

# CC-Link In Action

OPEN NETWORKS

## Mantecorp uses CC-Link to improve pharmaceutical manufacturing

**Mantecorp is one of the largest pharmaceutical manufacturers in Brazil. It produces widely recognized product lines and brands that are valued by physicians and consumers for Primary Care, Specialty Care, and Consumer use.**

The Mantecorp facility in Rio de Janeiro produces over 100 million units of products and medication for human use. With a total area of 300,000 square meters and 50,000 square meters of industrial facilities, it is one of the most modern plants in the country's pharmaceutical industry. As a center of scientific and manufacturing excellence, the Rio de Janeiro complex benefits from the company's investment policy, which focuses on increasing the quality and reliability of its brands. Over the last 15 years, for example, the unit has invested roughly US \$70 million in modernization and technological evolution projects.

As part of this modernization, Mantecorp decided to upgrade their facility with a more reliable control system employing Mitsubishi automation controllers and the opentechnology CC-Link industrial communication network. This upgrade solved numerous control system and communication problems that were previously encountered with the old system. The Rio de Janeiro facility is now considered one of the most modern in the pharmaceutical sector.

The CC-Link communication network is also the pathway for system data to the operator control panels and computer screen displays. The existing CC-Link network consists of one Mitsubishi Q Series master and ten Mitsubishi FX slave stations. Each of the FX CPU slave stations has four CC-Link remote I/O racks containing analog and digital I/O modules connected to the various field sensors and output devices.

The reverse osmosis process within the facility purifies the water used in product manufacturing. This system is controlled via the CC Link network and the FX CPU slave stations. It assures that the water used on a daily basis is of the same high quality to guarantee consistent product manufacture and product safety.



Another FX CPU slave station controls the refrigeration within the manufacturing process to maintain proper temperature for producing prescription pharmaceuticals. This refrigeration control also maintains the proper temperature for storage of certain pharmaceuticals that require colder temperatures after the manufacturing process is complete.



Also connected to the CC-Link network are additional FX CPU stations that closely coordinate to control the environment within the facility. The first of these manages the adjustable speed drives that control the steam and air handling units.

Another FX CPU station is responsible for maintaining consistent temperature and humidity within the entire facility to provide a comfortable working environment. This networked station works in conjunction with the energy management control system, operated by additional networked FX CPU stations, to help reduce the operational costs of the facility and control environmental emissions.

Other FX stations control the sterilization process within the research lab. This sterilization process controls the purity of the air for process control within the product manufacturing areas as well as controlling the purity of the air within the lab for new product experimentation

and research. With CC-Link networking, Mantecorp is able to produce prescription pharmaceuticals that require the certification of a Class 10 environmental facility.

Depicted on the following page is a system diagram of the current and future CC-Link networking scheme for the Mantecorp facility. It provides extensive, real-time connectivity for the manufacturing and environmental systems.

