### **DATASHEET - FAZ-D2/1**



#### Miniature circuit breaker (MCB), 2A, 1p, type D characteristic

Powering Business Worldwide\*

Part no. FAZ-D2/1 Catalog No. 278572 Alternate Catalog FAZ-D2/1

No.

EL-Nummer 0001691160

(Norway)

Similar to illustration

**Delivery program** 

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

# Technical data

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Standards			IEC/EN 60947-2 IEC/EN 60898
Rated operational voltage	U <sub>e</sub>	V	
	U <sub>e</sub>	V AC	240/415
Rated switching capacity acc. to IEC/EN 60947-2	I <sub>cu</sub>	kA	15

## **Design verification as per IEC/EN 61439**

Design verification as per IEC/EN 61439			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	2
Heat dissipation per pole, current-dependent	$P_{\text{vid}}$	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	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**

Circuit breakers and fuses (EG000020) / Miniature circuit breaker (MCB) (EC000042)

Electric engineering, automation, process control engineering / Electrical installation, device / Miniature circuit breaker system (MCB) / Miniature circuit breaker (MCB) (ecl@ss10.0.1-27-14-19-01 [AAB905014])

Number of poles (total)         4         1           Number of protected poles         4         2           Rated current         A         2           Rated insulation voltage Uin         V         40           Rated insulation voltage Uinp         kV         4           Rated short-circuit breaking capacity Icn EN 60888 at 230 V         kA         10           Rated short-circuit breaking capacity Icn EN 60888 at 400 V         kA         10           Rated short-circuit breaking capacity Icu IEC 60847-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60847-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60847-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60847-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60847-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60847-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60847-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60847-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60847-2 at 230 V         k         15           Rated	(eci@ss10.0.1-2/-14-19-01 [AAB905014])		
Number of protected poles         1           Rated current         A         2           Rated voltage         V         20           Rated insulation voltage Uin         V         440           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         10           Rated short-circuit breaking capacity Icu IEC 60947-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V         kA         15           Voltage type         Hz         50 - 60           Current limiting class         No         No           Suitable for flush-mounted installation         No         No           Concurrently switching N-neutral         Y         No           Over voltage category         3         3           Pollution degree         Y         Y           Additional equipment possible         Yes           Width in number of modular spacings         Y         Y           Bull-in depth	Release characteristic		D
Rated current         A         2           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 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V         kA         15           Voltage type         BA         50 - 60           Current limiting class         3         3           Suitable for flush-mounted installation         No         No           Concurrently switching N-neutral         No         2           Over voltage category         yes         2           Pollution degree         Yes         2           Additional equipment possible         yes         1           Width in number of modular spacings         mm         70.5 </td <td>Number of poles (total)</td> <td></td> <td>1</td>	Number of poles (total)		1
Rated voltage         V         230           Rated insulation voltage Ui         V         440           Rated inpulse 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         10           Rated short-circuit breaking capacity Icu IEC 60947-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V         kA         15           Voltage type         kA         15           Current limiting class         KA         15           Suitable for flush-mounted installation         Hz         3           Concurrently switching N-neutral         No         No           Over voltage category         No         No           Pollution degree         2         Yes           Additional equipment possible         Yes           Width in number of modular spacings         Image: Properties of protection (IP)         IP20           Ambient temperature during operating         "C         25-75           Connectable conductor cross section multi-wired         "C         25-75	Number of protected poles		1
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 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V         kA         15           Voltage type         kA         50-60           Current limiting class         SUI AD STANDARD ST	Rated current	Α	2
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 Icu IEC 60947-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 230 V         kA         15           Rated short-circuit breaking capacity Icu IEC 60947-2 at 2400 V         kA         15           Voltage type         AC         AC           Frequency         But a So - 60         AC           Current limiting class         No         No           Suitable for flush-mounted installation         No         No           Concurrently switching N-neutral         No         No           Over voltage category         3         Yes           Pollution degree         Yes         Yes           Additional equipment possible         Yes         1           Width in umber of modular spacings         Image: No         No           Built-in depth         Image: No         No           Degree of protection (IP)         Poly         Poly           Ambient temperature during operating         Yes         Poly           Connectable conductor cross section multi-wired         Yes         Poly <td>Rated voltage</td> <td>V</td> <td>230</td>	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 230 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Voltage type Voltage type Current Imiting 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 Concurcations and the stallation of the stallat	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 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 capa	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 Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rated short-circuit breaking capacity Icu IEC 60947-2 at 400 V Rotlage type  Ro	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  Voltage type  Hz  50-60  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  kA  CC  AC  AC  AC  AC  AC  AC  AC  AC	Rated short-circuit breaking capacity Icn EN 60898 at 400 V	kA	10
Voltage type  Frequency 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  AC  AC  AC  AC  AC  AC  AC  AC  A	Rated short-circuit breaking capacity Icu IEC 60947-2 at 230 V	kA	15
Frequency 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  Hz 50-60  No  0  0  0  0  0  0  0  0  0  0  0  0  0	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 Width in number of modular spacings Width in number of protection (IP) Ambient temperature during operating Connectable conductor cross section multi-wired  3  No  No  2  4  2  4  7  5  6  7  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  8	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  Mo  No  No  No  No  1  2  4  7  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  7  8  8	Frequency	Hz	50 - 60
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  2  4  Pollution  Pos  Pos  Pos  Pos  Pos  Pos  Pos  P	Current limiting class		3
Over voltage category Over voltage category  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  "C" -25 - 75 Connectable conductor cross section multi-wired  "B"  3  4  Yes  1  1  1  1  1  1  1  1  1  1  1  1  1	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  Meditional equipment possible  mm  To.5  P20  P20  P25 -75  P30  P30  P30  P30  P30  P30  P30  P3	Over voltage category		3
Width in number of modular spacings  Built-in depth  Degree of protection (IP)  Ambient temperature during operating  Connectable conductor cross section multi-wired  1  P20  -25 - 75  -25 - 75  -25 - 75  -25 - 75  -25 - 75	Pollution degree		2
Built-in depth mm 70.5  Degree of protection (IP) P20  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 mm² 1 - 25	Degree of protection (IP)		IP20
	Ambient temperature during operating	°C	-25 - 75
Connectable conductor cross section solid-core mm <sup>2</sup> 1 - 25	Connectable conductor cross section multi-wired	mm²	1 - 25
	Connectable conductor cross section solid-core	mm²	1 - 25

## **Approvals**

IEC/EN 60947-2; IEC/EN 60898; UL 1077; CSA-C22.2 No. 235; CE marking
E177451
QVNU2, QVNU8
204453
3215-30
UL recognized, CSA certified
Supplementary Protector only
Branch Circuits; not as BCPD
No
277 VAC; 48 VDC
IEC: IP20; UL/CSA Type: -