

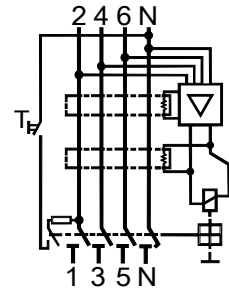
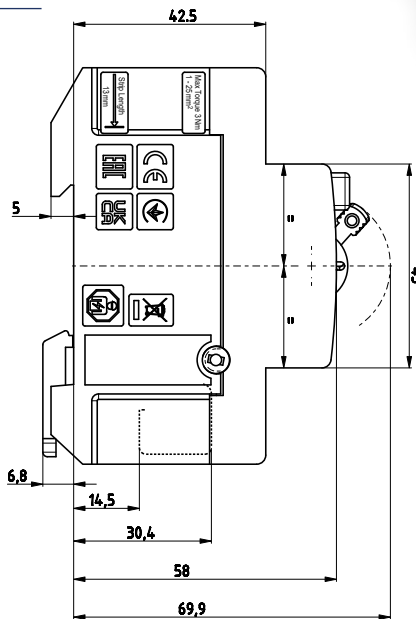
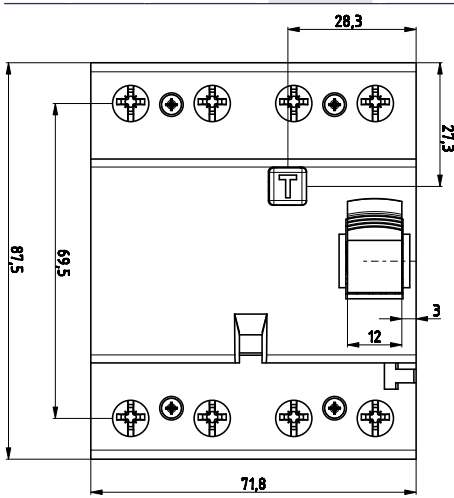


B type residual current circuit breaker EFI-P4 B Instantaneous

Rated residual current **0,03 - 0,3 A** Rated current **25 - 63 A** Type **B**

EFI-P4 B Instantaneous



I_n [A]	$I_{\Delta n}$ [A]	Number of poles	Code No	 g	
25		4	002061951	318	1/27
40	0,03	4	002061952	318	1/27
63		4	002061953	318	1/27
25		4	002061971	318	1/27
40	0,3	4	002061972	318	1/27
63		4	002061973	318	1/27



B type residual current circuit breaker EFI-4 B G/KV-Short time delay

Rated residual current **0,03 - 0,3 A** Rated current **25 - 63 A** Type **B (G/KV)**

EFI-4 B G/KV-Short time delay

I_n [A]	$I_{\Delta n}$ [A]	Number of poles	Code No	Reset	 g	
25		4	002062652	-	340	1/27
40		4	002062653	-	340	1/27
63	0,03	4	002062654	-	345	1/27
100		4	-	002061905	350	1/27
125		4	-	002061906	350	1/27
25		4	002063652	-	340	1/27
40		4	002063653	-	340	1/27
63	0,1	4	002063654	-	345	1/27
100		4	-	002061915	350	1/27
125		4	-	002061916	350	1/27
25		4	002064652	-	340	1/27
40		4	002064653	-	340	1/27
63	0,3	4	002064654	-	345	1/27
100		4	-	002061925	350	1/27
125		4	-	002061926	350	1/27
100		4	-	002061935	350	1/27
125	0,5	4	-	002061936	350	1/27





