



Product manual Z0512

Series explosion-proof
electric control components



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Purpose of these instructions

- Working in hazardous areas, the safety of personnel and plant depends on complying with all relevant safety regulations.
- Assembly and maintenance staff working on installations therefore have a particular responsibility. They require precise knowledge of the applicable standards and regulations.
- These instructions give a brief summary of the most important safety measures. It supplements the corresponding regulations which the staff must study.



SAFETY INSTRUCTIONS

- Use the explosion-proof component only for its intended purpose.
- Explosion-proof components are not suitable for Zone 0 hazardous areas!
- Incorrect or impermissible use or non-compliance with these instructions invalidates our warranty provision.
- No changes to the device impairing its explosion protection are permitted.
- Use the components only if they are clean and undamaged.
- Any damage can invalidate the Ex-protection.
- Observe the following during installation and operation:
 - National safety regulations;
 - National accident prevention regulations;
 - National installation regulations (e.g. IEC 60079-14);
 - Generally recognized technical regulations;
 - Safety guidelines in these operating instructions;
 - Characteristic values given on the components.

Conformity to standards

The explosion-proof components are designed and manufactured according to standard of ISO 9001.

The explosion-proof components are conformity to the directive 94/9/EC, ATEX and the following standards:

IEC60079-0 : 2011	EN60079-0 : 2012
IEC60079-1 : 2014	EN60079-1 : 2014
IEC60079-7 : 2006	EN60079-7 : 2015

Applicable scope

Z0512 Series explosion-proof electric control components consists of:

- AC contactor module,
- Reversible type AC contactor module,
- Thermal relay module, explosion-proof
- Electromagnetic starter module (AC contactor + thermal relay),
- Motor protection switch module,
- Time relay module,
- Auxiliary relay module.

The series product can be used in zone 1, 2, 21 and zone 22.



The AC contactor module and the reversible type contactor module are suitable for the power supply system of which the rated voltage is up to 690V and the rated service current is to 38A.

A motor can be controlled positively and reversibly by reversible type contactor module (BDIN).

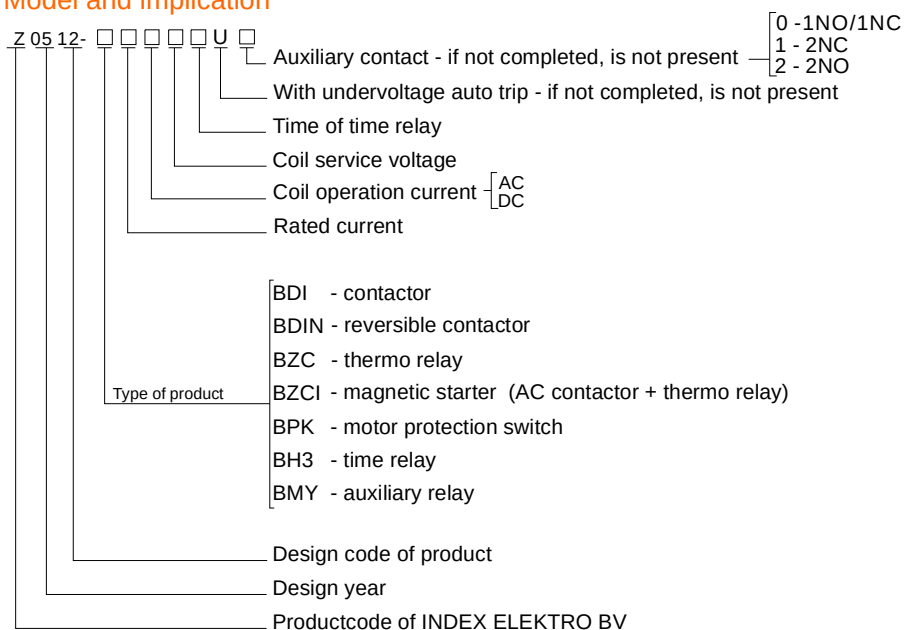
The thermo relay module is applicable to the rated voltage up to 690V, rated current up to 38A, which is permanent or intermittent long-term operation. The magnetic starter module (AC contactor and thermal relay) is applicable to the power supply system of which the rated voltage is up to 690V and the rated service current is to 38A.

The motor protection switch is applied to the power supply system of which the rated voltage is up to 440V and the rated current is up to 25A to protect against short circuit, overload and phase failure highly efficiently.

