# DATASHEET - FAZ-C20/2

#### Miniature circuit breaker (MCB), 20 A, 2p, characteristic: C



Part no.	FAZ-C20/2
Catalog No.	278761
Alternate Catalog	FAZ-C20/2
No.	
EL-Nummer	1695169
(Norway)	

## **Delivery program**

Basic function			Miniature circuit-breakers
Number of poles			2 pole
Tripping characteristic			C
Application			Switchgear for industrial and advanced commercial applications
Rated current	In	А	20
Rated switching capacity acc. to IEC/EN 60947-2	l <sub>cu</sub>	kA	15
Product range			FAZ

### **Technical data**

Electrical

Rated per ational voltage         Image: Constraint of the second se	Standarda			IEC/EN 600/7 2
Image: second	Standards			IEC/EN 60947-2 IEC/EN 60898
Image of the second s	Rated operational voltage	U <sub>e</sub>	V	
Rated voltage according to UL.         Vacue         VAC         Sint According to UL (VACUE)           Rated soutching capacity according to IEC/EN 0097-2         Vacue         VAC         VACUE           Rated soutching capacity according to IEC/EN 0097-2 (max operational VACUE)         Vacue         Vacue         Vacue           Rated soutching capacity according to IEC/EN 0097-2 (max operational VACUE)         Vacue         Vacue         Vacue           Rated soutching capacity according to IEC/EN 0097-2 (max operational VACUE)         Vacue         Vacue         Vacue           Rated soutching capacity according to IEC/EN 0097-2 (max operational VACUE)         Vacue         Vacue         Vacue           Rated soutching capacity according to IEC/EN 0098-1         Vacue         Vacue         Vacue         Vacue           Rated soutching capacity according to IEC/EN 0098-1         Vacue         Vacue         Vacue         Vacue           Rated soutching capacity according to IEC/EN 0098-1         Vacue         Vacue         Vacue         Vacue           Rated soutching capacity according to IEC/EN 0098-1         Vacue		U <sub>e</sub>	V AC	240/415
Intersection         Intersection         Intersection         Intersection         Intersection           Breaking capacity according to IEC/EN 60947-2         Intersection         VAC         40           Bated switching capacity according to IEC/EN 60947-2         Intersection         VAC         40           Bated switching capacity according to IEC/EN 60947-2         Intersection         Intersection         Intersection           Bated switching capacity according to IEC/EN 60989-1         Intersection         Intersection         Intersection           Bated switching capacity according to IEC/EN 60989-1         Intersection         Intersection         Intersection           Bated switching capacity according to IEC/EN 60989-1         Intersection         Intersection         Intersection           Bated switching capacity according to IEC/EN 60989-1         Intersection         Intersection         Intersection           Bated switching capacity         Intersection         Intersection         I			V DC	60 (per pole)
Braking capacity according to UL         Image: Second	Rated voltage according to UL	Un	V AC	480Y/277
Max operational voltage according to IEC/EN 60947-2 (max operational voltage)         VAC         44         0           Rated switching capacity according to IEC/EN 60947-2 (max operational voltage) $k_{A}$ 0         3           Rated switching capacity according to IEC/EN 6098-1 $u_{B}$ VAC         45           Rated switching capacity according to IEC/EN 6098-1 $u_{B}$ VAC         10           Rated switching capacity according to IEC/EN 6098-1 $u_{B}$ $A_{B}$ 0           Operational switching capacity according to IEC/EN 6098-1 $u_{B}$ $A_{B}$	Rated switching capacity acc. to IEC/EN 60947-2	l <sub>cu</sub>	kA	15
Rated switching capacity according to IEC/EN 60947-2 (max operational voltage)     Ic     I	Breaking capacity according to UL		kA	10 (UL1077)
Rated service short-circuit breaking capacity according to IEC/EN 60947-2 (may display)         Cas         Stake         Stake           Rated switching capacity according to IEC/EN 60980-1         Un         VAC         15           Rated switching capacity according to IEC/EN 60980-1         Iso         VAC         15           Rated switching capacity according to IEC/EN 60980-1         Iso         VAC         15           Characteristic         Iso         VAC         15           Characteristic         Iso         VAC         15           Selectivity Class         Iso         Iso         16           Selectivity Class         Iso         Iso         16           Urlespan         Operations         Iso         10000         10000           Urlespan         Iso         Iso         10000         1	Max operational voltage according to IEC/EN 60947-2		V AC	440
operational voltage according to IE//FN 00099-1         Vn         VAC         45           Rated voltage according to IE//FN 00099-1         Icn         VAC         10           Rated switching capacity according to IE//FN 00099-1         Icn         XAC         35 kA           Operational switching capacity according to IE//FN 00099-1         Icn         XAC         55 kA           Characteristic         Icn         XAC         56 kA           Characteristic         Kac         Ag4gG         56 kA           Stectivity Class         Kac         Ag4gG         56 kA           Stectivity Class         Kac         Ag4gG         56 kA           Urity Class         Kac         Ag4gG         56 kA           Urity Class         Kac         Kac         Kac           Urity Class         Kac         Kac	Rated switching capacity according to IEC/EN 60947-2 (max operational voltage)	l <sub>cu</sub>	kA	10
