

Fluid Control & Pneumatics

Innovative solutions to solve your toughest challenges today and tomorrow.

Fluid Control & Pneumatics (FLMC)

Product Range & System Solution

Sandy Aprilian Iskandar

Internal Business Development Engineer – Indonesia

Discussion Agenda

- 1 Corporate Introduction

- 2 (a) ASCO Products Portfolio

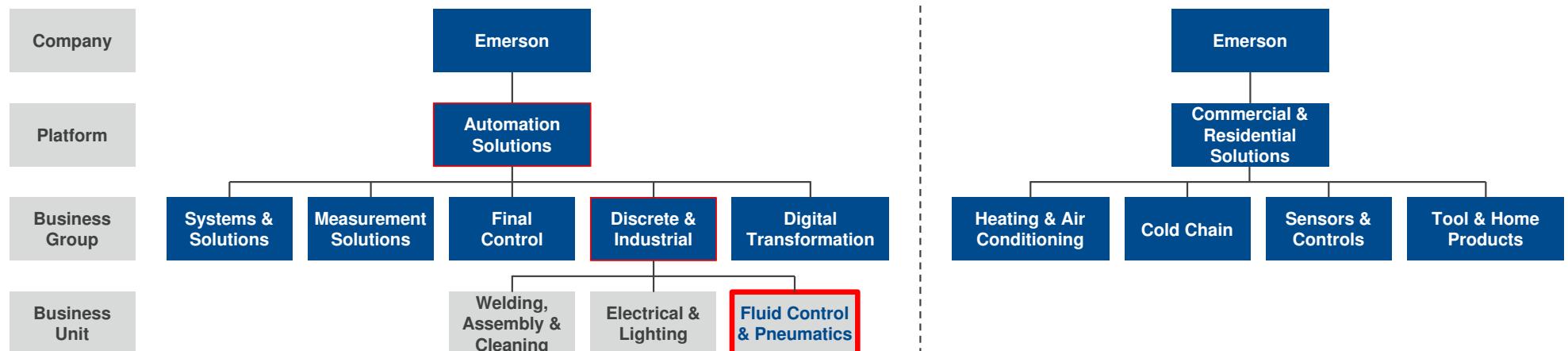
- 3 (b) AVENTICS Products Portfolio

- 4 (c) TOPWORX Products Portfolio

- 5 (d) MACHINE AUTOMATION SOLUTION Products Portfolio

Corporate Introduction

Our Organization Structure



Our Values

Guiding How We Operate Internally & Externally

INTEGRITY

We are uncompromising in our honest and ethical behavior, which creates trusting relationships with one another, customers, suppliers, and communities.

SAFETY & QUALITY

We are unwavering in our commitment to the highest standards of safety and quality for ourselves and our customers.

SUPPORT OUR PEOPLE

We attract, develop and retain exceptional people in an inclusive work environment, where all employees can reach their greatest potential.

CUSTOMER FOCUS

We actively listen to our customers to deeply understand their needs and deliver the unique solutions that ensure their success.

CONTINUOUS IMPROVEMENT

We constantly strive for improvement in all aspects of our business, guided by metrics, feedback, and our disciplined management process.