B type residual current circuit breaker EFI-4 B S-Selective

Rated residual current
0,1 - 0,3 A

Rated current
25 - 63 A

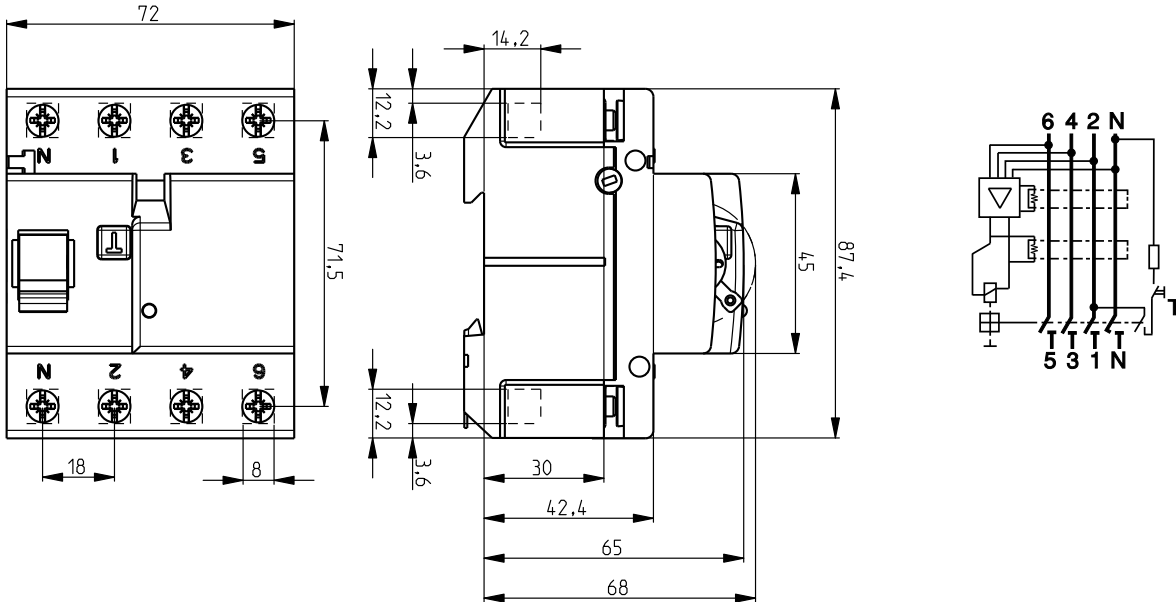
Type
B (S)

EFI-4 B S-Selective

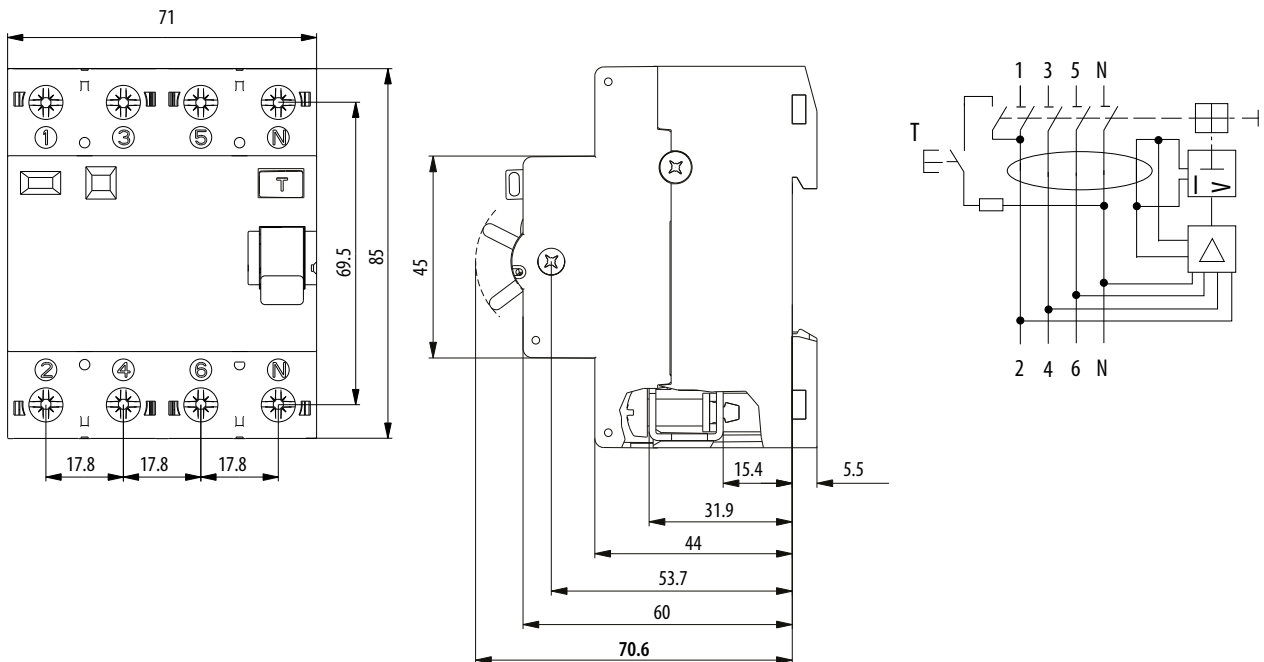
I_n [A]	$I_{\Delta n}$ [A]	Number of poles	Code No		
25		4	002063662	340	1/27
40	0,1	4	002063663	340	1/27
63		4	002063664	345	1/27
25		4	002064662	335	1/27
40	0,3	4	002064663	335	1/27
63		4	002064664	340	1/27