Explosion-proof time relay module is suitable for the control of the time delay in the control circuit of automatization.

Electrical equipment of high-precision, high reliability and the scope of time delay is 0.4 sec to 10 hour.

Model and implication





introduction of usage, Main technical data

Ex-mark:  II 2 G Ex db eb IIC Gb (-20°C to +60°C)
Ex db eb IIB Gb (-40°C to +60°C)

Test certificate: IECEx CML10.0092U / Presafe 16 ATEX 8629U

Ambient temperature use: -20°C / 40°C to +60°C / Service temperature : -20°C / 40°C to +110°C
Degree of protection : IP20

The current related to the cross sectional area should comply with IEC 60947, EN 60947 stipulations

Main technical parameter of AC contactor module and reversible type AC contactor:

Rated voltage: 690V
Rated current: up to 38A
On-off capacity: up to 18.5KW
Coil voltage: up to 440V
Rated voltage of auxiliary contact: 690V
Rated current of auxiliary contact: 10A
See the table 1 for the rated working power under category AC-3
Type of connection auxiliary contacts 1 to 2.5 mm² - main contacts 1 to 10 mm² (6 to 10 mm² used in conjunction with compression lug)
Proposed tightening screw torque of terminals: major contact 1.5 Nm, aux contact 1.1 Nm
Outline and mounting dimension: AC contactor, see figure 1 (size 5), reversible AC contactor, see figure 1 (size 6)

Main technical parameter of thermal relay

Rated voltage 690V
Setting range of over load trip: up to 38A
Rated voltage of auxiliary contact: 690V
Rated current of auxiliary contact: 5A
Type of connection auxiliary contacts 1 to 2.5mm², main contacts 1 to 10 mm² (6 to 10 mm² used in conjunction with compression lug)
Proposed tightening screw torque of terminals: Major contact 1.5 Nm - Aux contact 1.1 Nm
Outline and mounting dimension: see figure 1 (size 5)

Main technical parameter of magnetic starter module (AC contactor and thermal relay)

Rated voltage: 690V
Rated current: up to 38A
On-off capacity: up to 18.5KW
Coil voltage: up to 440V
Rated voltage of auxiliary contact : 690V
Rated current of auxiliary contact 95/96 NC - 97/98 NO: 5A
Rated current of auxiliary contact 13/14 NO - 21/22 NC: 10A
See the table 1 for the rated working power under category AC-3
Cross section of terminal auxiliary contacts 1 to 2.5mm² main contacts 1 to 10 mm² (6 to 10 mm² used in conjunction with compression lug)
Proposed tightening screw torque of terminals: Major contacts 1.5 Nm - Aux contact 1.0 Nm
Outline and mounting dimension see figure 1 (Size 6)

Main technical parameter of motor protection switches

Rated voltage: 440V
Setting range of over load trip: 0.1 to 25A
AC3 on-off capacity: high up to 440V/25A
Rated on-off capacity: high up to 65kA
Capacity of auxiliary contact: AC15 - 1A/230V
Voltage trip (under votage): 230/50Hz
Cross section of terminal auxiliary contacts 1 to 2.5 mm² main contacts 1 to 10 mm²
(6 to 10 mm² used in conjunction with compression lug)
Proposed tightening screw torque of terminals: Major contact 1.5 Nm - Aux contact 1.1 Nm.
Putline and mounting dimension see figure 1 (size 5)

Main technical parameter of time relay and auxiliary relay

Service power supply voltage: 24, 115 and 230 VAC + 12, 24 and 110 VDC
Time relay range: 0.04 sec ..10 hour,
Work module :switch on and time relay action when required
Contact capacity: 5A (resistance load)
Cross section of terminal 1 to 2.5mm², Proposed tightening screw torque of terminals: 1.1Nm,
Outline and mounting dimension see figure 1 (Size 1).



The AC contactor and reversible type contactor module are suitable for the power supply system of which the rated voltage is upto 690V and the rated service current is upto 38A.

Thermo relay is applicable to the rated voltage up to 690V rated current up to 38A, which is permanent or intermittent long-term operation. The magnetic starter (AC contactor and thermal relay) is applicable to the power supply system of which the rated voltage is up to 690V and the rated service current is to 38A. The motor protection switch is applied to a supply system of which the rated voltage is up to 440V and the rated current is up to 25A to protect the motor or other circuits against short circuit, overload and phase failure highly efficiently.

