



HYDRO PNEUMATIC VFD AUTOMATION PANELS

Industry 4.0, IIoT Systems

Measure ▶ Monitor ▶ Control ▶ Analyze ▶ Save ▶ Share



Manufactured by

KHYATEE[®]
SINCE 1995

Certified ISO 9001:2015

INTRODUCTION

Knxt VFD Automation Panel is an ARM Cortex based pre-programmed Embedded Solution with inbuilt intelligence to operate Single / Multiple VFD Drives to maintain constant pressure in the system. This ready to use solution is with Energy Monitoring, Analysis and Latest 4G Technology with Real Time Web Data Logging - Easy to use Dashboard, Analytics and Reports.

Knxt VFD Automation Panel in a Pressure Boosting System is highly intelligent to monitor and control up to 6 identical High Pressure Pumps connected in parallel to deliver water with required pressure in the system.

The system offers advanced functionality Multi pump Management including Extensive Electrical Pump Safety with Accurate Monitoring of the System & Pumps, which are Innovative, Easy to install, Use and Support on the field.

This Intelligent Controller also knows which pump to Start, Stop, and Change pump RPM, Optimize Performance, Minimize Energy Consumption & you will have Complete Control over the System Remotely with inbuilt remote web monitoring via industry 4.0 IIOT based cloud server and mobile application.

PRESSURE INTELLIGENCE

MAINTAINING SYSTEM PRESSURE IS THE MOST SIGNIFICANT PART IN WATER BOOSTING SYSTEMS

Pressure Transmitter monitors the pressure at the outlet of the Pump and interfaces it with **Knxt** VFD Automation Panel, which intelligently maintains the system pressure. As flow requirement changes multiple pumps are switched On / Off, RPM of the pump is changed to maintain constant pressure. Knxt VFD Automation Panel has inbuilt intelligent safety checks during **staging and destaging** of pressure in system.

- ▶ Four operating modes including tap feeding & tank filling modes
- ▶ One primary set point with three alternate set points
- ▶ Pressure set points access and modify by SMS
- ▶ Monitor and protect pump against cavitations
- ▶ Settable VFD speed for soft pressure built up
- ▶ Set pressure built up time & reaction
- ▶ Low flow function (Stop function)
- ▶ Auto calibration facility for pressure transmitter
- ▶ Facility of change to fix speed mode
- ▶ Facility to connect pressure switches
- ▶ Facility for standby pressure transmitter **(Optional)**



ENERGY MEASUREMENT INFORMATION SYSTEM (EMIS)

POOR QUALITY OF POWER LEADS TO MAJOR PROBLEMS LIKE EQUIPMENT BREAKDOWN & EXCESS ELECTRICITY BILL, WE HAVE A SOLUTION TO THIS!

Knxt VFD Automation Panel has inbuilt Real time Energy Measurement Information System which measures multiple Energy Parameters and Uploads this data to Cloud Server Dashboard where it is Analyzed and Reports are generated. This helps us to find out Power Quality, Wastage of Power, Areas where Power can be Saved, Daily Power Consumption, Peak Demand.

- ▶ R Y B Phase wise and average voltage
- ▶ R Y B Phase wise and average current
- ▶ R Y B Phase wise and average power factor
- ▶ R Y B Phase wise KW (Kilowatt)
- ▶ Total three phase KW (Kilowatt)
- ▶ Total KVA (Apparent Power)
- ▶ Total KVAR (Reactive Power)
- ▶ Total electricity units consumed (kW/h)
- ▶ Input supply frequency
- ▶ Total current and voltage harmonic distortion **(Optional)**
- ▶ Set alerts for selected parameters

COMMUNICATION INTELLIGENCE

INDUSTRY 4.0 IIOT BASED GATEWAY TO DIGITAL TRANSFORMATION

Measure | Monitor | Control | Analyze | Save | Share

The world embracing Digital Technology **Knxt** VFD Automation Panel has intelligent communication which measures all vital parameters in the system and provides real time data on secure cloud base Web Server and Mobile Application.