COLLABORATION

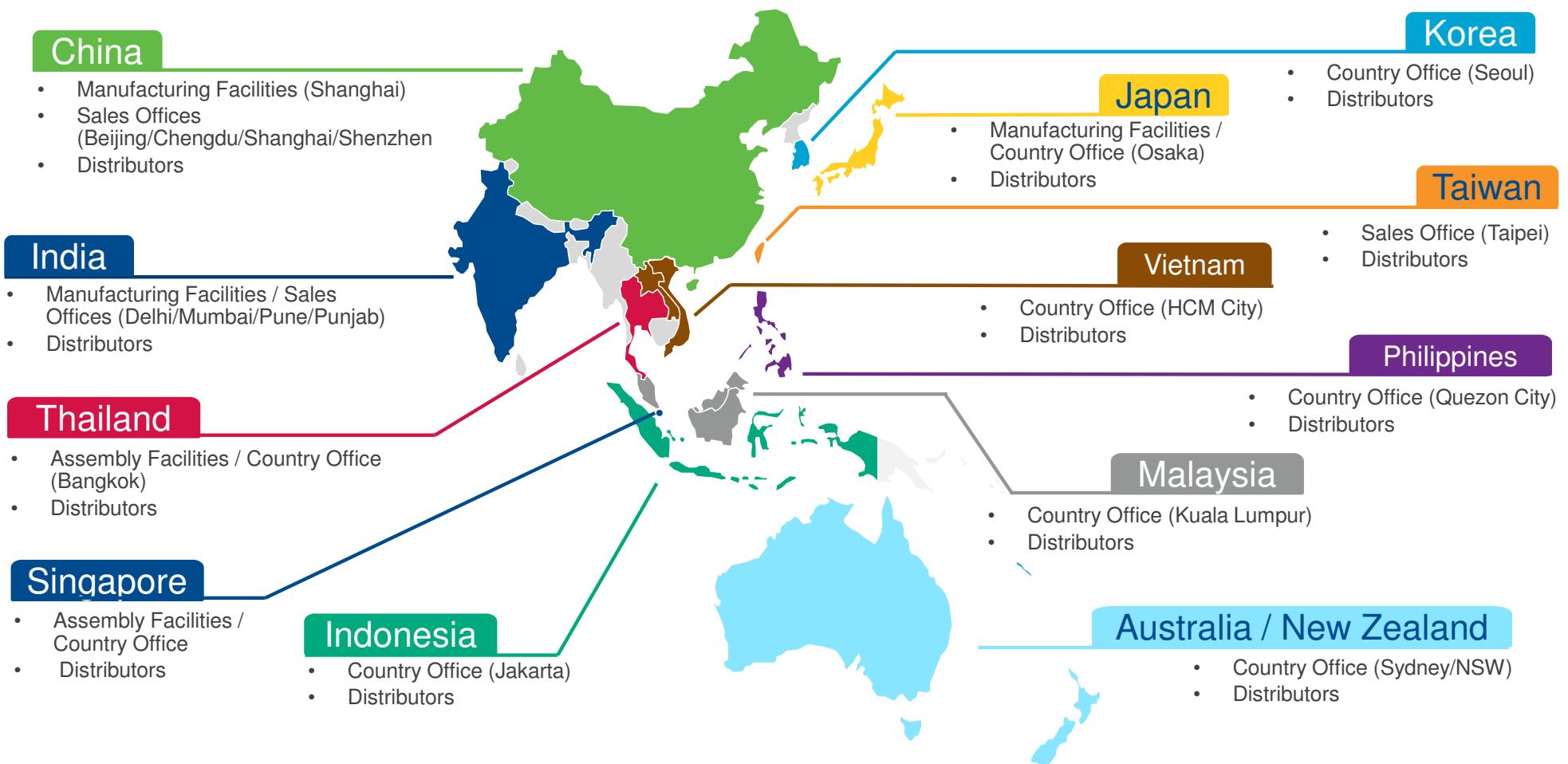
We work seamlessly across geographies, platforms, business units, and functions to fully leverage our unmatched breadth and expertise.

INNOVATION

We passionately pursue new technologies, capabilities, and approaches to drive tangible value for our customers.



FLMC (Asia Pacific) Locations



Fluid Control & Pneumatic Portfolio



ASCO®

FLUID CONTROL

Controlling the flow of air, gas, water, oil and steam in the most critical applications

- Solenoids
- Air Operated Valves
- Miniature Valves
- Engineering Panel Solutions

AVVENTICS™

PNEUMATICS

Transforming pressurized air or gas into energy and motion to power machines

- Valve Systems & Directional Control
- Proportional Valves
- Cylinders & Actuators
- Air Preparation
- Machine Safety
- Pneumatic Systems & Cabinets
- Connectivity and IIoT

TOPWORX™

POSITION SENSING & INDICATION

Sensing, switching and control for the most demanding environments

- Proximity Sensors
- Limit Switches
- Discrete Valve Controllers
- Nuclear Approved Products
- Subsea Products

Solution

Machine Automation Solution

Provide solution for Energy monitoring, Increase OEE & Predictive maintenance

- Dust & Pulse Technology
- Digital Transformation
- MAS

(a) ASCO Products Portfolio



ASCO – PRODUCTS PORTFOLIO



Controlling the flow of air, gas, water, oil and steam in the most critical applications

ASCO Solenoid Valves

Please refer to our [Emerson](#) website for more information



Series 210



Series 238



Series 256



Series 356



Series 327 Direct operated,
Balanced Poppet Solenoid Valve



Series 55x/53x Solenoid
Spool Valves



Series 362/562 Spool Valves



Series 141
Advanced Redundant
Control System (ARCS)