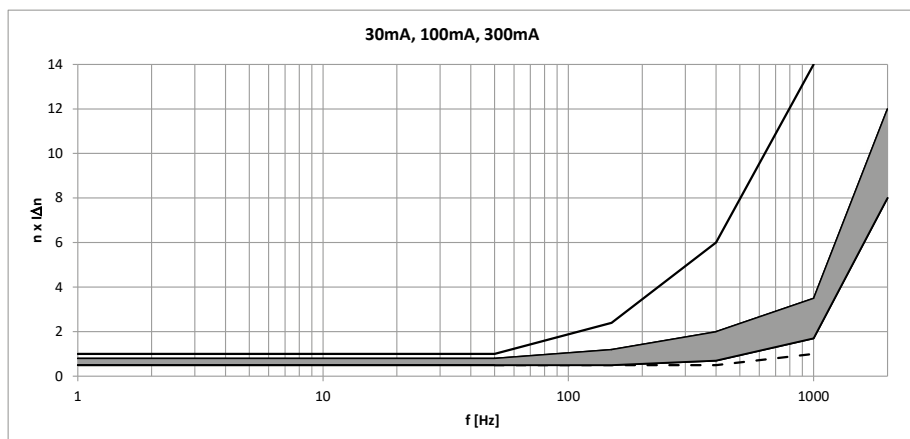
K-Short time delay, S-Selective



G/KV - Reset (100 & 125A)



EFI B type



Upper limit according to IEC/EN 62423

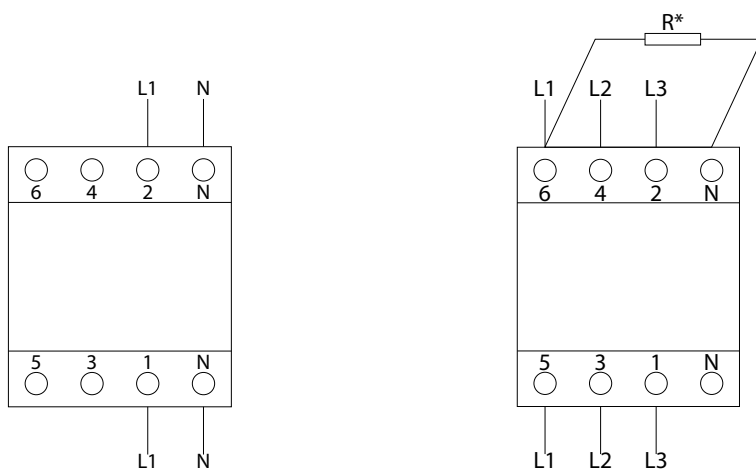
Lower limit according to IEC/EN 62423

B+ type residual current circuit breaker EFI-4 B+ Instantaneous

Rated residual current **0,03 - 0,3 A** / Rated current **25 - 63 A** / Type **B+**

EFI-4 B+ Instantaneous

I_n [A]	$I_{\Delta n}$ [A]	Number of poles	Code No		
25	0,03	4	002062647	335	1/27
40		4	002062648	335	1/27
63		4	002062649	340	1/27
25	0,1	4	002063647	335	1/27
40		4	002063648	335	1/27
63		4	002063649	340	1/27
25	0,3	4	002064647	335	1/27
40		4	002064648	335	1/27
63		4	002064649	340	1/27