Rated switching capacity according to IEC/EN 60898-1     Icn     Kat       Rated switching capacity according to IEC/EN 60898-1     Ics     5.5 ka       Operational switching capacity according to IEC/EN 60898-1     Ics     5.0 k, S, Z       Characteristic     Kat     5.0 k, S, Z       Max. back-up fuse     Yee     3.000       Selectivity Class     Yee     3.000       Ifespan     Yee     3.000       Direction of incoming supply     Yee     3.000       Standard form dimension     Yee     3.000       Standard form dimension     Yee     3.000       Mutting width per pole     Max     3.000       Mouting     Yee     Yee       Terminal top and buttom     Yee     Yee       Terminal protection     Max     Yee       Terminal rotection	Rated service short-circuit breaking capacity according to IEC/EN 60947-2 (max operational voltage)	I <sub>cs</sub>		7,5 kA
Aread service is hort-circuit breaking capacity according to IEC/EN 60898-1     Ics     5       Operational switching capacity according to IEC/EN 60898-1     Ics     5,0, K, S, Z       Characteristic     A gl/GB     5,0, K, S, Z       Max, back, pfuse     A gl/GB     3       Selectivity Class     A gl/GB     3       Lifespan     Operational switching supply     Intercent of incoming supply     Intercent of incoming supply       Vechanical     Intercent of incoming supply     Intercent of incoming supply     Intercent of incoming supply       Nourting width per pole     Intercent of incoming supply     Intercent of incoming supply     Intercent of incoming supply       Nourting width per pole     Intercent of incoming supply     Intercent of incoming supply     Intercent of incoming supply       Nourting width per pole     Intercent of incoming supply     Intercent of incoming supply     Intercent of incoming supply       Nourting width per pole     Intercent of incoming supply     Intercent of incoming supply     Intercent of incoming supply       Degree of Protection     Intercent of incoming supply     Intercent of incoming supply     Intercent of incoming supply       Terminal capacities     Intercent of incoming supply     Intercent of incoming supply     Intercent of incoming supply       Terminal capacities     Intercent of incoming supply     Intercent of incoming supply     Inte	Rated voltage according to IEC/EN 60898-1	Un	V AC	415
Operational switching capacity         Kate         5.5           Characteristic         6.0, K, S, Z           Max, back-up fuse         6.0, K, S, Z           Selectivity Class         7           Selectivity Class         7           Lifespan         7           Direction of incoming supply         7           Vechanical         7           Selectivity Class         7           Standard front dimension         7           Benegoes height         7           Mounting width per pole         7           Mounting width per pole         7           Terminal copacities         7           Terminal protection         7           Terminal capacities         7           Iterminal capacities         7           Iterminal capacities         7	Rated switching capacity according to IEC/EN 60898-1	I <sub>cn</sub>	kA	10
Chracteristic       AgL/a       B, D, K, S, Z         Max. back-up fuse       5       5         Selectivity Class       7       5         Lifespan       Operations       5         Direction of incoming supply       0       5         Vechanical       T       8         Selectivity Lass       0       8       6         Direction of incoming supply       0       9       9000         Vechanical       T       8       8         Munting width per pole       mn       6       9         Mounting       Mn       15       9       9         Direction of torotional functional       mn       15       9	Rated service short-circuit breaking capacity according to IEC/EN 60898-1	I <sub>cs</sub>		7,5 kA
Max.back-up fuse     Image: A gL/git     125       Selectivity Class     Image: A gL/git     126       Selectivity Class     Image: A gL/git     126       Lifespan     Operation     > 10000       Direction of incoming supply     Image: A gL/git     Image: A gL/git       Direction of incoming supply     Image: A gL/git     > 10000       Mounting     Image: A gL/git     Image: A gL/git     Image: A gL/git       Selectivity Class     Image: A gL/git     Image: A gL/git     Image: A gL/git       Mounting width per pole     Image: A gL/git     Image: A gL/git     Image: A gL/git       Mounting     Image: A gL/git     Image: A gL/git     Image: A gL/git       Disperse of Protection     Image: A gL/git     Image: A gL/git     Image: A gL/git       Terminal capacities     Image: A gL/git     Image: A gL/git     Image: A gL/git       Terminal capacities     Image: A gL/git     Image: A gL/git     Image: A gL/git       Image: A gL/git     Image: A gL/git     Image: A gL/git     Image: A gL/git       Image: A gL/git     Image: A gL/git     Image: A gL/git     Image: A gL/git       Image: A gL/git     Image: A gL/git     Image: A gL/git     Image: A gL/git       Image: A gL/git     Image: A gL/git     Image: A gL/git     Image: A gL/git <td< td=""><td>Operational switching capacity</td><td></td><td>kA</td><td>7.5</td></td<>	Operational switching capacity		kA	7.5
Selectivity Class     3       Lifespan     Operations       Lifespan     Operations       Direction of incoming supply     Operations       Wechanical     sequired       Wechanical     mm       Standard front dimension     mm       Bounding width per pole     mm       Mounting width per pole     mm       Degree of Protection     PEO, IPAQ (when fitted)       Terminal protection     Finger and back-of-hand proof to BGV A2       Terminal capacities     mm <sup>2</sup> If set	Characteristic			B, C, D, K, S, Z