ASCO Angle Seat, Pinch & Diaphragm Valves

Please refer to our ASCO website for more information



Series 290

Series 390

Pressure Operated Piston Valve



Q117 / 217

Q317

High Pressure / High Temp
Globe Valve



Series X290
Two Valve Module



Series 290C Motorised &
Motorised Proportional Valve



290 + Position^D



Q117 + Position^D

Proportional Valves



Series 273 pinch valve

ASCO Combustion Products

Please refer to our ASCO website for more information



P122AFL & P122AFM
Combustion Controllers



P122AFS
Flame Scanners & O2 Probe



Series 159 - Actuator

Series 158 – Valve body

Hydramotor / Electric Actuators



Series 214



Series 040



Series SV401



Series 043



Series HV298



Series HV226



Series HV434

Shutoff Valves



Series S262



Series 030



Series 215

Gas Vent Valves

ASCO Dust Collector Products

Please refer to our ASCO website for more information



Series P150 DPT
Particle Monitor



Series P151 DPT Controller



Series P152 DPT
Particle Sensor



Series 353

Pulse Valves



Series 353K



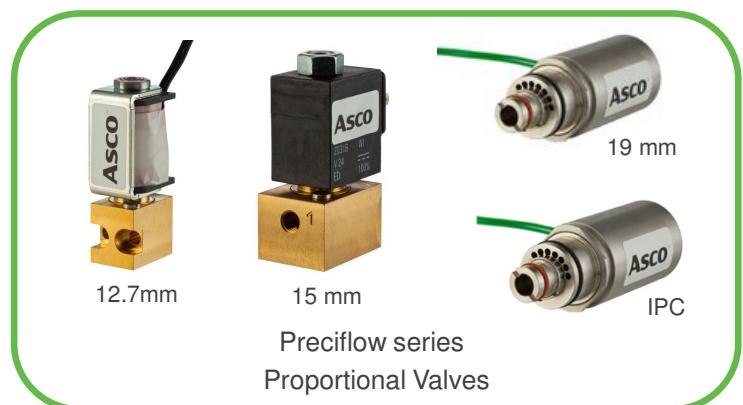
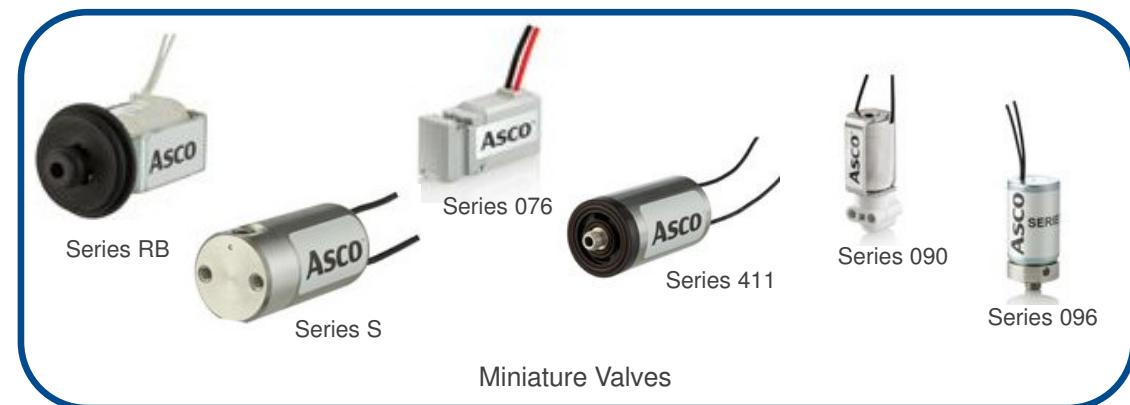
Series 355B / 357 Tank System



