

Torrent Pharmaceuticals Ltd

API plant is automated to achieve high quality product with flexible Data Analysis and Reporting.

PROJECT AT A GLANCE

Project type

Pharmaceuticals

Location

Indrad, Gujrat

Application

Active Pharmaceuticals Ingredients (API)

System Components

- Premium 574634M CPU
- M340 BMXP342020 CPU
- Twido PLC
- Advantys Remote I/O
- Redundant Fiber Optic Ring Network
- Vijeo Citect SCADA
- Vijeo Historian
- HMI-ET125
- Magelis HMI
- Altivar VFDs

Customer Benefits

- Flexible Manufacturing
- High and consistent product quality
- Compliance with 21CFR11
- Easy diagnostics
- Solvent Batching
- Energy Management



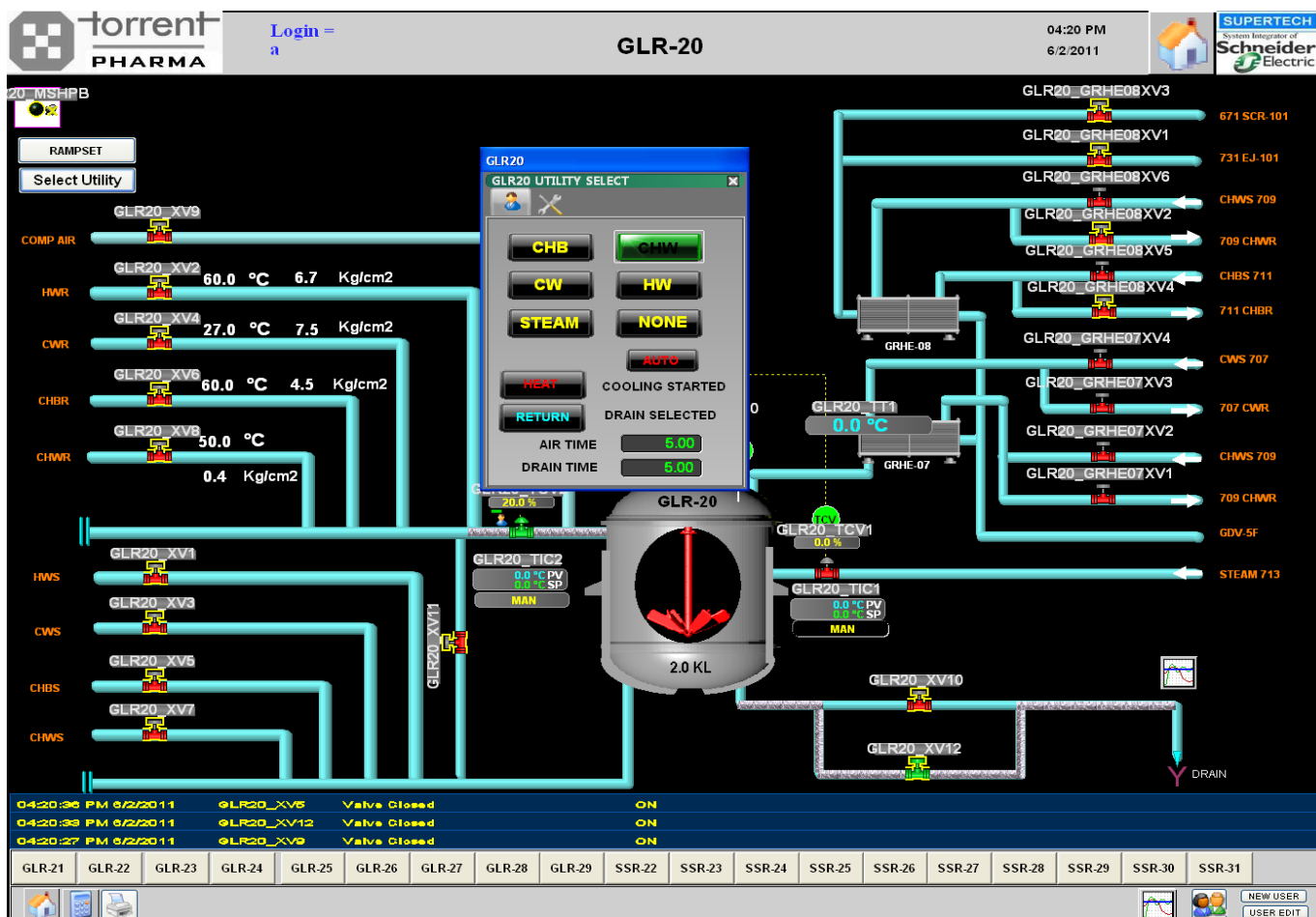
Torrent Pharmaceuticals is a dominant player in the Indian pharmaceutical industry through research, innovation and breakthroughs in the therapeutic areas of diabetology, cardiovascular, central nervous system, gastro-intestinal, anti-infective, pain management and gynecology.

