CSD OR IRIS VALVE BASED CONTINUOUS CENTRIFUGAL MACHINE FEED

AUTOMATION SYSTEM

BASED ON YUTECH'S A15 INTELLIGENT ANALYZERS AND SYSTEMS PLATFORM PRESENTATION AND DATASHEET





CSD OR IRIS VALVE
BASED CONTINUOUS
CENTRIFUGAL MACHINE
FEED AUTOMATION
SYSTEM

STOP LOSS
AND
MULTIBAGGER





Servicing the Sugar Industry since 1978

YU Technologies Pvt. Ltd.

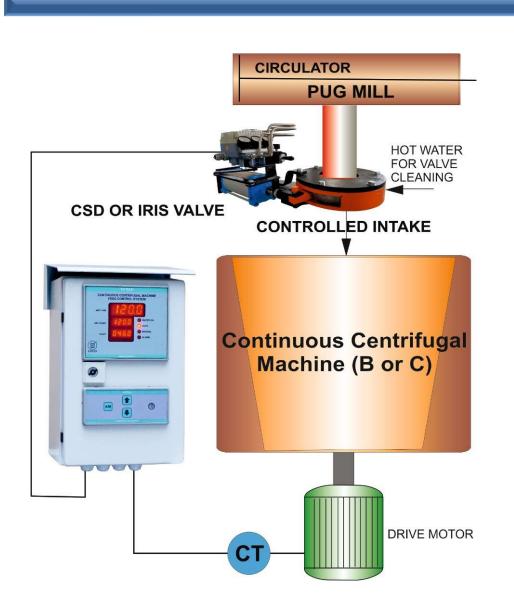
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CSD OR IRIS VALVE BASED CONTINUOUS CENTRIFUGAL MACHINE FEED

AUTOMATION SYSTEM

SCHEMATIC DIAGRAM





CSD OR IRIS VALVE BASED CONTINUOUS CENTRIFUGAL MACHINE FEED AUTOMATION SYSTEM:

- MACHINE DRIVE LOAD CURRENT SENSING
- FEED CONTROL WITH RESPECT TO DRIVE LOAD CURRENT

Power Saving of up to 20% for total Massecuite Curing.

CONTINUOUS CENTRIFUGAL MACHINE ATOMATION WORKS LIKE A "MULTIBAGGER".

REDUCE COST OF OWNERSHIP
INCREASE RETURN ON INVESTMENT
INCREASE PROFITABILTY

ADVANTAGES



- Constant Load on the Machine Basket Drive results in Constant Machine Operation and Optimum Current Consumption of the Drive Motor thus Saving Power and Maximizing Capacity Utilization at the Same Time.
- Constant Load on the Machine Basket results in Improved Molasses Purity as well as Increased Throughput at the same time.
- Concentric and Uniform Material Intake Ensures uniform layer of Massecuite over the surface of the Basket thus it results in Excellent Purging, leading to higher efficiency and increased throughput
- Uniform layer of Massecuite over the surface of the Basket also results in Power, Water and Steam Saving. Power Saving of up to 20% for total Massecuite Curing. Very Attractive pay back INFACT CONTINUOUS CENTRIFUGAL MACHINE ATOMATION WORKS LIKE A "MULTIBAGGER".
- Concentric and Uniform Material Intake also ensures Proper Basket Balance so reduces Wear and Tear.
- Higher Capacity Utilization of Continuous Centrifugal Machines and Operational life improvement and Reduced Cost of Ownership.
- Eliminates Human Errors, Overflows and Stoppages IT ALSO WORKS AS A "STOP LOSS AUTOMATION".

