

Microprocessor controlled Protection Device Specifications

DIRIS P

1- General Specifications :

The functions of overload and short circuit protection shall be ensured by an electronically controlled protective relay equipped with digital LED display with 14 mm characters high. The relay shall measure and display the main network electrical parameters.

The relay shall be compatible for all type of L.V. network 3 WNB and 4WNB and shall provide an effective phase fault and earth fault protection housed in the same frame thanks to its 4 current inputs from 5 Amp CT.

The protective relay shall be equipped with a front keys set enabling the operator to select and enter the adapted curve and parameters of protection. The relay shall provide some self test facilities to enable the operator to validate the setting parameters as well as the wiring during the commissioning. The test facilities procedure shall enable the operator to measure and display the tripping time of a simulated fault.

The relay shall be 96 x 96 mm door mounted with a maximum enclosed depth of 130 mm. The relay front shall be equipped with a double sealing cover which will provide access to the reset , protection parameters reading and measuring facilities, but shall prevent any kind of access to the programming key. The programming facilities will be also protected by digital access code preventing any entering of non-authorized personal. The relay shall be dust and weather proof IP 54. The relay shall be mounted on the door thanks to 4 fixing point.

The relay shall be equipped with IP 20 withdrawing connectors to facilitate the wiring except the current input connector which shall remain fixed.

2- IDMT and DT Protection Functions:

The microprocessor controlled protective relay shall provide DT and preset IDMT protective curve of type IT, SIT and EIT in full compliance with the IEC 255-3 standard. The relay shall provide overload (ANSI code 50) and short circuit (ANSI code 51) protection of the phase and against the earth fault (ANSI codes 50N and 51N). The fault value setting range will be comprised between 0.05 and 1.5 nominal current corresponding to a relay tripping time comprised between 0.02 second and 20 second for the independent time curve. The threshold for the definite time curve will be comprised between 0.1 and 10 times the nominal current for a relay tripping time comprised between 0.02 second and 20 second.

The sensitivity provided for the earth leakage protection shall be effective as from 0.02 nominal current.

Any fault type for overload and short circuit shall be visually signaled thanks to a red color LED programmed to blink between the fault detection and up to the relay tripping . The LED shall remain fixed after the relay tripping until the reset of the device. The relay digital display shall inform the operator of any fault by displaying the fault type and the different phases affected by the fault.

The protective relay shall be equipped with a minimum of two programmable 6 Amp N.O auxiliary output relay operated by the processor in accordance with the different threshold setting. The two auxiliary output relay should be allocated individually either to the phase fault or to the earth fault.

3- Test Functions:

Accessibility to this facility shall be given after keying in a dedicated PIN code. This test function shall enable the operator to simulate a current fault comprised between 2 and 10 times the programmed nominal current. The processor will activate the or the two relays during a few seconds at the end of the programmed tripping time delay. The tripping time delay shall be displayed in order to confirm the effectiveness of the protection by comparing this performed value by the relay and the time delay in accordance with the time-current of the standard.

4- Measuring Functions:

The protective relay shall provide measurement tapped from the network.. The relay will display following measurement : U, I , Max I demand for each phase, P (kW) positive and negative, Max Power demand , Power factor (L/C).

The display will enable the operator to read simultaneously the three phase current for an easy phase balancing reading. The relay shall provide hour metering facilities to control the using time parameters of the equipment under supervision by the protective relay.

All the measured electrical network parameter shall be TRMS value. The accuracy shall be at least 0.5% for the current and voltage.

5- Operating Function:

All setting parameters related to protection , measuring and communication shall be changeable by keying in a dedicated Pin code. However simple reading of those , no modification, shall be accessible without the access code. The cover shall remain sealed.

In case of fault, the auxiliary output relay shall remain activated until any reset is performed and after the fault disappeared.

The protective relay shall be equipped with a watchdog facility allocated to another 6 Amp. N.C. auxiliary output relays . The watchdog relay shall provide a positive action to offer an optimized safety.

6- Communication Function:

The protective relay will be equipped with some communication facilities as optional. A serial link RS 485 under protocol JBUS/MODBUS will enable this function. The communication speed shall be adjustable from 1200 to 9600 baud.

7- Operational environmental conditions:

The protective device shall be fully operational for a temperature comprised between -10°C and + 60°C with a relative humidity of < 98% keeping an accuracy < 5 %.

The relay shall maintain its performance in accuracy under wide fluctuation of the auxiliary supply, ranging from 161 Vac and 264 Vac – 50 Hz

8- Standards:

The protective relay shall be of, at least, a ISO 9002 certified manufacturing and will fully comply with to the following standards:

IEC 255-3	Conformity to the protection curves
IEC 1010	Safety requirements for electrical equipment
	Dielectric strength tests :
	2.5 kV (inputs/outputs) 50 Hz during 1 mn
IEC 255-6	Performance related to the protective relays
IEC 255-22-4	Rapid transient in class III
IEC 255-22-3	Radio frequency electromagnetic field 10 V/m
	EC conformity declaration (CE mark)
IEC 61554 - 96x96	

Electromagnetic compatibility :

EN 50081.1 / EN 50081.2
EN 50082.2 (IEC 1000-4-2/3/4/8)