Series E909 Electronic
Valve Controller

ASCO Miniature Solenoid Products

Please refer to our ASCO website for more information



ASCO Filter Regulators

Please refer to our ASCO website for more information

Series 342A SSFR



Compact Version

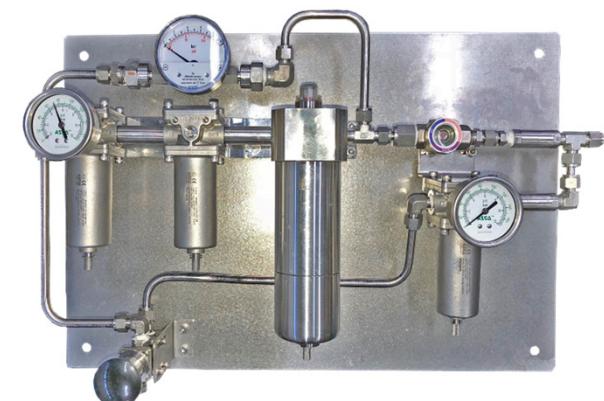
High-Flow Version

Series 632 AFR



Series 632 / 633 AFR

Tri-Stage Filter

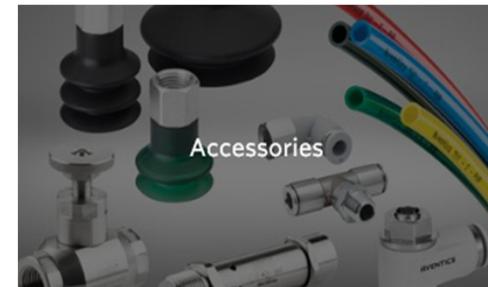


ASCO Tri-Stage Filtration System

(b) Aventics Products Portfolio

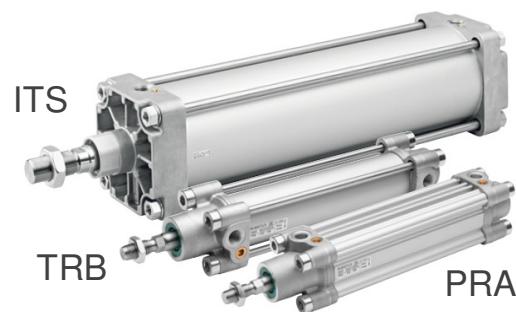
AVENTICS – PRODUCTS PORTFOLIO

Please refer to our AVENTICS website for more information



Transforming pressurized air or gas into energy and motion to power machines

AVENTICS Pneumatic Cylinders & Actuators



PRA-series Profile & TRB/ITS series Tie-rod Cylinders



RTC series Rodless Cylinders



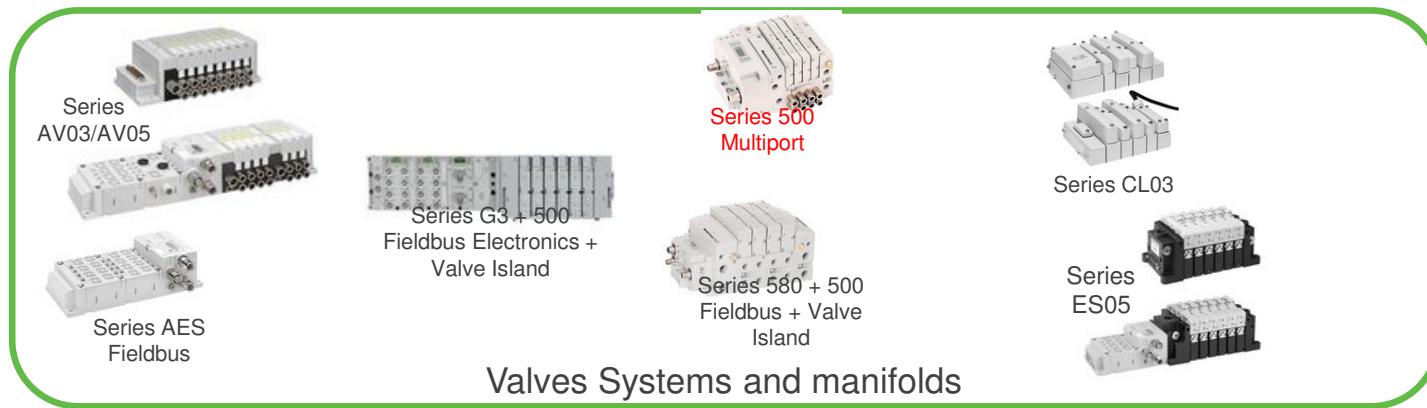
MNI/RPC series Mini & Round Profile Cylinders