ADVANTAGES



YUTECH Engineered Automation System in Continuous Centrifugal Machines:

- Reduce Process Time and Increase Throughput
- Maximize Machine Capacity Utilization
- Eliminate Stoppages due to Human Errors
- ➤ Eliminate Wastage through Basket Overflows
- Reduce Power, Steam and Water Consumption
- Proper Basket Balance results in Reduced Wear and Tear
- In some cases, it is observed that One or Two Machines have been kept spare as total load is taken care of by 4 Machines instead of 6
- Thus, we can Conclude that Continuous Centrifugal Machine Automation can get more Work Done from the Same Mechanical Equipment and:
- > REDUCE COST OF OWNERSHIP
- > INCREASE RETURN ON INVESTMENT
- > INCREASE PROFITABILTY



CONTINUOUS CENTIFRUGAL MACHINE AUTOMATIC FEED CONTROL SYSTEM

PRODUCT CODE:

CONTROLLER MODEL: A15CCMAACCTC1C2D4R4FMC

CONTROLLER WITH ETHERNET: MODELA15CCMAACCTC1C2D4R4FMCEM (Modbus

TCPIP)

CONCENTRIC SPLIT DIAPHRAGM (CSD) CONTROL VALVE ALSO CALLED IRIS TYPE

VALVE: PRODUCT CODE: C15CSDV3D6EP





CONTINUOUS CENTIFRUGAL MACHINE AUTOMATIC FEED CONTROL SYSTEM

CSD OR IRIS VALVE

INSTALLATION PICTURES





Controlled Quantity of Massecuite drops from the Concentric Opening (Split opening from the Centre of the Valve) Hence No Spilling, No Splattering, No Unbalance, No Overflow, No Underfeeding

Typical Concentric Opening Split
Diaphragm
Pneumatic Control Valve
Installation





INSTALLATION PICTURES







INSTALLATION PICTURES







CONTROLLER SALIENT FEATURES



Innovative Features for Ease of Operation and to save on Installation Cost and Materials:

- Built-in Communication Links: See Product Code to select desired protocol Ethernet:
 - a. Modbus TCPIP Ethernet Communication Protocols
 - b. External PID Controller Calibration Facility from DCS / PLC- SCADA / HMI System via Ethernet. Control Variables can be accessed and changed from DCS / PLC- SCADA / HMI.
 - c. Machine Drive Load Current Data is Communicated for Data Acquisition and Data Storage within DCS / PLC- SCADA / HMI.

RS485: Modbus RTU on request in Base Model.

USB Communication Facility: For Calibration from PC or Android using System's USB Port. (This facility is available only in Controller with Ethernet Models).

YUTECH Access App: Calibration Software can be installed in a PC or Android.

CONTROLLER TECHNICAL SPECIFICATIONS



- **Power Supply:** 85 265 VAC, 50 60Hz
- ➤ Analyzer Enclosure: IP67 Field Mounted Dust and Moisture Proof
- > Input:
 - Current Transmitter Signal
 - 4-20mA Signal (Additional Input can take Drive Current in case of VFD)
- Calibration:
 - From Keyboard
 - ➤ USB Port for Windows / Android-based YUTECH-AccessApp
- Display:
 - Controller and Controller with Ethernet Model: 4 Digit LED Tripple Display
 - ➤ Valve Cleaning and Washing Output: In-Built Potential Free Relay
- Sensor Cleaning Timing Cycle: Adjustable from Keyboard
- Signal Output:
 - → 4 20 mA Drive Load Current Output
 - ➤ 4 20 mA PID Output (Controller, Controller with Ethernet Models)
 - 2 Potential-Free Relay Outputs for High Low Alarm
- **Communications:**
 - Ethernet Communication Protocol: Modbus-TCPIP

CONTROLLER TECHNICAL SPECIFICATIONS



Product Code: Controller:

- ➤ A15CCMAACCTC1C2D4R4FMC A15CCMA means Continuous Centrifugal Machine Automation System based on A15 Product Family
- ➤ A15CCMAACCTC1C2D4R4FMC AC Power Supply
- ➤ A15CCMAACCCTC1C2D4R4FMC Analog Inputs and Outputs
 - AI (BSR): AC-CT and 4-20mA Input; AO (C1): 1 Ch. 4-20mA (Brix)
- ➤ A15CCMAACCTC1C2D4R4FMC Digital Inputs and Outputs
 - DI (D4): 4 DIs (24VDC); DO (R4): 4 Relay Outputs (24VDC, 1A)
- ➤ A15CCMAACCTC1C2D4R4FMC FM: Field Mounted Enclosure
- ➤ A15CCMAACCTC1C2D4R4FM<mark>C C</mark>: Controller Model where AO Ch-2 is for PID / PI Controls
- ➤ A15CCMAACCTC1C2D4R4FMCEM CEM: Controller with Ethernet Model where EM means Modbus TCPIP
- > Rating and Calibration:
 - ➤ Please mention the Machine Capacity and Drive Rating for CT Selection

Product Code: CSD or Iris Control Valve:

- C15CSDV3D6EP C15CSD means based on C15 CSD Valve Product Family
- > C15CSDV3D6EP V3 means valve with bottom discharge designed for Centrifugal Machine
- > C15CSDV3D6EP D6 means 6" or 150mm Diameter
 - > D3, D4, D6, D8, D10, D12 are the diameters available
- > C15CSDV3D6EP = EP means Electro-Pneumatic Positioner

CSD OR IRIS VALVE TECHNICAL SPECIFICATIONS



Valve Type : Concentric Split Diaphragm Type Central Opening Valve

with Camera Aperture like Action

Sizes (Valve Opening) : 3" (75mm) / 4" (100mm) / 6" (150mm) / 8" (200mm) /

10" (250mm) / 12 (300mm)

Product Code: C15CSDV3D6EP, 6 is for 6" / 150mm

Or C15CSDV3D10EP, 10 is for 10" / 250mm. Similarly, for

all above sizes.

Body material : MS Fabricated / Other Material on Request

Valve Internals : SS 410 / 304 / 316L - On request

Bearings and wedges material : SS

Sheathing : PTFE / PU

Actuation : Pneumatic Linear (2 -7 Kg/cm2 Air Pressure) / Electric -

Motorized / Handle

Actuator Stroke : As per Valve Size

Positioner : Electro-Pneumatic / Electronic

Position Feedback (Optional) : 4 - 20 mA

Input (for Actuated Valves : 4 - 20 mA from any external source

only) Or

Push Buttons for Open and Close

SALIENT FEATURES



- Rugged Build Quality for Long Life.
- Heavy Duty Rugged Valve Construction absorbs all shocks and Vibrations.
- ➤ Valve Internals are of Heavy Gauge SS Construction and designed to operate under heavy Massecuite loads without bending or deformation.
- Precise Flow Control due to Concentric Opening of Split Diaphragm (similar to a camera aperture).
- Energy saving whilst Flow Control due to Free Passage through Concentric Opening
- Low-noise due to Easy Passage
- Maintenance free
- Pneumatic Actuation with Electro-Pneumatic Positioner for smooth Linear Control Action
- ➢ Operating Air Pressure 2 − 7 Kg/cm²
- Motorized Actuation with Electronic Positioner for smooth Linear Control Action
- Input 4-20mA from any external source like PLC / DCS / Controller

MORE YUTECH PRODUCTS, SYSTEMS AND PROJECTS



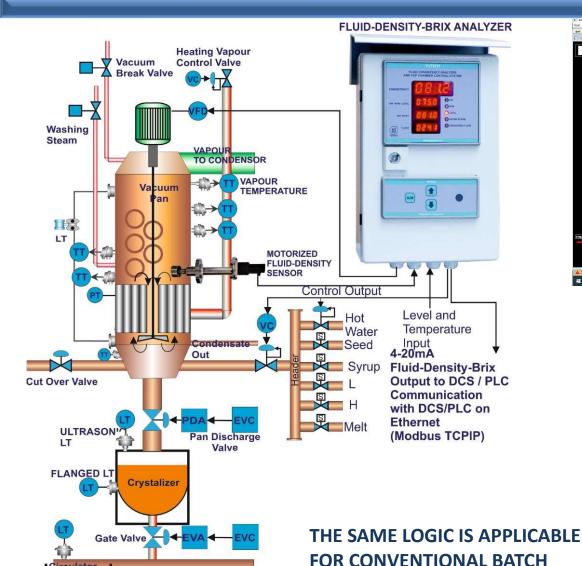
DCS or PLC Based Turnkey Automations or Standalone Control Systems:

- Complete Sugar Mill Automation with all Loops like Cane Feeding, Mill Speed Controls, Imbibition and Juice Flow Controls etc
- Complete Sugar Process Automation with Loops like Evaporator, Pans, Continuous Pans, Melters Conditioners, Direct Contact Heaters, Condensers etc
- Complete Sugar Refinery / Pharma Grade Sugar Plant Automation with Loops like Pans, Continuous Pans, Melters, Melt Clarifier, Melt Filtration Systems, Direct Contact Heaters, Condensers etc
- Complete Boiler and Power Plant Automation
- Complete Sugar Plant Automation and Instrumentation
- Complete Distillery Automation and Instrumentation
- Complete Process Plant (Pharma / Food Processing / Cement / Steel) Automation and Instrumentation
- VCP / CVP / Batch Pan Automation
- Condenser Automation
- Continuous Centrifugal Machine Automation based on CSD or Iris Valve
- Evaporator and FFE Automation
- Direct Contact Heater Automation
- Vertical Crystallizer
- > pH Control System

YUTECH FLUID-DENSITY-BRIX ANALYZER CUM CONTROL SYSTEM AND MOTORIZED FLUID-DENSITY SENSOR

BATCH PAN AUTOMATION- BATCH PAN CONTROLS SCHEMATIC AND SCREENSHOT





Circulator

BATCH PAN WITH STIRRER

YUTECH SPRAY LINE
9
JET LINE 98

SCREEN SHOT: BATCH PAN AUTOMATION

BATCH PAN AUTOMATION:

- FLUID-DENSITY-BRIX SENSING AND MATERIAL / WATER INTAKE CONTROL
- **VARIABLE BRIX SET-POINT AS PER PAN LEVEL**
- VFD SPEED CONTROL AS PER PAN LEVEL
- TEMPERATURE SENSING THROUGHOUT THE PAN TO ENSURE UNIFORM TEMPERATURE **INSIDE PAN BODY**
- BATCH COMPLETE INDICATION AND DROP **SUGGESTION**
- STANDALONE SYSTEM OR PLC / DCS BASED **SYSTEM**