Torrent's competitive advantage as a manufacturer stems from its world-class manufacturing facilities. Its manufacturing facility at Indrad, near Ahmedabad, complies with WHO, cGMP, MHRA and TGA norms and has received ISO 9001, ISO 14001 and OHSAS 18001 (Occupational Health and Safety Management System) and ISO/IEC-17025 certifications.

In the International operations arena, Torrent exports to more than 50 countries around the world with over 1000 product registrations.

Make the most of your energy

The Challenge



The plant consists of 21 nos. glass lined and Stainless Steel multi-purpose API reactors. Solvents such as M.D.C., E.A., I.P.A., N-Hexane and MeOH are stored in underground storage tanks in the Tank yard and are transferred to 5 nos. day tanks mounted on load cells in Module F and 5 nos. in other modules. Reactions are carried out in the reactor at various temperature using utilities such as CHW (Chilled Water), HW (Hot Water), CW (Cold Water), CHB (Chilled Brine) and STEAM. 13 nos. STD and VTDs (Dryers) were automated using individual Twido PLC and HMI XBT-GT. During the reaction, utilities are required to be switched according to predefined sequence.

The challenges involved in the process control were:

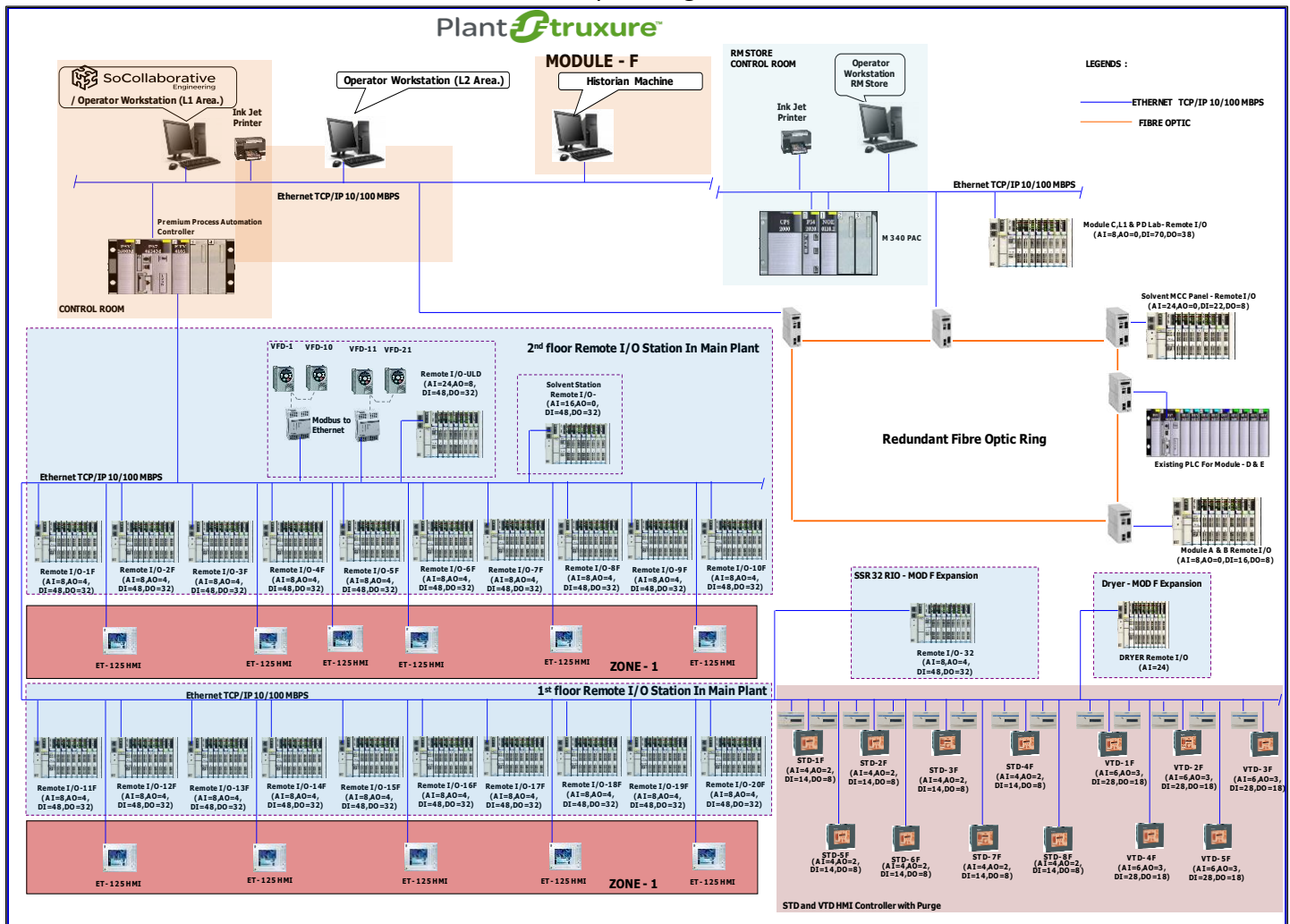
1. Solvent Dispensing – Auto charging of solvents in days tanks and then to the reactors
2. Precise Temperature control during the reactions
3. Automatic selection and changeover of utilities