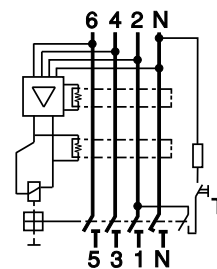
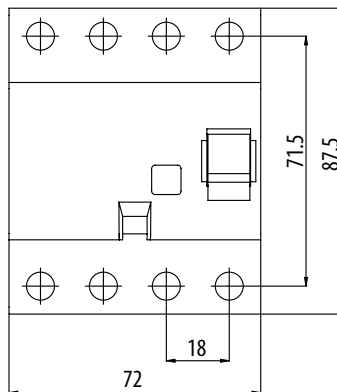
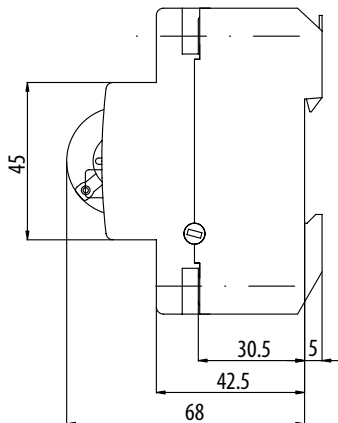
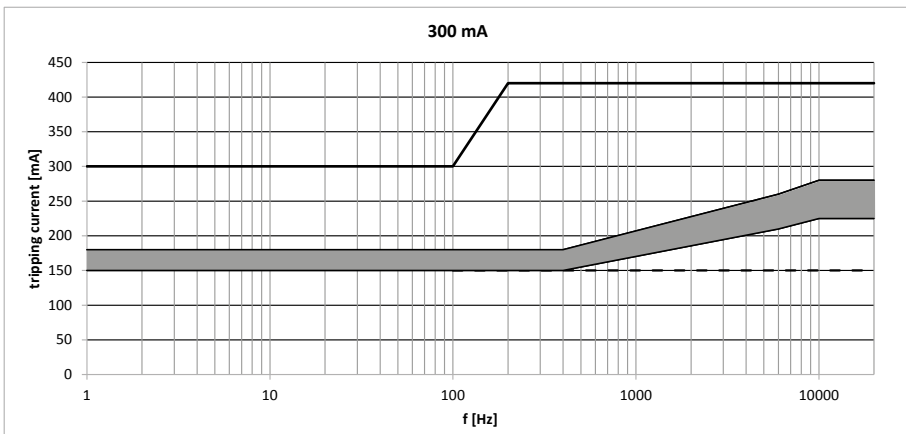
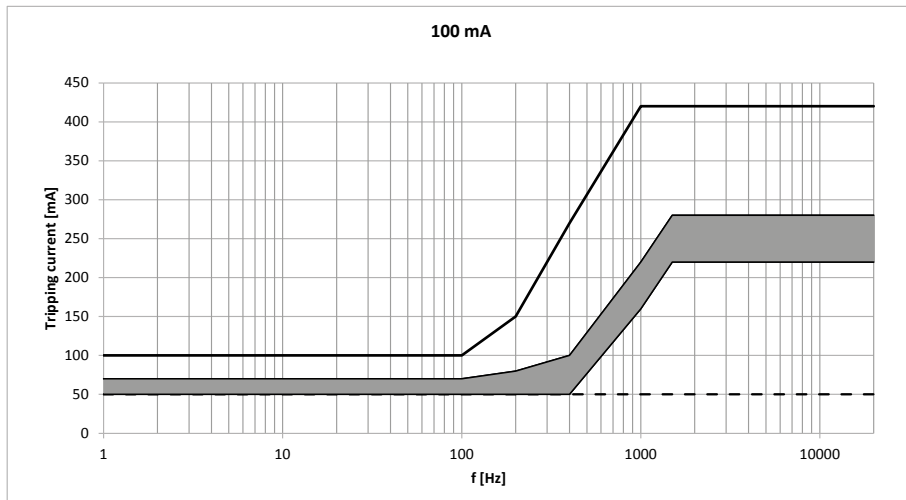
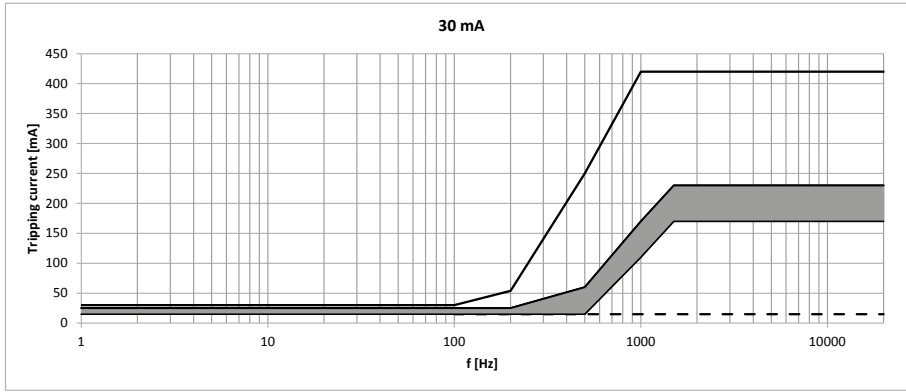
* Resistor (R) has to be connected between N and L1 as to ensure proper functionality of the test button.