- ▶ Real time web data logging using 4G GSM / GPRS / Wi-Fi / MQTT protocols
- ▶ Real time SMS based status, settings, alerts, reports
- ▶ SMS alert for power failure and return
- ▶ Four registered users can be added
- ▶ One customer support number can be added
- ▶ Easy to use interactive dashboard and mobile application
- ▶ Trend and predictive analysis
- ▶ RS 485 communication port
- ▶ Inbuilt battery backup for power failure
- ▶ Simplified data collection and storage with detailed analytics
- ▶ Automated customized report generation and settings
- ▶ Reduced downtime and improved operating efficiency
- ▶ Reduced operating expenses and man power cost
- ▶ GPS location of site & panel shift alerts **(Optional)**
- ▶ Google Maps navigation link by SMS with fault details **(Optional)**

Knxt™ BENEFITS



Multiplatform Access:
Web & Mobile App Access



Real Time Data Capture:
Alerts & Notifications



Secured Access &
Communication



Real Time Reports with
Root Cause Analysis



Data Stored on Cloud with
Ease of Access



Scalable & Flexible
Architecture



Reduced Downtime,
Enhanced Productivity



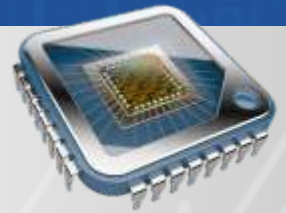
Ensure Smooth & Hassle-free
Functioning of the Pumps



Predictive Fault Analysis &
Proactive Approach



On-line Modes:
No Shutdowns Required



PUMP PROTECTION INTELLIGENCE

HIGH PRESSURE BOOSTER PUMPS NEEDS TO BE PROTECTED FROM BURNING: PREVENTS REWINDING COSTS & DOWNTIME

Knxt™ VFD Automation Panel has current and voltage sensing intelligent pump protection from various electrical faults. All these parameters are site settable for trip values and with adjustable trip time delays.

- ▶ Input R Y B phase failure
- ▶ Voltage and current unbalance
- ▶ Electronic overload (Anti jam function)
- ▶ Dry running of pump
- ▶ High and Low voltage
- ▶ Short circuit (As per ISI standards)
- ▶ Low water level protection by float switch facility
- ▶ Settable trip time delay for all protections
- ▶ 30 days fault log facility

APPLICATIONS

01



Water Supply Systems
in Domestic and
Commercial Buildings

02



Hydro Pneumatic
Automation

03



Waste Water &
Industrial Fluid Transfer

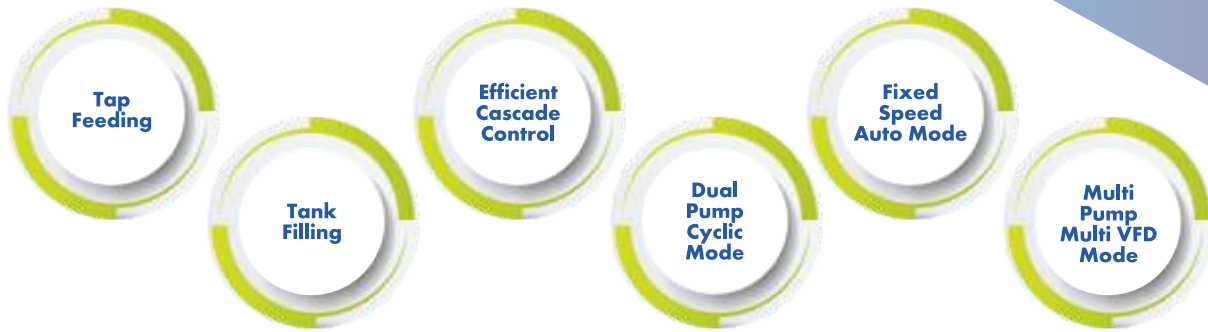
04



Oil & Gas
Industry

Knxt SYSTEM INTELLIGENCE

Six system operating modes:



- ▶ Automatic equal running of pumps (**Force pump changeover**)
- ▶ Standby pump selection and running
- ▶ Staging and destaging timer for pressure safety in system
- ▶ Makes system energy efficient by making operational combination of pumps
- ▶ Ensures smooth operation if fault is detected in pump, it changeovers to next available pump
- ▶ PID function adjust the set point of VFD to maintain constant pressure in the system
- ▶ Generates alarm in case of deviation of limits
- ▶ Multi-level password protection for critical settings
- ▶ On air firmware update (**FOTA**)
- ▶ Standby pressure transmitter (**Optional**)
- ▶ Knxt VFD Automation Panel is highly noise tolerant, modular and suitable for harsh environment
- ▶ Operating auxiliary speed pump in booster system during very low flow (**Optional**)
- ▶ 20% Cost Saving without Additional Investment- thanks to predictive condition based maintaining
- ▶ Knxt VFD Automation Panel is capable of additional parameters measurement and control of **Flow, Temperature, Vibration, Humidity & Valve Automation**



