LUWA stands for well-engineered, innovative systems, plants, and solutions for textile industries. LUWA provides the system solutions for maintaining required climate conditions for an efficient operation of manufacturing facilities. Headquarter is located in Switzerland and LUWA India has it’s headquarter in Bangalore.

YASKAWA developed a special PID function with A1000 – High Performance vector control drive for the Humidification plant (controlling both the Temperature and room RH (Relative Humidity) for the textile industry. A dual PID controller is implemented in this special software. These are successfully installed with LUWA Machines.

Fig: Configuration of the Drive
**Solution:**

YASKAWA provides A1000 drive with special PID function to control both Humidity and room temperature with single drive. The drive output controls the room RH (relative humidity) and Analog output (4 to 20mA) is connected to the external damper controls the room Temperature.

**Humidity Control:**

The first PID controller receives the RH feedback from the sensor. The RH set point can be programmed through digital display keypad of the VFD. The output of the PID shall regulate the speed of the water pump to maintain the actual RH value according the set point.

The RH of the Textile Plant being maintained by the VFD. There is a logic in the system during which the PID action takes place if RH reaches the set level, then the pump will be switched off automatically.

**Temperature Control:**

The second PID controller receives the temperature feedback from the sensor. The temperature set point can be programmed through digital display/keypad of the VFD. The set temperature is compared to actual temperature and the drive PID generates an analog output (configurable) from the drive. It shall regulate position of the damper installed in supply air fan. Damper is controlled through an actuator and its damper operation is interlocked with running of the pump.

**Benefits:**

- Room Temperature and RH is controlled with single drive module.
- There is no additional controller or PLC required for the individual control of either RH or Room temperature.
- Smooth control of the Room Temperature and Relative Humidity as per the user settings
- The material properties of the yarn is perfectly maintained with the maintenance of the Room temperature and Relative humidity of the plant.
- Dynamic performance of the Internal Drive PIDs provide the smooth variance of the control needed as per the norms required for the Humidification plant.
- Drive provides the user monitors for the user setting of the either Temperature or RH.
- Drive also saves power by switching ON/OFF the pump according to the requirement.