RCD ETI Type B+ in 1-phase system $U_n=230V$

RCD ETI Type B+ in 3-phase system without neutral conductor - $U_n=400V$

- 30mA: $R=2k\Omega/1W$ (500V)
- 100mA: $R=7k\Omega/1W$ (500V)
- 300mA: $R=2k\Omega/1W$ (500V)

EFI B+ type

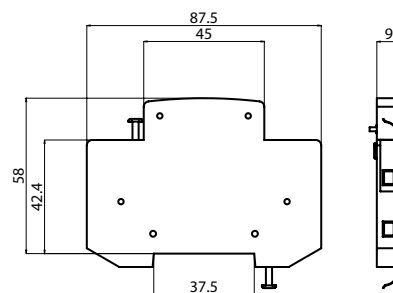


Accessories for residual current circuit breakers EFI



The PS EFI is fixed to EFI series switches. The width of the device is 9 mm, other dimensions are in compliance with EFI switches. The auxiliary switch PS EFI is used for the remote signalling of the state of contact's condition (closed/open) of EFI switches. During fitting, the EFI must be switched off. PS EFI and DA EFI can not be mounted both together, because both can only be mounted on the right side of EFI.

Technical data

Rated current I_n	6 A (230 V AC), AC 12, 1 A (110 V DC), DC 12
Conditional short-circuit current	1 kA with fuse-link 20 A
Terminals	1-2,5mm ² , max. 0,5Nm
Terminal Screw	M3 (PH1)
Mounting position	any
Standards	EN 62019



Auxiliary Switch PS EFI 16-80A

Type	Contact	Code No.		
PS EFI - MD	NC+NO	002069001	50	1/12
PS EFI - 2M	2xNC	002069002	50	1/12
PS EFI - 2D	2xNO	002069003	50	1/12

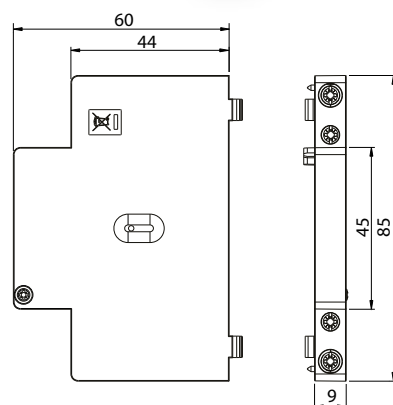
NO = make contact

NC = break contact





Technical data

Rated current I_n	6 A (230 V AC), AC 12, 1,5 A (110 V DC), DC 12
Conditional short-circuit current	10 kA with fuse-link 6 A
Terminals	0,75-2,5mm ² , max. 0,8Nm
Terminal Screw	M3 (PZ1)
Mounting position	any
Standards	IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 62019, DIN EN 62019 (VDE 0640)



Auxiliary Switch PS EFI 100-125A



Type	Contact	Code No.		
PS EFI 100/125 - NC+NO	NC+NO	002069006	31	1/12
PS EFI 100/125 - 2xNC	2xNC	002069007	31	1/12
PS EFI 100/125 - 2xNO	2xNO	002069008	31	1/12

NO = make contact

NC = break contact





Sealing piece EFI-2 16-80A

Code No.		
002069011	2	2



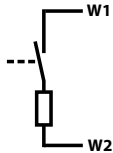
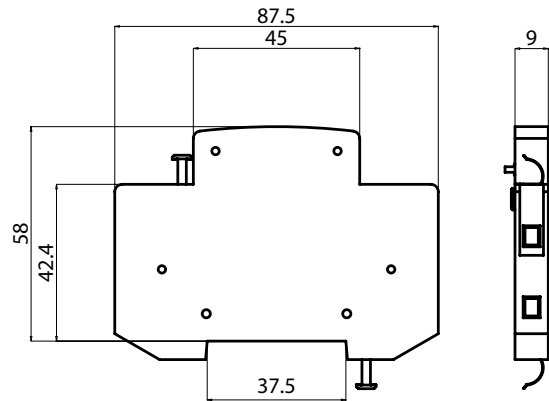
Sealing piece EFI-4 16-80A

Code No.		
002069012	3	2





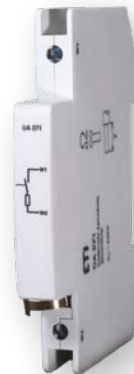
Technical data

Rated voltage	230V AC
Rated frequency	50/60Hz
Max inrush current	0,8A
Terminals	1-2,5mm ² , max. 0,5Nm
Terminal Screw	M3 (PH1)
Build-in width	9mm
Mounting position	any



