

Parameters and Functions of Thermal Relay Protectors



AI Overview

Thermal relay protectors safeguard motors by monitoring current and tripping on prolonged overloads, with key parameters including full-load current, overload settings, trip class, and time/current characteristics.

Key Parameters

- 1. Full-Load Current (FLC / Rated Current):** The thermal relay is set to match the motor's full-load current, slightly above the normal operating current to avoid nuisance tripping during startup or minor load fluctuations.
- 2. Overload Setting (OL):** This defines the current threshold at which the relay begins to trip. It is usually expressed as a percentage of the motor's rated current. The relay calculates thermal damage using the I^2t principle, integrating the square of the current over time to determine when to trip.
- 3. Trip Class / Time-Current Characteristic:** Thermal relays have different trip classes (e.g., Class 10, Class 20), which define the maximum time allowed to trip at a specified multiple of rated current. This ensures protection against prolonged overloads while allowing short-term inrush currents during motor startup.
- 4. Time Setting Multiplier (TSM):** TSM scales the base operating time derived from the relay's characteristic curve. Lower TSM values result in faster tripping, while higher values provide delayed response for coordination with upstream protection.
- 5. Plug Setting Multiplier (PSM):** PSM indicates how many times the relay's pickup current is exceeded. It is used in inverse-time relays to calculate operating time according to the IDMT curve. Higher PSM values lead to faster tripping.
- 6. Ambient Temperature Compensation:** Thermal relays may require adjustment for ambient temperatures above 30°C, as higher temperatures reduce the motor's cooling efficiency, potentially causing earlier tripping.
- 7. Auxiliary Contacts and Reset Modes:** Thermal relays typically include normally closed (NC) auxiliary contacts that open on trip to control...

Article Content

Thermal relay: principle of operation, types, connection diagram ...

Thermal overload protection relay is a mandatory functional element of any electric drive control system. It reacts to the current passing to the motor and is activated when the temperature of the

Thermal Relay Overview and Functions

The thermal relay is a protection device that activates when there is an overload in electric motors, detecting the temperature rise caused by excessive current.

stemnet2.txt · 60856c1d2f06b2e3d4cea3560375fd3cf447af61 · etcart ...

TUT Dept. of Computer Systems GitLab server etcart /
60856c1d2f06b2e3d4cea3560375fd3cf447af61 Switch branch/tag RIVet stemnet2.txt
Find file Blame History Permalink ...

Thermal Switches and Thermal Protectors Selection Guide: Types ...

Thermal switches and thermal protectors are thermally-actuated electro-mechanical on/off switches. They differ from thermal fuses as they are reusable, and suited to protecting against temporary

Thermal Relay Working Principle Construction of Thermal Overload

Application: Thermal relays are used for overload protection, especially in electric motors, where they prevent tripping from short-term overloads. The coefficient of expansion is a fundamental

Thermal relay: operating principles, types, wiring diagram + regulation ...

To eliminate such a situation, in the electric current path is connected the thermal relay. Their main function - to ensure normal operation of consumers. They shut off the motor with a certain time delay,

Thermal Overload Relay Explained: Motor Protection, Working

Learn what a thermal overload relay does, how bimetallic and melting alloy overload relays work, how NC/NO overload contacts connect to contactors, and how to select trip class,

Working Principle Of Thermal Motor Protection Relay

Principle of operation Thermal motor protection relays contain three bimetal strips together with a trip mechanism in a housing made of insulating

Thermal Relay | Overheat Protection Function

Learn how thermal relays protect electrical devices from overheating by monitoring and controlling temperature to ensure safety and reliability.

Thermal Relay Working Principle Construction of Thermal Overload Relay ...

Construction of Thermal Relay: It consists of a bimetallic strip with metals having different coefficients of expansion, a heating coil, and contacts. Time Delay Function: The relay's heating

What is a thermal overload relay?

The thermal overload relay is an electromechanical protection device of a main circuit. Read further to know more what is it and advantages of it.

The Basis of Thermal Relay

This blog explores the fundamental knowledge of thermal relay which will help us to know more about this electrical protection device.

Thermal Protection Relay Function: Role, Settings and Motor

Discover the thermal protection relay function: operating principle, types, tripping classes and selection criteria to protect your industrial electric motors.

What is a Thermal Relay?

Thermal relay definition A thermal relay is defined as a device that uses unequal expansion rates of metals in a bimetallic strip to detect overcurrent conditions.

Working principle and parameters of thermal relay

Thermal relay is a protective appliance that uses the principle of thermal effect of current to cut off the motor circuit when an overload that the motor cannot bear occurs and provides overload

Thermal Overload Relays Explained: Working Principles

Understand how thermal overload relays protect industrial motors. Learn working principles, circuit structure, key parameters, applications, common

How to Choose a Thermal Relay for Motor Protection?

How to choose a thermal relay? Learn star/delta motor protection, phase-loss relay selection, and correct installation to prevent burnout and boost system reliability. Master the key techniques now!

Thermal Relay: Working Principle, Construction, Types & Its Applications

Learn about thermal overload relay, its working principle, construction, types, applications, advantages, and disadvantages in detail with FAQs for clear understanding.

The Differences Between Thermal Relays, Fuses, and Circuit Breakers

Discover the key differences between thermal relays, fuses, and circuit breakers. Learn about their principles, functions, tripping curves, and ideal applications for overload and short-circuit

Exploring Thermal Relay Components and Uses

The dual reset functions automatic and manual offer control, ensuring smooth operation even with fluctuating loads. Thermal relays play a big role in protecting electrical motors and equipment from

Thermal Relay Motor Protection Guide

Thermal relays are essential devices for protecting motors from overloads, ensuring operational continuity, and facilitating quick restarts after a trip. They come with various features, including

What is Thermal Relay? All Explained

The primary function of a thermal relay is to shield the electric motor from overloading. To ensure adequate and essential overload protection for the

Thermal Relay : Construction, Circuit, Types & Its Applications

Thermal relays are the perfect solution for providing protection to motors which provides the most precise tripping for the electric motor during single phasing and overload. This article discusses an

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://adikor.eu>

Email: info@adikor.eu

Phone: +33 6 48 37 92 15

Address: 12 Rue de la Paix, 75002 Paris, France

This document is for informational purposes only. Specifications subject to change without notice.