Ifespan     Vertication     Image: statuse of the status	Max. back-up fuse		A gL/gG	125
Lifespan     Operations     > 0000       Direction of incoming supply     se rquired       Mechanical     se rquired       Standard front dimension     mm     6       Enclosure height     mm     0       Mounting width per pole     mm     1.5       Mounting     Enc/EN 60715 top-hat rail     1000       Degree of Protection     For     F02.1440 (when fitted)       Terminal stop and bottom     mm     F02.1440 (when fitted)       Terminal capacities     mm <sup>2</sup> Fore and back-of-hand proof to BGV A2       If in a mathematican stop in the sto	Selectivity Class			3
Direction of incoming supply       is required         Wechanical       is required         Standard front dimension       mm       45         Enclosure height       mm       80         Mounting width per pole       mm       17.5         Mounting       IEC/EN 60715 top-hat rail       IEC/EN 60715 top-hat rail         Degree of Protection       imit of the prope       Imit of the prope         Terminals top and bottom       imit of the prope terminals       imit of the prope terminals         Terminal capacities       mm <sup>2</sup> imit of the prope terminals         Iterminal capacities       mm <sup>2</sup> imit of the prope terminals         Iterminal capacities       imit of the prope terminals       imit of the prope terminals         Iterminal capacities       imit of the prope terminals       imit of the prope terminals         Iterminal capacities       imit of the prope terminals       imit of the prope terminals         Iterminal capacities       imit of the prope terminals       imit of the prope terminals         Iterminal capacities       imit of the prope terminals       imit of the prope terminals         Iterminal capacities       imit of the prope terminals       imit of the prope terminals         Iterminal capacities       imit of the prope terminals       imit of the prope term	lifespan			
Mechanical         mm         45           Standard front dimension         mm         80           Enclosure height         mm         17.5           Mounting width per pole         mm         15.0           Mounting         Enclosure height         EC/EN 60715 top-hat rail           Degree of Protection         Ferminals top and bottom         Ferminals top and bottom           Terminal protection         mm <sup>2</sup> Finger and back-of-hand proof to BGV A2           Terminal capacities         mm <sup>2</sup> 1x 25           Munting         mm <sup>2</sup> 2x 10	Lifespan	Operations		> 10000
Standard front dimension       mm       45         Enclosure height       mm       80         Mounting width per pole       mm       1.5         Mounting       EC/EN 60715 top-hat rail       EC/EN 60715 top-hat rail         Degree of Protection       EC/EN 60715 top-hat rail       EC/EN 60715 top-hat rail         Terminals top and bottom       EC/EN 60715 top-hat rail       EC/EN 60715 top-hat rail         Terminal protection       EC/EN 60715 top-hat rail       EC/EN 60715 top-hat rail         Terminal protection       Finger and back-of-hand proof to BGV A2         Terminal capacities       mm <sup>2</sup> 1×25         mm <sup>2</sup> 1×26       EC/EN 60715 top-hat call	Direction of incoming supply			as required
Enclosure height       mm       80         Mounting width per pole       mm       1.5         Mounting       EC/KN 60715 top-hat rail       120, IP40 (when fitted)         Degree of Protection       Terminals top and bottom       Terminal protection       Terminal capacities         Terminal capacities       EC       Finger and back-of-hand proof to BGV A2         Terminal capacities       Finger and back-of-hand proof to BGV A2         Immediation       125         Immediatio	Mechanical			
Mounting width per pole       mm       1.5         Mounting       EC/EN 60715 top-hat rail         Degree of Protection       EC/EN 60715 top-hat rail         Terminals top and bottom       EC/EN 60715 top-hat rail         Terminal protection       EC/EN 60715 top-hat rail         Terminal protection       Finger and back-of-hand proof to BGV A2         Terminal capacities       mm <sup>2</sup> Imm <sup>2</sup> 1x 25         Imm <sup>2</sup> 1x 10	Standard front dimension		mm	45
Mounting       IE/EN 60715 top-hat rail         Degree of Protection       IP20, IP40 (when fitted)         Terminal protection       Twin-purpose terminals         Terminal capacities       Imm <sup>2</sup> Immediate       Imm <sup>2</sup> Immediate       Imm <sup>2</sup> Immediate       Imm <sup>2</sup> Immediate       Imm <sup>2</sup>	Enclosure height		mm	80
Degree of Protection       IP20, IP40 (when fitted)         Terminals top and bottom       Twin-purpose terminals         Terminal capacities       Imm <sup>2</sup> Imm <sup>2</sup> 1 × 25         Imm <sup>2</sup> 2 × 10	Mounting width per pole		mm	17.5
Terminals top and bottom     Image: Constraint of the second	Mounting			IEC/EN 60715 top-hat rail
Terminal protection     Finger and back-of-hand proof to BGV A2       Terminal capacities     mm <sup>2</sup> Imm <sup>2</sup> 1 × 25       Imm <sup>2</sup> 2 × 10	Degree of Protection			IP20, IP40 (when fitted)
Terminal capacities     mm <sup>2</sup> mm <sup>2</sup> 1 x 25       mm <sup>2</sup> 2 x 10	Terminals top and bottom			Twin-purpose terminals
$\frac{1 \times 25}{mm^2} = \frac{1 \times 25}{2 \times 10}$	Terminal protection			Finger and back-of-hand proof to BGV A2
mm <sup>2</sup> 2 x 10	Terminal capacities		mm <sup>2</sup>	
			mm <sup>2</sup>	1 x 25
Thickness of busbar material mm 0.8 2			mm <sup>2</sup>	2 x 10
Thickness of busbar material mm 0.8 2				
	Thickness of busbar material		mm	0.8 2