Shunt trip release DA EFI 16-80A

Type	Code No.		
DA EFI	002069004	45	1/12



Residual Current Circuit Breakers for Protection of EV Charging Stations EFI-P eV

Rated residual current
0,03 A

Rated current
25 - 63 A

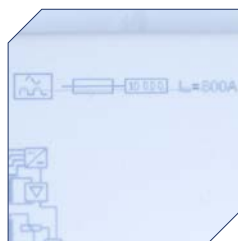
Type
A

- Meets requirements from standard IEC 60364-7-722 --> Low-Voltage electrical Installations - Requirements for special installations or locations - Supplies for electric vehicles

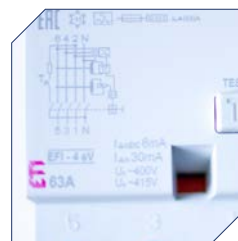
- Individual test measurements and other production data for each device can be read from the QR code, as well as instruction manuals and other technical materials



- detects smooth DC residual currents above 6 mA
- Rated conditional short-circuit current: 10 kA



- All necessary technical & installation information can be found on the front and side of the device



- Supply is possible both from top and bottom terminals
- RCCBs can be supplied with single phase and three phase busbars

- Basic installation requirements are engraved into housing



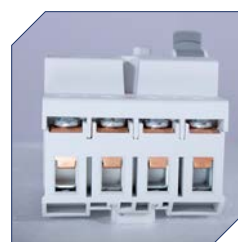
- Clearly marked terminals to ensure appropriate connection



- Real contact position indication for easier identification, whether RCCB is in ON or OFF position



- Better protection of terminals against touching the parts under voltage



Technical data EFI-P4 A eV

Type	EFI-P4 A eV
Electrical	
Rated Voltage U_n	400/415V AC
Rated current I_n	25, 40, 63 A
Rated frequency f_n	50/60Hz
Mode of operation	A type functionality : voltage independent DC functionality: voltage dependent
Sensitivity	Alternating, pulsed and smooth direct currents
Rated insulation voltage U_i	440V
Rated impulse withstand voltage (1,2/50 μ s)	4kV
Electrical isolation	> 4mm contact space
Rated residual operating current $I_{\Delta n}$	30 mA
DC tripping treshold	6 mA
Rated conditional short-circuit current I_m	10kA
Rated making and breaking capacity I_m	630A
Max back-up fuse for short circuit protection	80A gG
Voltage range test circuit	196 – 253 V AC
Min. operating voltage	80 V
Standards	IEC/EN 61008, IEC 62955:2018
Mechanical Endurance (cycles)	10.000
Electrical endurance (cycles)	2.000
Shock resistance acc. to	IEC/EN 61008-1
Resistance to vibrations acc. To IEC 60068-2-7	5g (10, 60 & 500Hz)
Mechanical	
Frame size	45mm
Device height	68mm (DIN rail acc to EN6071)
Device width	72mm (4 x Module Units)
Degree of protection	IP20
Overvoltage category	III
Upper and lower terminals	open mounted/lift terminals
Terminal capacity	1-25mm ²
Terminal screw	M5 (Pozidrive PZ2)
Terminal torque	max. 3Nm
Busbar thickness	0,8 - 2 mm
Operating temperature	-25°C ... +65°C
Storage and transport temperature	-40°C ... +85°C
Resistance to climatic conditions	IEC/EN 61008
Contact position indicator	mechanical red/green
Mounting position	any
Mounting on the rail	35mm acc to EN50022
Supply possibility	top or bottom
Locking device	Locking is possible through button and cover

I_n [A]	Maximum power dissipation EFI-4 A eV	
	P/pole [W]	
25	1,33	
40	3,12	
63	6,62	



conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire Cu conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

