Connectable conductor cross section multi-wired  mm²  1 - 25	Width in number of modular spacings		1
Ambient temperature during operating  °C -25 - 75  Connectable conductor cross section multi-wired  mm² 1 - 25	Built-in depth	mm	70.5
Connectable conductor cross section multi-wired mm <sup>2</sup> 1 - 25	Degree of protection (IP)		IP20
	Ambient temperature during operating	°C	-25 - 75
Connectable conductor cross section solid-core mm² 1 - 25	Connectable conductor cross section multi-wired	mm²	1 - 25
	Connectable conductor cross section solid-core	mm²	1 - 25

## **Approvals**

Product Standards	IEC/EN 60947-2; IEC/EN 60898; UL 1077; CSA-C22.2 No. 235; CE marking
UL File No.	E177451
UL Category Control No.	QVNU2, QVNU8
CSA File No.	204453

CSA Class No.	3215-30
North America Certification	UL recognized, CSA certified
Conditions of Acceptability	Supplementary Protector only
Suitable for	Branch Circuits; not as BCPD
Current Limiting Circuit-Breaker	No
Max. Voltage Rating	277 VAC; 48 VDC
Degree of Protection	IEC: IP20; UL/CSA Type: -

# **Additional product information (links)**

Temperature dependency, derating	https://www.eaton.com/content/dam/eaton/technicaldocumentation/technical-data-tables/Derating table
	FAZ.pdf