05

Mining & Metal Industry

06

Food & Beverage Industry

07

Heating, Ventilation & Air Conditioning (HVAC)

08

Automation for Agricultural Irrigation



TECHNICAL SPECIFICATION

SR. NO	PARAMETER	DETAILS
1	Supply Voltage	150 - 300 VAC / 250 - 500 VAC
2	System	1 Phase / 3 Phase 4 Wire
3	Frequency	50 Hz \pm 2 %
4	Current Range	1 - 18 Amps or as per Pump HP
5	Current Input	Toroidal Current Transformer (CT)
6	Display Type	128 x 64 Graphical Display
7	LED Indications	4 Nos
8	Switches	4 Nos Capacitive Touch
9	Panel Indicator	3 Nos LED type, 28 mm
10	Energy Monitoring	Class 2 Accuracy
11	Analog Inputs	10 Nos
12	Digital Inputs	6 Nos, Isolated
13	Relay Outputs	11 Nos, 5A, 1 CO
14	Analog Outputs	4 Nos / 0 - 10 V DC
15	Communication Port	RS 485 / Modbus (Optional)
16	Battery Backup	Up to 12 hours
17	Contractors / MCB / VFD	Branded as per system design
18	Wiring	ISI Grade, Fire Retard, Color Coded with Lugs
19	Web Protocol	<ul style="list-style-type: none">• Multi band LTE-TDD / LTE-FDD / HSPA+ GSM / GPRS / EDGE• Call / SMS / GPRS / HTTP / TCP-IP / MQTT / FTP• Firmware over the air (Server based)
20	Models	<ul style="list-style-type: none">• 1 Pump, 2 Pumps, 3 Pumps, 4 Pumps• Single VFD / Multi VFD
21	Enclosure	Mild steel, Powder coated, Rust and Vermin proof with safety lock
22	Mounting	Stand-alone / Wall Mounting
23	Size	As per system design and model specifications

Knxt™ SOLUTION IMPLEMENTATION



Solution Introduction

- ▶ Concept Discussions
- ▶ Site Requirements
- ▶ Customized Features



Site Details

- ▶ Pump Details
- ▶ Sensor Details
- ▶ Mounting Arrangements



Installation and Training

- ▶ Mounting and Setup
- ▶ Configuration and Settings
- ▶ Web Application Usage

YOUR WEB GATEWAY TO DIGITAL PUMPING SYSTEM



Desktop
and Mobile
Application



Knxt™ Product Range

- ▶ Web based Motor Control
- ▶ Web based Energy Monitoring
- ▶ Web based Transformer Monitoring
- ▶ Web based Valve Automation
- ▶ Web based Level Control
- ▶ Web based Asset Tracking



ABOUT US !

Khyatee, a registered SSI started in 1995 at Pune, has carved a niche for itself in areas of Pump Control Panels, Starters, Mobile Starters, RO Panels, Water ATMs, Web Data Loggers etc.

For years, we have been renowned for Quality, Reliability and Pioneering Innovations. We have unparalleled expertise in the areas of backward integration into products and critical components to control price and quality.

The success and popularity of team Khyatee lies in the efforts put in for every minute detail which culminate into flawless product which are unique, innovative and easy to use. The team is committed to understand and meet the needs of the Customers. Creating dynamically comprehensive and technologically advanced products for the use of 'Common Man' and thus making their life safer and easier has been distinctive feature of this growing organization.

Having a certification for international quality standards ISO 9001-2015 came as a natural extension to the innovative products already gaining appreciation and customer's trust.

WHY KHYATEE ?



Winner of DST - LOCKHEED MARTIN INDIA
INNOVATION GROWTH AWARD 2013



MANUFACTURED BY

KHYATEE
Electronics Pvt Ltd

Pisoli, Pune - 411048 ✉ khyatee.india@gmail.com

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@KhyateeElectronicsPvtLtd

www.khyatee.in