### Design verification as per IEC/EN 61439

Design vernication as per reo/en 01405			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	A	20
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	6.6
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	-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.

As required

#### **Technical data ETIM 8.0**

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

Rated short-circuit breaking capacity Icn according to EN 60898 at 400 V

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]) Built-in depth 70.5 mm С Release characteristic 2 Number of poles (total) 2 Number of protected poles Rated current 20 А ٧ Rated voltage 400 Rated insulation voltage Ui ٧ 440 Rated impulse withstand voltage Uimp kV 4 Rated short-circuit breaking capacity Icn according to EN 60898 at 230 V kA 10

Voltage type

kA

AC

10

Rated short-circuit breaking capacity Icu according to IEC 60947-2 at 230 V	kA	15
Rated short-circuit breaking capacity Icu according to IEC 60947-2 at 400 V $$	kA	15
Frequency	Hz	50 - 60
Current limiting class		3
Flush-mounted installation		No
Concurrently switching neutral conductor		No
Over voltage category		3
Pollution degree		2
Additional equipment possible		Yes
Width in number of modular spacings		2
Degree of protection (IP)		IP20
Ambient temperature during operating	°C	-25 - 75
Connectable conductor cross section multi-wired	mm²	1 - 25
Connectable conductor cross section solid-core	mm²	1 - 25
Explosion-proof		No