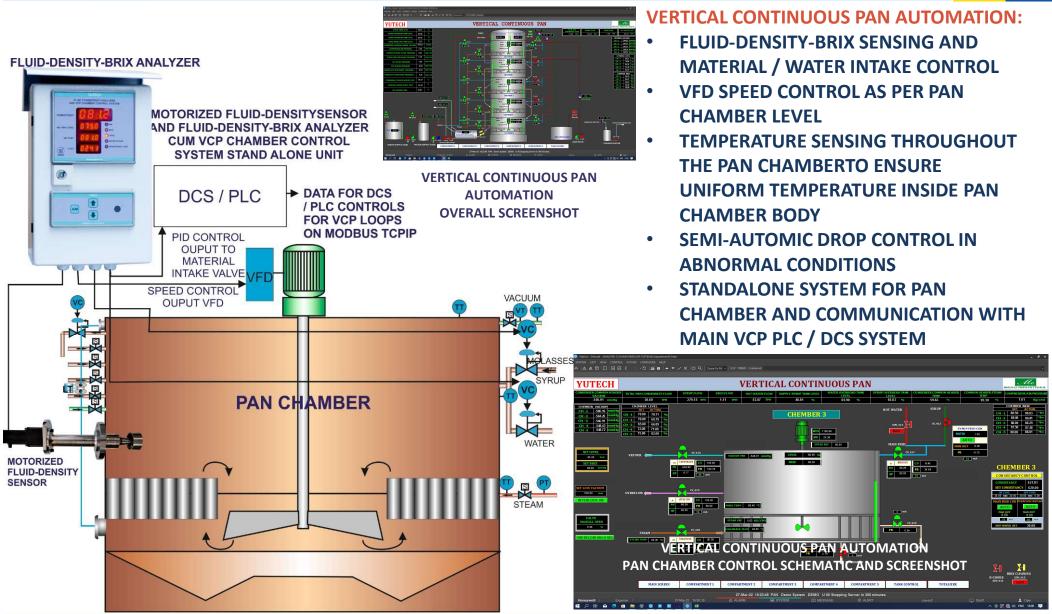
PAN AUTOMATION EXCLUDING

THE CIRCULATOR AUTOMATION

YUTECH FLUID-DENSITY-BRIX ANALYZER CUM CONTROL SYSTEM AND MOTORIZED FLUID-DENSITY SENSOR

VERTICAL CONTINUOUS PAN AUTOMATION
PAN CHAMBER CONTROL SCHEMATIC AND SCREENSHOT





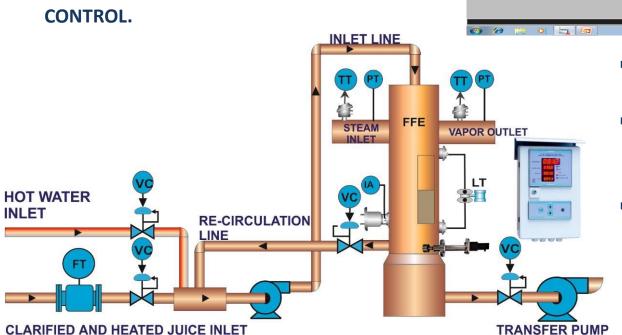
YUTECH FLUID-DENSITY-BRIX ANALYZER CUM CONTROL SYSTEM AND MOTORIZED FLUID-DENSITY SENSOR

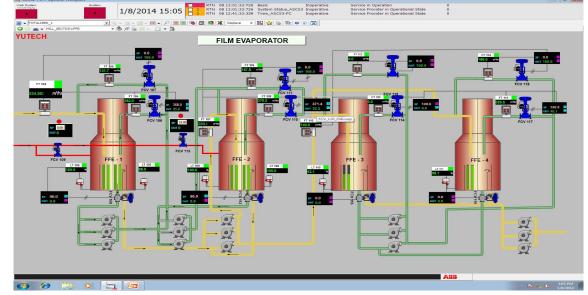
FFE AUTOMATION - EVAPORATOR CONTROLS SCHEMATIC AND SCREENSHOT



FALLING FILM EVPORATOR (FFE) AUTOMATION:

- EVAPORATOR LEVEL MAINTAINED FOR PROPER EVAPORATION AND VAPOR GENERATION.
- AUTOMATIC WATER INTAKE IF REQUIRED.
- INLET FLOW TO THE FFE BODY AND RECIRCULATION IN EQUAL OR IN PRESET PROPORTION.
- OPTIONAL INLET, RECIRCULATION AND BYPASS FLOWS MEASUREMENT AND CONTROL.





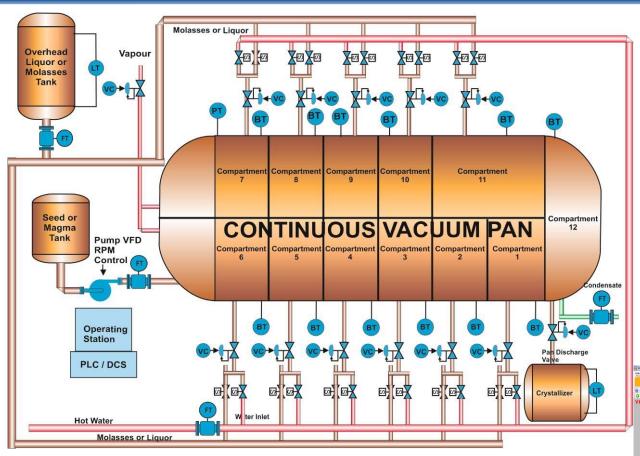
- FLUID-DENSITY-BRIX OF FINAL BODY MEASURED AND MAINTAINED
- INTELLIGENT DATA ANALYSIS WITH MAINTENANCE AND CLEANING ALARMING SYSTEM
- PRECEDING BODY LEVEL
 SYNCHRONIZATION FOR ALL BODIES
 INCLUDING JUICE TANKS AND CANE
 CARRIERS

