The construction of the TANDAR Accelerator began in the late 1970s, and its operation started in the mid-1980s. From then and until the early 2010s, it used the original control system and wiring.

The general aging and the potential discontinuity of certain equipment, together with the fact that new technologies have proven to be extremely reliable in hostile work environments, have triggered the initiative to change and update the Control System to improve and extend the life time of a facility of great scientific-technological value for Argentina and the Latin American Region.

The technology change process has a major challenge: transporting information to and from the High Voltage Terminal (HVT). Originally, the Solution was implemented with an Infra-Red (IR) link, but since the mid-90s it has been switched to a nude Polymeric Fiber Optic (POF) link. This system is active until today. Part of the aim is finding technology that supports this type of POF; however, the technical crew has carried out tests implementing wireless communication, the success of which has been promising, despite the failures that have occurred so far.

It has been possible to read an analog parameter of the HVT in operating conditions (Pressure: 4Atm, Relative Humidity 40 - 60% and Terminal Voltage greater than 8MV), with a refresh period of less than 10ms, with a communication latency equivalent to regular communication under standard environmental conditions.

The other search, in the Control System change, is focused on the reduction of failure points and oscillations. The system originally installed, in particular with regard to the parameters that are actuated / measured at potentials greater than ground (GND - 0V), are affected by many linked elements that can present fails and oscillations. The New PLC-based Control System that is already in effective operation for the Ion Source and Injector, has shown to stabilize the behavior of the beam at its origin, improving the behavior of the beam at its destination (on the target or in the irradiation chamber).

Likewise, service interruptions as a result of failures in the Control System have been significantly reduced.

Lastly, the original Control System does not support the incorporation of new read / write parameters; nor does it admit the incorporation of new technology equipment. The essential reason for this is that it is essentially an analog point-to-point wired system. The technical crew that operates and maintains the TANDAR Accelerator has decided to change, improve and incorporate new equipment to the Facility.

The New PLC-based Control System supports expansion of the number of read / write parameters at almost no cost. On the other hand, as it is a completely digital Communication System, modern equipment can be incorporated and their embedded controls accessed.