CCI series Compact Cylinders ISO

Please refer to our AVENTICS website for more information

AVENTICS Pneumatic Valves & Valve Systems



Please refer to our AVENTICS website for more information

AVENTICS Proportional Valves

Please refer to our AVENTICS website for more information



SentronicD (608/9)
series



SentronicHD series



Sentronic LP (614)
series



SentronicPLUS series



Servotronic Series



Series ED02



Series ED05



Series ED07



Series ED12

ED series E/P Valves



Series EV03



Series EV07



Series EV12



Series EV18

EV series (Valve System) E/P Valves

AVENTICS Vacuum Technologies

Please refer to our AVENTICS website for more information



Non-Contact Transport System



Bellow Suction Grippers



Vacuum Accessories



Flat Suction Grippers



Ejectors

AVENTICS Air Preparation & Sensors

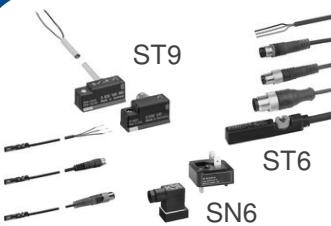
Please refer to our AVENTICS website for more information

Air Preparation



651/2/3 series FRL

Sensors



Magnetic proximity sensors



Pressure sensors



AS series Air Maintenance Units



SM6



SM6-AL

Distance measuring sensors



AF2 series Air flow sensor



CAT series



VTM series

Meters & Adjustment tools

AVENTICS Accessories

Please refer to our AVENTICS website for more information



Air Tubing



Silencers



Fittings



Tube accessories



Couplings



Plug connectors



Pressure Gauges



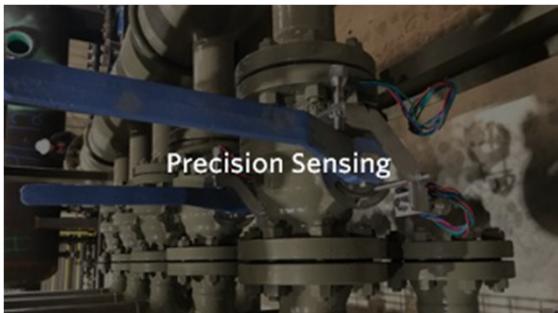
Seals

(c) TOPWORX Products Portfolio

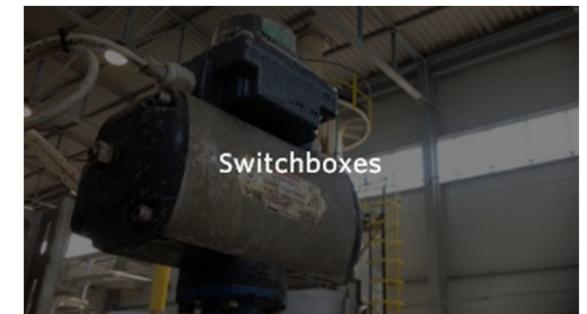
TOPWORX – PRODUCTS PORTFOLIO

Please refer to our TOPWORX website for more information

Position Sensing



Discrete Valve Controllers



