



Application Report

Cannabis –

The underestimated miracle plant

Partner Turck Canada Inc.
Section Building technology

Building Technology

Capacitive inrush currents

Zero-crossing circuit

Power contacts

Partner

Turck Canada is a company that specialises in the sale of high-quality components for process automation. Furthermore, they also offer their clients support in selecting and operating the products in question.

In the field of relays and contactors, Turck Canada and ComatReleco can look back on a successful partnership that has been in place since the 1980s.

ComatReleco products in operation

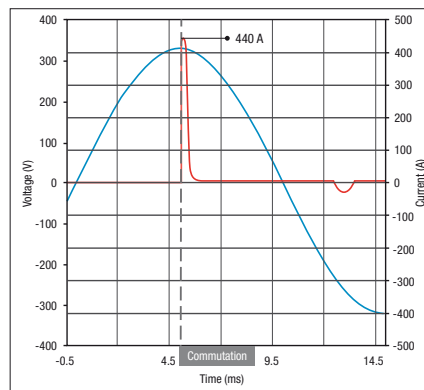
- CHI14 - Installation relay



Even in ancient times, Cannabis sativa - as the plant is known in Latin - was used as a medicinal plant in a number of different civilisations. The two key active ingredients it contains are tetrahydrocannabinol (THC) and cannabidiol (CBD), which can be used to treat chronic pain and muscle spasms, and can also effect an improvement in a person's mood. Cannabis offers benefits that other active ingredients cannot. The human body itself produces similar substances, which take effect via receptors in the central nervous system that are also receptive to the active ingredients in cannabis. In medicine, appropriate preparations are prescribed to people suffering from chronic illnesses, in particular to those for whom conventional pain medication causes nausea or is no longer effective. Therefore, cannabis is not just an illegal narcotic, it is also a component of effective medicines which are being approved as prescription drugs in an increasing number of countries.

Modern LED lighting to achieve the optimal conditions for growth

The strictly regulated and monitored cultivation of the plant for medical purposes is done in indoor grow rooms, which are climatized and lit specifically for this purpose. Until now, primarily sodium vapour lamps have been used with ballasts as photosynthetic assimilation lighting. Due to the economic advantages, such as reduced power consumption and a longer service life, modern warm-tone LED lamps with an appropriate red proportion will be used increasingly for such applications in future. With this type of lighting, the capacitive switching power supplies require no ballast and can reach currents of up to 100 times of the operation current once activated, which would result in fusing of the conventional relay contacts after only a few switching cycles. This phenomenon must be considered when selecting appropriate switching components when planning new systems or the modification of existing systems.

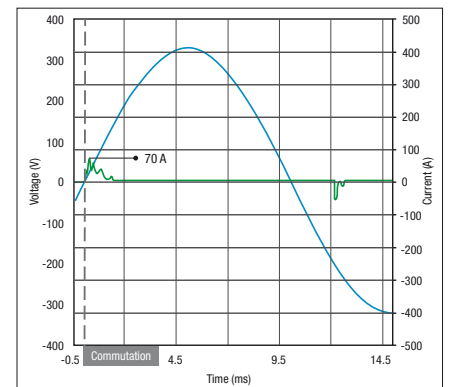


Switching of capacitive consumers with conventional relays with an inrush current of approximately 22 A per ballast.



Wear-free switching of capacitive consumers

The high-inrush relays in the CHI series were developed specifically for use in lighting, and ensure complete operational safety, even with several switching cycles per day. Due to the integrated zero-voltage switching and the additional tungsten prerun contacts, inrush currents of up to 800A and operating currents of 16A can be managed reliably. The devices are available in one- and three-phase designs. Multi-phase devices are especially well suited for clustered control of various lighting groups.



Switching of capacitive consumers with the CHI14 – Inrush current of approx. 3.5 A per ballast.

A new market is emerging

As a result of the drastically increased demand for cannabis preparations, we are seeing more of these kinds of indoor plantations all over the world. In Canada, one such plantation has now been equipped with high-inrush relays from ComatReleco for the first time. The acquisition and project management was done independently via Turck Canada, the local distributor for ComatReleco. In other countries where cannabis has already been legalised, or where the relevant legal basis is currently being created, there have also been related enquiries sent to our distribution partners in those countries.