Time relay is suitable for the control of the time delay in the control circuit of automatization.

Table 1

Rated workingpower Rated voltage	Rated current		
	12A	25A	38A
220V/240V	3KW	5.5KW	9KW
380V/400V	5.5KW	11KW	18.5KW
415V/440V	5.5KW	11KW	18.5KW
500V	7.5KW	15KW	18.5KW
660V/690V	7.5KW	15KW	18.5KW

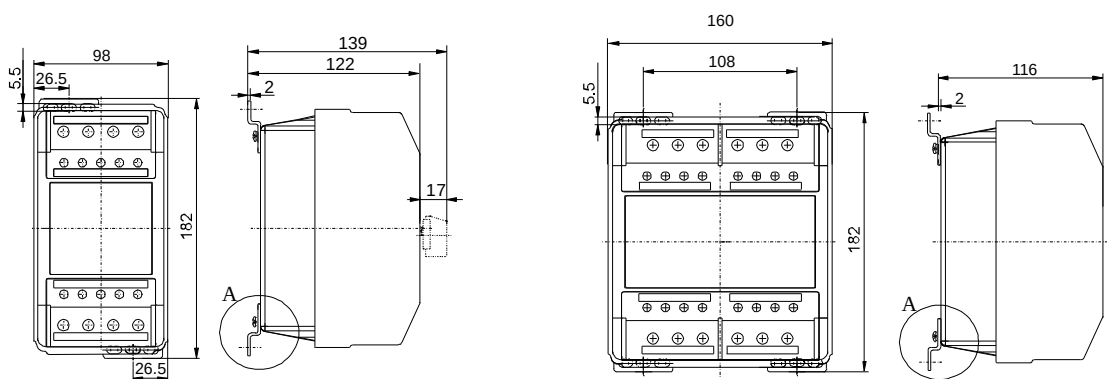


Figure 1 - size 5

Figure 1 - size 6

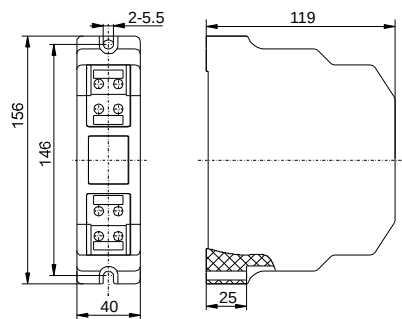


Figure 1 - size 1



Operation/installation

Transport and storage in original packaging only. National safety and installations regulations and the generally accepted rules of engineering practice must be observed when mounting and operating this equipment.

For the sake of the normal operation and the safety of explosion-proof electric apparatus module, the user shall observe the following provisions:

Explosion-proof electric apparatus module is suitable for use in hazardous areas, zones 1 and 2.

The explosion-proof electric apparatus module should be used under the following atmospheric condition:

The pressure is 80kPa (0.8bar)~110kPa (1.1bar)

The volume ratio of standard oxygen content is 21% air.

The ambient air relative humidity is less than: 95%

There is no obvious shake and impact vibration

Under the environment of gas or vapor that there is no obvious destruction insulation;

The products shall be mounted according to the standards given in IEC60947-5-1.

The electric principle for the product is given on the their nameplates

The series products which are Ex components can't be used separately but with the explosion-proof enclosure suitable for the environment.

The module mounting should be firm and reliable.

The supply terminals are designed for the connection of copper conductors. If multi-or fine-wire connecting cables are used, the wire ends will have to be handled in accordance with the applicable national and international rules.

The conductor itself shall not be damaged.

The wire should be pre treatment before connected to the terminals when wiring. The standard compression lug or the standard tubiform preinsulated connector should be added to the wire connection. The connection should be reliable and the false connection of conductor is not permitted.

Repairs / Maintenance

- Observe the relevant national regulations for your country!
- Only parts from our company that can be used to replace or maintain, and the operation should be carried out by professional electrician!
- The following points must be checked during maintenance:
 - * Compliance with permitted temperatures;
 - * Check if there is any crack in the components.
 - * Check if the component has been fixed reliably.
 - * Check if the wiring is not loose or fixed.
 - * Check if the flame-proof joints is damaged.

Recycling / Disposal

- The respective valid national regulations for waste disposal shall be observed when disposing of apparatus!
- We are pleased to answer any questions. In this case you can contact INDEX ELEKTRO BV.