NTP SERVER FOR PHARMACEUTICAL MANUFACTURING

HIGHLIGHTS

- The pharmaceutical manufacturing sector relies on synchronised timestamps to prevent batch records discrepancies, procedural errors, and auditing difficulties, all of which represent preventable downtime and loss of profit.
- Teltonika's stratum-1 NTP server, the NTP001, was chosen to synchronise precise, UTC-traceable time for accurate data logging among all connected equipment—in both public and private networks, online or offline.
- This NTP server's wide range of interfaces, including RS485 and RS232 ports, an RJ45 connector, and multiple digital I/Os, as well as its robust profile of supported protocols, make the NTP001 the perfect choice.

THE CHALLENGE – TIME IS MONEY

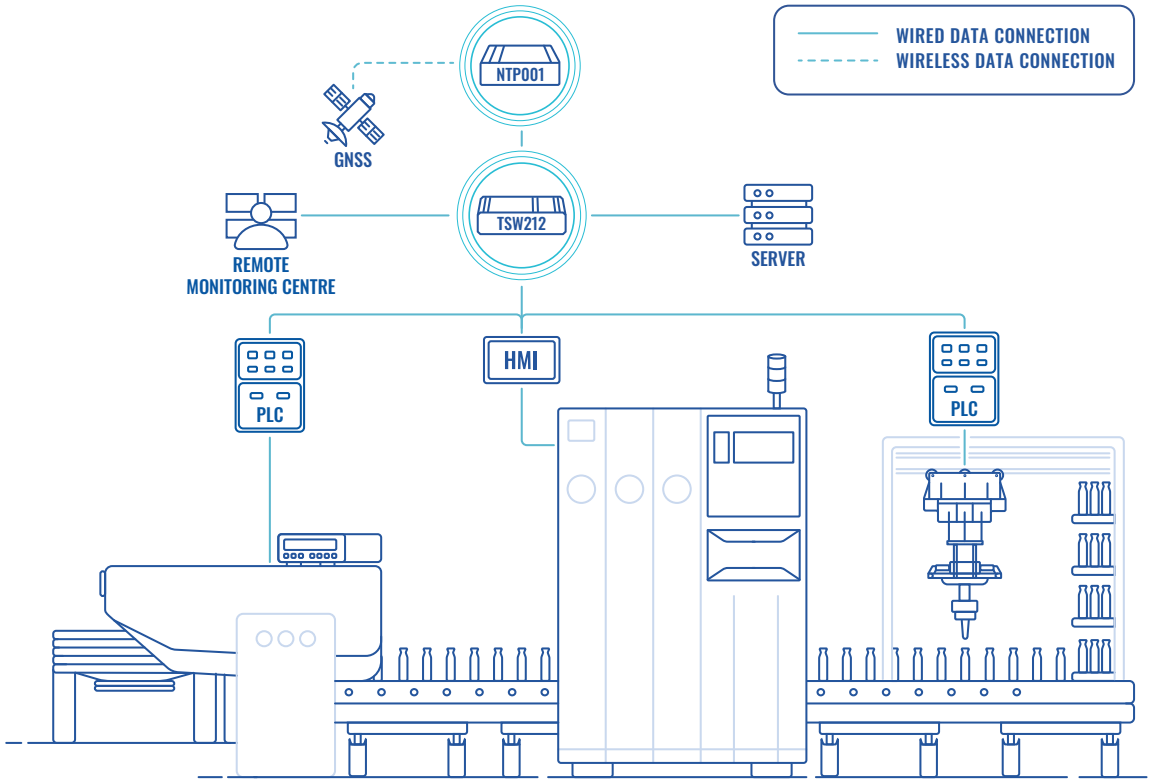
Precision and accountability are critical in every industry, but especially so in the pharmaceutical manufacturing sector. Heavily regulated and requiring strict adherence to high standards, this sector must ensure consistent product quality and maintain traceability.

These are done in many ways, but chief among them are accurate, synchronised timestamps across all equipment and systems involved in both production and quality control. Synchronised timestamps prevent batch records discrepancies, auditing difficulties stemming from mismatched event logs, and procedural errors leading to costly defects or downtime.

The stakes in question are quite high. In 2024 alone, the global pharmaceutical manufacturing market was valued at over $1073 billion, and it is estimated to surpass $2516 billion by 2034, growing at a CAGR of 8.9%.

As such, discrepancies, errors, and auditing difficulties are troubles no pharmaceutical manufacturer wants to have to deal with. The question, then, is how to prevent them, and the answer is quite simple: a network time server, also known as an NTP server.

TOPOLOGY



THE SOLUTION – TIME TO SYNCHRONISE

Chosen to synchronise accurate, time in pharmaceutical manufacturing IoT solutions is Teltonika's NTP001 NTP server. This stratum-1 time server ensures precise, UTC-traceable time for all equipment connected to it in both public and private networks, online or offline.

This NTP server was designed for plug-and-play deployment. On the hardware side of things, myriad interfaces, including RS485 and RS232 ports, a 10/100 RJ45 connector, and multiple digital inputs and outputs, all make the NTP001 compatible with many staple equipment common to pharmaceutical manufacturing, such as servers, HMIs, spectrometers, and more.

On the software side of things, this NTP clock server supports key communication protocols such as Modbus TCP, MQTT, SNMP, and many others.

An important facet of keeping synchronised time is ensuring data is only accessible by select personnel. To that end, the NTP001 is equipped with robust authentication and access control features as part of its robust security suite.

Lastly, this NTP clock server is encased in rugged and anodised aluminium housing and panels, enabling it to withstand extreme temperatures ranging from -40 °C to 75 °C and other adverse conditions found in industrial environments.

Deployment of the NTP001 in this IoT solution allows for regulatory compliance, improved error traceability and operational efficiency, and minimised process errors. These are all easily achievable at a low cost—provided you have one of the best NTP servers to keep time in check.