

DIN EN ISO 18246:2024-10 (E)

Electrically propelled mopeds and motorcycles - Safety requirements for conductive connection to an external electric power supply (ISO 18246:2023)

Contents		Page
European foreword		4
Foreword		5
Introduction		6
1	Scope	7
2	Normative references	7
3	Terms and definitions	8
3.1	General	8
3.2	Charging	10
3.3	Connection	11
3.4	Electrical safety	12
4	Environmental and operational conditions	15
5	General requirements	16
6	Connection between the plug or vehicle couplers and RESS of the vehicle	16
6.1	General	16
6.1.1	Connections among charger, RESS, and vehicle	16
6.1.2	General requirements for connection	18
6.1.3	Requirements for connection or no connection to the earth	18
6.1.4	Specific requirements for the vehicle inlet	24
6.1.5	Vehicle behaviour during charging	25
6.2	AC connection	25
6.2.1	Requirements for the connection to AC supply network (mains)	25
6.2.2	Requirements of connection and/or disconnection process in AC contacts	25
6.2.3	Protection from unintended voltage for AC connection	25
6.2.4	Additional requirements for AC electric power supply	26
6.3	DC connection	26
6.3.1	Requirements of connection and/or disconnection process in DC contacts	26
6.3.2	Protection from unintended voltage for DC connection	26
6.3.3	Specific requirements	26
7	Protection against electric shock	27
7.1	General requirements	27
7.1.1	General requirements for connected sections of a circuit	27
7.1.2	General requirements for voltage class A	27
7.1.3	General requirements for voltage class B	27
7.2	Basic protection	27
7.3	Fault protection and additional measures	27
7.3.1	Equipotential bonding	27
7.3.2	Alternative protection measures	28
7.3.3	Requirements for protective barrier or enclosures	28
7.3.4	Requirements for insulation	29
7.4	Protection against access to hazardous-live-parts	29
7.4.1	General	29
7.4.2	Requirements of the degree of protection of barrier/enclosures against electric shock	29

7.5	Insulation coordination	29
7.5.1	AC connection	29
7.5.2	DC connection	30
7.6	Touch current	30
8	Protection against thermal incident	30
8.1	Overcurrent protection	30
8.1.1	Overload protection	30
8.1.2	Short circuit protection for AC connection	30
8.1.3	Short-circuit protection for DC connection	31
8.2	Arc protection for DC connections	31
8.3	Residual energy after disconnection	31
9	Additional requirements and test procedure	31
9.1	General conditions on tests	31
9.2	Protection against ingress of solid foreign objects and water	32
9.3	Withstand voltage test	32
9.3.1	General	32
9.3.2	Test voltage	32
9.3.3	Dielectric withstand voltage of voltage class A direct current part	33
9.4	Isolation resistance	33
9.4.1	General	33
9.4.2	Additional measures at a non-maintained isolation resistance	33
9.5	Creepage distance and clearance	33
9.6	Requirements for the emission of hazardous gases and other hazardous substances	33
9.7	Permissible surface temperature	34
9.8	Unintentional charging system behaviour	34
9.8.1	General	34
9.8.2	Unintended reverse power flow	34
9.9	Electromagnetic compatibility	34
9.9.1	Susceptibility	34
9.9.2	Emissions	34
9.10	Service	34
10	Marking, instructions, and indications	34
10.1	Marking	34
10.2	Legibility	35
10.3	Connection instructions	35
10.4	Indication	36
	Annex A (informative) Charging types	36
	Annex B (normative) EV connected to DC EV supply equipment according to IEC 61851-25	40
	Annex C (normative) Connection of an EV to a DRI EV supply equipment according to the IEC TS 61851-3 series	42
	Bibliography	43