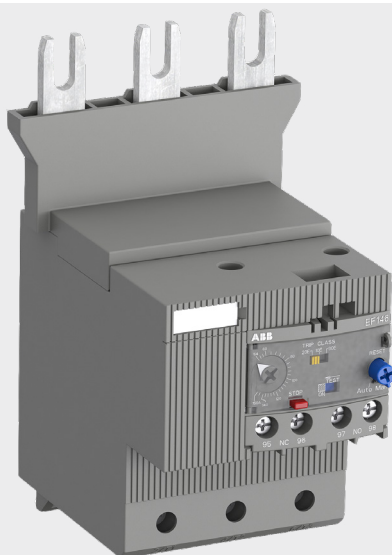


Electronic overload relays

EF146



The EF146 is a self-supplied electronic overload relay, which means no extra external supply is needed. They are offering reliable and fast protection of motors in the event of overload or phase failure.

EF146 electronic overload relays are available from 54 A up to 150 A. They are easy to use like thermal overload relays and are compatible with standard motor applications. Electronic overload relays are convincing, above all, due to their wide setting range, high accuracy, high operational temperature range and the option to select a trip class (10E, 20E, 30E). Further features include temperature compensation, trip contact (NC), signal contact (NO), automatic- or manual reset selectable, trip-free mechanism, STOP- and test function and a trip indication. The overload relays can connect directly to AF block contactors. Single mounting kits are available as accessory. EF146 electronic overload relays have ATEX and IECEx certification.

Product conformity & compliance

REACH (Regulation EC 1907/2006)

EF146 and related accessories were classified as articles and, during normal and reasonably foreseeable conditions of use, do not intentionally release any substance or preparation. ABB continuously undertakes communications throughout its supply chain in order to collect information about suppliers' compliance with REACH regulation.

SVHC (Regulation EC 1907/2006 REACH)

ABB continuously assesses its products for content of Substances of Very High Concern (SVHC), as included in the "Candidate List" by the European Chemicals Agency (ECHA). ABB publishes the data about the products that are having a part with SVHC in the SCIP database.

RoHS II

EF146 and related accessories are within the scope of directive 2011/65/EU (RoHS II) and amendment 2015/863, starting from July 22 2019.

WEEE

The Waste Electrical and Electronic Equipment Directive (WEEE Directive) is the European Community directive 2012/19/EU on waste electrical and electronic equipment (WEEE) which, together with the RoHS directive, became European law in February 2003.

Product safety

Compliance with essential health and safety requirements has been assured by compliance with the applicable product and safety standards. The validation according to the product and safety standards is carried out by third party tests laboratory (STIEE / TL030) in respect of the EN ISO/IEC 17025 European standard, according to IECEE CB scheme. CB certificate has been issued.

Standards:

- IEC/EN 60947-1
- IEC/EN 60947-4-1
- IEC/EN 60947-5-1
- IEC/EN 60079-1
- IEC/EN 60079-7
- IEC/EN 60079-14
- IEC/EN 60079-31
- UL 60947-1
- UL 60947-4-1
- UL 60947-5-1

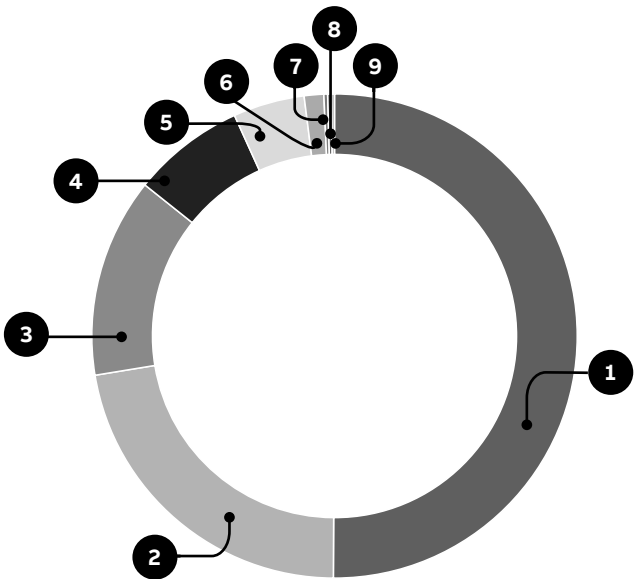
Directives:

- EC “Low Voltage Directive” (LVD) 2014/35/EU
- EC “ATEX Directive” 2014/34/EU

Material declaration

This section outlines the material composition of EF146-100. The constituent materials are distributed as follows.

EF146-100 The total weight of the product is 879 gr.

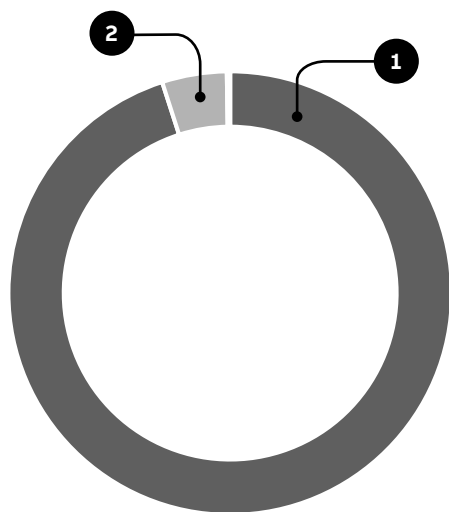


Material	% wt
1 Copper	44.6 %
2 PA	26.6 %
3 Stainless steel	15.0 %
4 Steel	9.5 %
5 PCBA	2.6 %
6 Other thermoplastic	0.5 %
7 Copper alloys	0.5 %
8 Other metal	0.4 %
9 PC	0.3 %
TOTAL	100 %

Packaging

The tables below provide information for each packaging material used. The card box used for the product material are made of recycled fibers and are 100 % recyclables.

EF146 packaging material composition: total weight 120 gr.



Material	% wt
1 Cardbox	95.0 %
2 Paper	5.0 %
TOTAL	100 %

Product use



Energy

Power losses for EF146 are indicated in the following table.

Type	Power loss (W/device)
EF146-150	4.73

End-of-life

At the end of operating life, constituent components of EF146 electronic overload relays have been optimized in order to reduce waste amount and increase recovery of the material. Metals and polymers contained into EF146 electronic overload relays are characterized by high recycling rates. Most plastic parts are marked for easy sorting.

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