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4. Monitoring of various process parameters at the central control room
5. Zone 1 HMI for local operation
6. 21 CFR 11 compliance as per US FDA
7. Validation documentation as per cGMP process
8. Inventory management of Bulk Solvent storage tanks

The Solution

The PLC/ SCADA based automation system was based on Premium Level 4 CPU, M340 and Advantys Remote I/Os and Zone 1 HMI (ET125) as shown in the following system architecture. All the PLCs, remote I/O and SCADA stations are connected on a Fibre Optic Ring Network.



Solvent charging in the Solvent Day tanks and then in the reactors is achieved using load cells based weighing systems, two stage On-Off valves and specially developed material charging function block. All the process parameters are monitored from SCADA as well as local HMI (ET125). Various process parameters

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such as Reactor Temperature and Pressure, Agitator Speed, Weight of the Solvent Day-Tanks are monitored from Operator/ Engineering Station in Module-F. Reactor temperature control is achieved using advanced heat-cool PID block available in the Premium PLC. Critical data from the plant is stored in Vijeo Historian. Log reports as per the US FDA requirements are automatically generated. The system complies with the requirements of 21CFR 11.

Vijeo Historian Based KPI Reports

Home > SSRReport-Shiftwise

Date: 12/15/2012 Shift: ShiftB
 Enter Interval(Mins): 10 Module: F
 Select Equipment Id: SSR 22

100% Find | Next

SSR/GLR Report - Shiftwise

Date : 15-12-2012
 Shift : ShiftB
 Module : F
 Equipment Id : SSR 22

SR. No	Date	Time	Parameters		
			Product Temperature (°C)	Agitator RPM	Agitator (On/Off/trip)
1	15-12-2012	15:30:00	26.3	0.0	OFF
2	15-12-2012	15:40:00	26.3	0.0	OFF
3	15-12-2012	15:50:00	26.3	0.0	OFF
4	15-12-2012	16:00:00	26.3	0.0	OFF
5	15-12-2012	16:10:00	26.3	0.0	OFF
6	15-12-2012	16:20:00	26.3	0.0	OFF
7	15-12-2012	16:30:00	26.3	0.0	OFF
8	15-12-2012	16:40:00	26.3	0.0	OFF
9	15-12-2012	16:50:00	26.3	0.0	OFF
10	15-12-2012	17:00:00	26.3	0.0	OFF
11	15-12-2012	17:10:00	26.3	0.0	OFF
12	15-12-2012	17:20:00	26.3	0.0	OFF
13	15-12-2012	17:30:00	26.3	0.0	OFF
14	15-12-2012	17:40:00	26.3	0.0	OFF
15	15-12-2012	17:50:00	26.3	0.0	OFF
16	15-12-2012	18:00:00	26.3	0.0	OFF

Process and Energy data from VJC recorded in MS SQL Server integral with the Vijeo Historian. Based on customer requirements, about 9 KPI reports were developed using Report Development Tool of VJH. Some examples are – SSR/GLR Report -Daily, STD Report-Daily, SVT/ SVD Report-Daily, SSR/GLR Report-Periodwise, STD Report-Periodwise, SVT/ SVD Report-Periodwise, SSR/GLR Report-Shiftwise, STD Report-Shiftwise, SVT/ SVD Report-Shiftwise, etc. These reports can be viewed from any machine on Torrent network through Internet Explorer using Historian web client.

This system was designed and supplied by Supertech - Alliance Partner of Schneider Electric in 2012 :

Supertech Instrumentation Services (I) Pvt. Ltd.

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