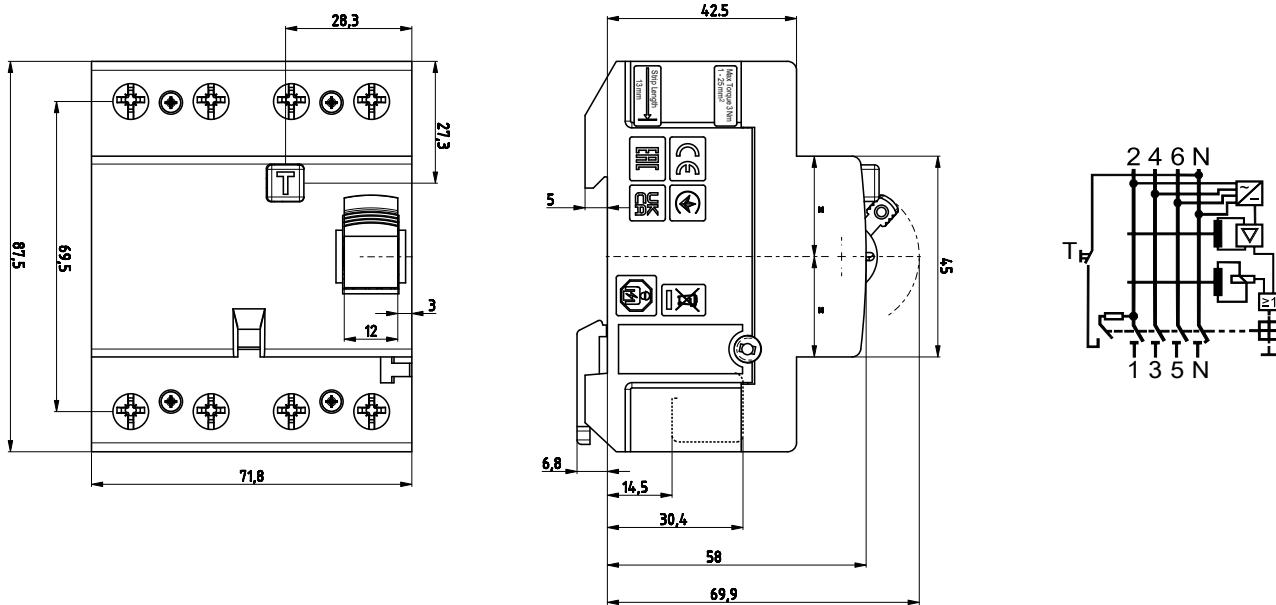
Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

EFI-P eV

I_n [A]	$I_{\Delta n}$ [A]	Number of poles	Type A		
25		4	002061991	318	1/27
40	0,03	4	002061992	318	1/27
63		4	002061993	318	1/27

