

## TECHNOLOGY OFFERS

# Control of Radiation Therapy Devices via PLC Technology (P-996)

*A PLC-based control unit for real-time control of a collimator, ray- and patient-positioning system, for radiation therapy applications.*

## EXECUTIVE SUMMARY

The technology comprises a control unit consisting of standardized programmable logic controllers (PLCs) for real-time operation of at least the collimator, the ray positioning system and the patient positioning system of a radiation therapy device. Thus, the technology allows precise and dynamic patient treatment with high time resolution.

No other public information is currently available, but further information (speaking with the inventor) is available under a signed Confidential Disclosure Agreement (CDA).



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### Category

Devices

### Indication

Radiation  
Therapy

### Development stage

Prototype

### Seeking

Licensing

## BENEFITS

- Coordinated real-time control of all radiotherapy device components for precise and dynamic patient treatment
- Usage of reliable and inexpensive PLCs guarantees a high degree of compatibility and maintainability
- Control unit can be located off-site

## TECHNOLOGY BACKGROUND

Common therapeutic devices for treating a patient with rays, particularly accelerator devices on the market, typically comprise a plurality of controlling units for controlling subsystems such as linear accelerator (LINAC), multi-leaf collimator, gantry system, patient support system and x-ray beam generation system. Synchronization and control of all subsystems at the same time is difficult to establish, particularly with hard real-time requirements. Dynamic and 4D treatment methods are very often limited due to non-open standard solutions. Since combinations with third party vendors are rarely possible, known therapeutic devices for treating a predefined body part of a patient with rays and known methods for controlling these devices and their uses are disadvantageous and detrimental in several ways.

## DEVELOPMENT STAGE

A prototype of the PLC controlling individual leaves of a MLC was realized and has been tested successfully in pilot studies.

## APPLICATIONS

The technology can be used for developing and distributing a new generation of especially compact radiation therapy devices, where PLCs control the main operating system.

## INTELLECTUAL PROPERTY

Patented.

- Filed as WO2013014260A1
- DE202012013430U1, German utility patent granted.

## PUBLICATIONS & REFERENCES

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## ABOUT THE DKFZ INNOVATION MANAGEMENT

Working at the interface of research and industry, the Innovation Management of the German Cancer Research Center (DKFZ) helps to get new cancer medications, diagnostic tests, and research instruments onto the market as quickly as possible.

The DKFZ with its more than 3,000 employees is the largest biomedical research institution in Germany. At the Center more than 1,300 scientists investigate how cancer develops, identify cancer risk factors and endeavor to find new strategies to prevent people from getting cancer. They develop novel approaches to make tumor diagnosis more precise and treatment of cancer patients more successful. DKFZ is a member of the Helmholtz Association of National Research Centers, with ninety percent of its funding coming from the German Federal Ministry of Education and Research and the remaining ten percent from the State of Baden-Württemberg