YUTECH FLUID-DENSITY-BRIX OR BRIX ANALYZER CUM CONTROL SYSTEM

AND SELF-CLEANING SENSOR

CONTINUOUS VACUUM PAN AUTOMATION CVP CONTROL SCHEMATIC AND SCREENSHOT



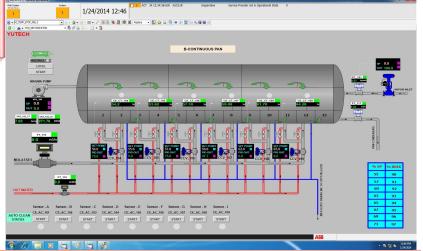


VERTICAL CONTINUOUS PAN AUTOMATION:

- CALENDRIA VAPOUR PRESSURE CONTROL
- STANDALONE SYSTEM FOR PAN CHAMBER AND COMMUNICATION WITH MAIN VCP PLC / DCS SYSTEM
- SEED OR MAGMA FLOW CONTROL WITH RESPECT TO MOLASSES OR LIQUOR FLOW

VERTICAL CONTINUOUS PAN AUTOMATION:

- YUTECH FLUID-DENSITY-BRIX OR YUTECH BRIX SENSING AND MOLASSES / WATER INTAKE CONTROL FOR EACH COMPARTMENT
- VFD SPEED CONTROL AS PER PAN CHAMBER LEVEL FOR LAST CHAMBER IF INSTALLED
- TEMPERATURE SENSING THROUGHOUT THE PAN CHAMBERTO ENSURE UNIFORM TEMPERATURE INSIDE PAN CHAMBER BODY
- SEED FLOW CONTROL MAINTAINING MOLASSES TO SEED RATIO

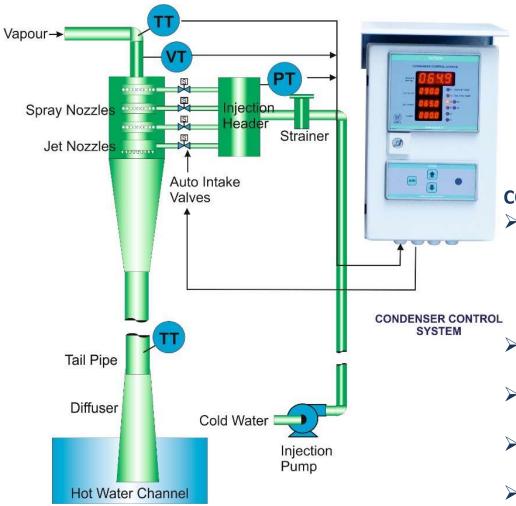


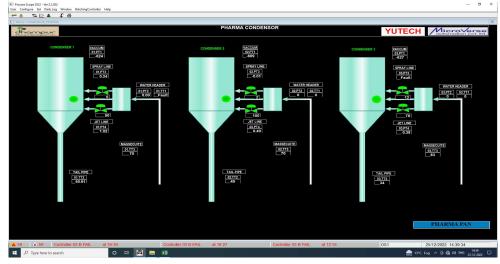
YUTECH CONDENSER CONTROL SYSTEM FOR PANS AND EVAPORATORS

SCHEMATIC DIAGRAM: CONDENSER AUTOMATION USING YUTECH CONDENSER CONTROLLER SCREEN SHOT: CONDENSER CONTROL SYSTEM IMPLEMENTED USING DCS / PLC