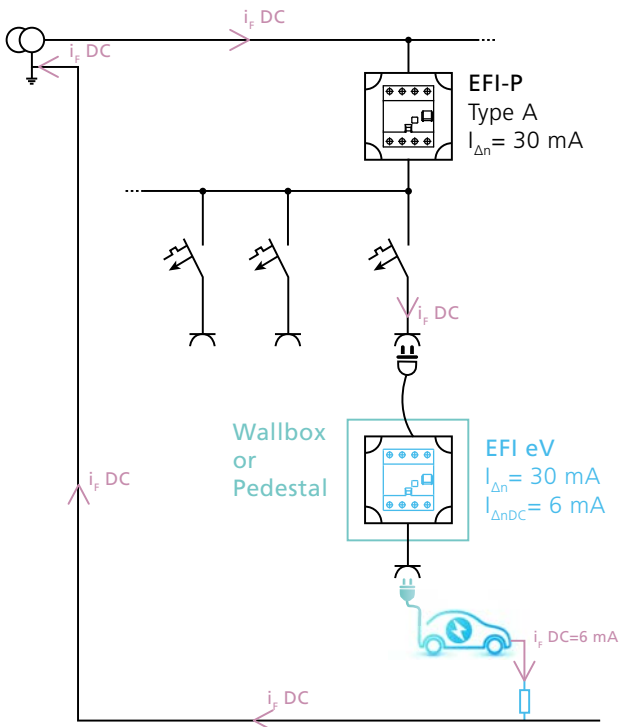


ASTI / Residual Current Circuit Breakers



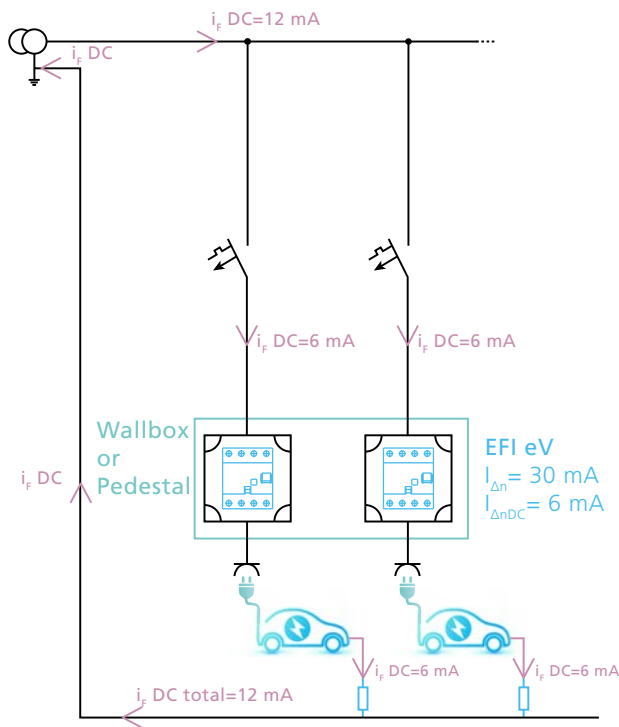
Electrical Design Recommendations

TN-System



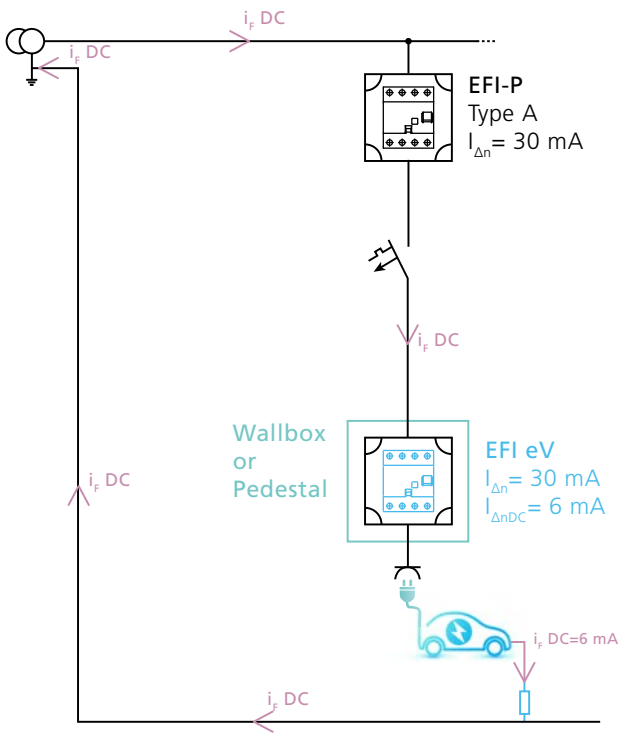
If the charging unit is plugged into an existing socket, protected with a Type A RCCB, additional protection against smooth DC residual currents above 6 mA must be provided (IEC 60364-7-722).

TN-System



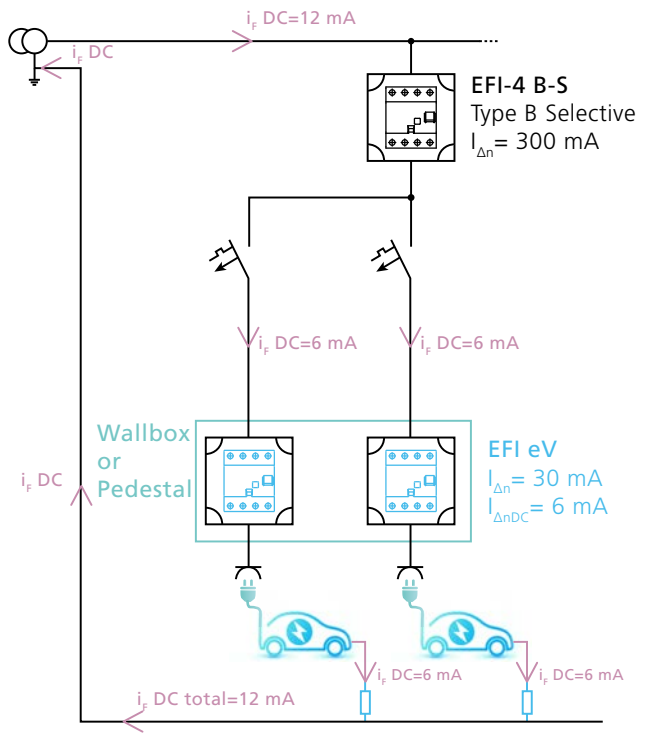
If the charging unit has a fixed connection, EFI eV will provide complete protection against residual currents.

TT-System



In these systems, switch-off times must comply to stricter rules so even the charging units with fixed connection require a Type A RCCB, which needs to be additionally protected against smooth DC residual currents above 6 mA by EFI eV.

TT-System



If more charging units are in use, the first RCCB must be a Type B device to protect from the sum of all smooth DC residual currents. Each charging plug socket must also be protected with EFI eV.