SCHEMATIC DIAGRAM AND SCREENSHOT: CONDENSER CONTROL





CONDENSER AUTOMATION:

- Separate Water Entry for Different Sets of Spray Nozzles and Spray Jet and Water Quantity is Automatically Controlled by ON/OFF Valve for Respective Nozzle Set Valve wrt Vacuum and Temperature difference between the Vapour and Condensate Tail Pipe
- Number of Jets & Nozzles and Jet & Nozzle Diameters designed as per Condenser Capacity
- Complete Stainless-Steel Construction, Strainer provided for each Condenser Header
- Water Pressure in the Common Injection Header maintained by Controlling Injection Pump VFD
- > Jet Compartment Controlled by Separate Valve
- Vapour and Tail Pipe Temperature Measured

YUTECH'S POWERFUL AND RUGGED A12 PLATFORM BASED INSTRUMENTS:

VERY POWERFUL, A12 PLATFORM HAS DECENT ANALYTICAL ABILITY WITH HIGH-SPEED ETHERNET AND WIRELESS COMMUNICATION PROTOCOLS AND RUGGED FIELD MOUTED ENCLOSURES



Instruments Specifically Designed and Manufactured for Sugar Mills having IP 67 protection class **Enclosures:**

- Cane Blanket Level Indicators & Transmitters with Sensor Options of:
 - Hall's Effect Type Sensors
 - Ultrasonic Type Sensors
- Mill Top Roller Lift Indicators & Transmitters with Sensor Options of:
 - ➤ Hall's Effect Type Sensors
 - **Ultrasonic Type Sensors**

Field Mounted Instruments having IP67 protection class Enclosures for any Process Applications:

- Field Mounted Universal Input Process Indicator & Transmitter with Ethernet / Wireless Communication Facility and 4-20mA Retransmission and 2 Potential-Free Relay Outputs
- Field Mounted Dual Channel Universal Input Process Indicator & Transmitter with Ethernet / Wireless Communication Facility and with two 4-20mA Retransmission and two Potential-Free Relay Outputs
- Field Mounted PID Controller and Time Proportionate PID Controller
- Field Mounted Customized Pre-fed Logic Indicators and Controllers
- **Function Display**
- Electro-Pneumatic Valve Positioner with Position Feedback
- Field Mounted Auto / Manual Stations with External Pot Facility
- Field Mounted Flow Totalizer





YUTECH'S A10 PLATFORM BASED INSTRUMENTS:

A10 PLATFORM IS DESIGNED FOR PROCESS INSTRUMENTS, INDICATORS, SCANNERS AND CONTROLLERS WITH HIGH-SPEED COMMUNICATION FACILITY AND PROTOCOL CONVERTERS



GENERAL INSTRUMENTS FOR ANY PROCESS APPLICATIONS:

- Universal Input Process Indicator & Transmitter
- Dual Channel Universal Input Process Indicator & Transmitter
- PID Controller
- Time Proportionate PID Controller
- Universal Input Jumbo Displays of Digit Sizes from 1" to 12"
- Universal Input Jumbo Displays of Digit Sizes from 1" to 12" with 4-20mA Retransmission and 2 Potential-Free Relay Outputs
- Modbus RTU Input Jumbo Displays of Digit Sizes from 1" to 12"
- Special Machine Controllers customized for YUTECH Machines
- Auto / Manual Stations with External Pot Facility
- 8 AND 16 Channel Scanner

I/O AND PROTOCOL CONVERTER PRODUCTS:

- Universal Input Process Indicator with Modbus RTU, 4-20mA Retransmission and 2 Potential-Free Relay Outputs
- > 8 Channel Universal Input Card with Modbus RTU Communication
- ➤ 8 Channel Universal Input Card with Wireless Communication
- Wireless to Ethernet Protocol Converter
- Modbus RTU to Modbus TCP/IP Serial to Ethernet Protocol Converter
- EtherNetIP TO Modbus TCP/IP Protocol Converter







YUTECH'S A09 PLATFORM BASED INSTRUMENTS:

A09 PLATFORM PRODUCTS ARE INSTRUMENTS, SENSORS AND TRANSMITTERS OF INDUSTRIAL CATEGORY



YUTECH's A09 Platform based General Industrial Instruments:

- Head Mounted RTD Transmitters for Bearing Temperature Sensing
- Thermo-couple Temperature Transmitters Panel Mounted / Field Mounted
- > RTD Temperature Transmitters Head Mounted / Panel Mounted / Field Mounted
- > RPM Transmitters for All Types of Drives
- Current Transmitters for Electric Motor Drive Load Sensing
- Vacuum Transmitters
- Draft Range Negative & Positive Composite Range Pressure Transmitters
- General Process Indicators
- General Field Mounted Process Indicators











YUTECH'S INTELLIGENT A15 PLATFORM BASED ANALYZERS AND SYSTEMS:

INTELLIGENT & VERY POWERFUL, A15 PLATFORM HAS ANALYTICAL AND HIGHER I/O HANDLING ABILITY WITH COMMUNICATION FACILITY FOR ETHERNET AND WIRELESS PROTOCOLS



FIELD MOUNTED ANALYZERS AND CONTROL SYSTEMS FOR PROCESS, PHARMA, DAIRY AND SUGAR INDUSTRY:

SUGAR PROCESS ANALYZERS AND CONTROLS:

- > HIGH FREQUENCY BRIX ANALYZER AND BRIX ANALYZER AND AUTO-RETRACTABLE SELF-CLEANING BRIX SENSOR
- > FLUID-DENSITY-BRIX ANALYZER CUM CONTROL SYSTEM AND MOTORIZED FLUID DENSITY SENSOR
- > CONDUCTIVITY ANALYZER
- > PH ANALYZER
- CONTINUOUS CENTRIFUGAL MACHINE AUTOMATION SYSTEM USING CONCENTRIC SPLIT DIAPHRAGM CONTROL VALVE ALSO CALLED IRIS VALVE.
- > CONDENSER CONTROL SYSTEM: MULTIPLE OR SINGLE WATER SPRAY AND JET ENTRY CONDENSER CONTROLS.

SUGAR MILL AND BOILER ANALYZERS AND CONTROLS:

- > INFRA RED TYPE LEVEL SENSING AND TRANSMISSION SYSTEM: SUGAR MILL DONNELLY CHUTES.
- > INFRA RED TYPE LEVEL SENSING AND TRANSMISSION SYSTEM: BOILER BAGASSE SILOS OR CHUTES.
- CAPACITIVE TYPE LEVEL SENSING AND TRANSMISSION SYSTEM: SUGAR MILL DONNELLY CHUTES.

DATA ACQUISITION AND COMMUNICATION:

- > FIELD MOUNTED DATA ACQUISITION AND COMMUNICATION SYSTEM: ETHERNET / WIRELESS COMMUNICATION
- ➤ IOT FIELD MOUNTED DATA ACQUISITION AND COMMUNICATION SYSTEM: PROCESS DATA TRANSMISSION AND INTERNET COMMUNICATION ON GSM AND WIFI
- > 16 CHANNEL SCANNER WITH MODBUS RTU
- ▶ 16 CHANNEL SCANNER WITH MODBUS TCPIP



YUTECH SUGAR MILL PROCESS INSTRUMENTS

MEASURING SUGARS BRIX BY BRIX

YUTECH FLOW CONTROLS

CONTROL SAVE EARN



THE SWEETENER TO SUCCESS

YUTECH INSTRUMENTS

ANALYZE TRANSMIT CONTROL COMMUNICATE



SAVE FUEL, REDUCE CARBON FOOTPRINT,
MAKE THE WORLD GREENER
AND YET, MAKE MONEY
THANK YOU

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