Sensing, switching and control for the most demanding environments Systems

TOPWORX – Position Sensing

Please refer to our TOPWORX website for more information

GO Switch



Model 70 series



Precision Sensing



Model 11



Model 21



Model 31



Model 41

Extended Sensing



7A
Pneumatic
Proximity



Nuclear Qualified



High Temp
176°C//204°C



Subsea

Specialty Applications

Magnetic Target Switch



Series MTS

TOPWORX – Discrete Valve Controllers

Please refer to our TOPWORX website for more information



DXP series



DXS series



DXR series

D series



TXS series



TXP series

TX series



TVH series



TVL series



TVF series

TV series



TVA series



K2P/K2S series



K7L series

K series

(d) Machine Automation Solution Product Portfolio

Fluid Control & Pneumatics

ASCO | AVENTICS | TESCOM | TOPWORX

ASCO™ Dust & Pulse Technology (DPT)
for Dust Collector Application

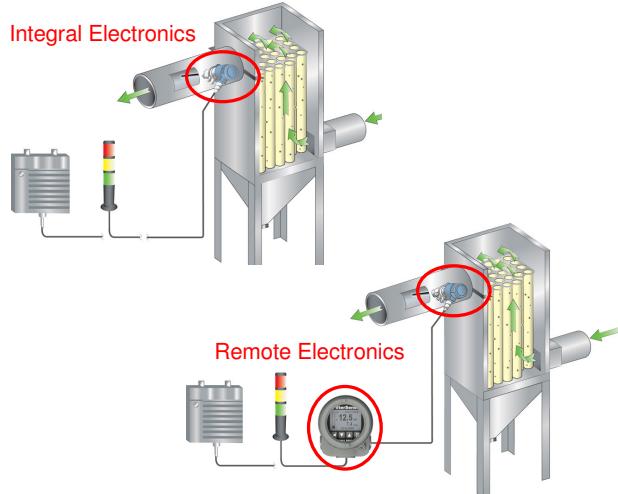


EMERSON

Dust & Pulse Technology Portfolio

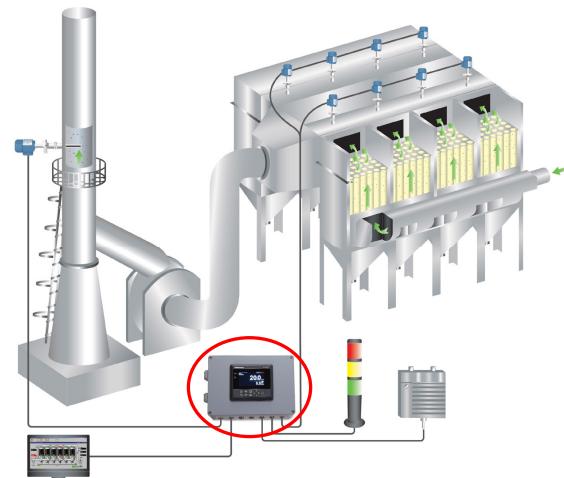
- **ASCO™ SmartPULSE** solutions help prevent excess emissions and process problems by providing reliable low-level particulate monitoring, early warning leak detection, better control, and real-time diagnostics of filtration systems.

Particle Sensor



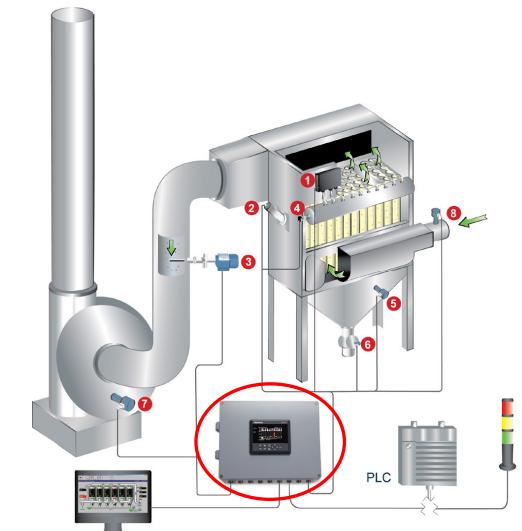
The industry's best value in a basic particle monitor and leak/flow detector. The engineering and quality greatly exceed comparably priced devices.

Particle Monitor



Provides reliable particulate monitoring and leak/flow detection along with a solid range of basic features, functions, and I/O for customer.

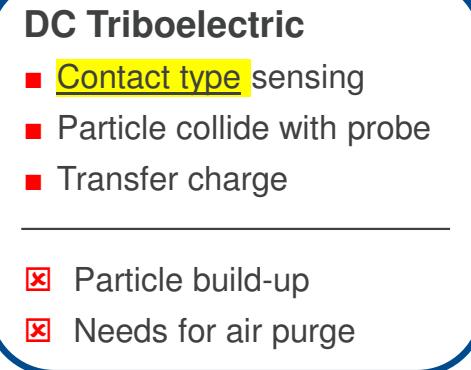
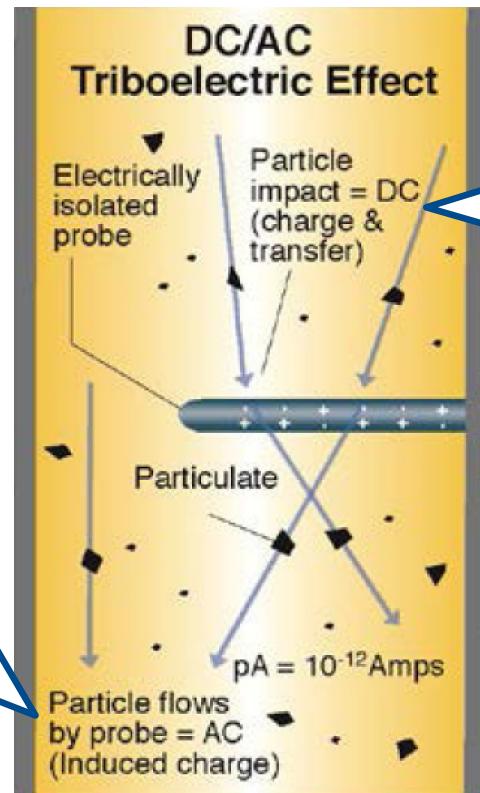
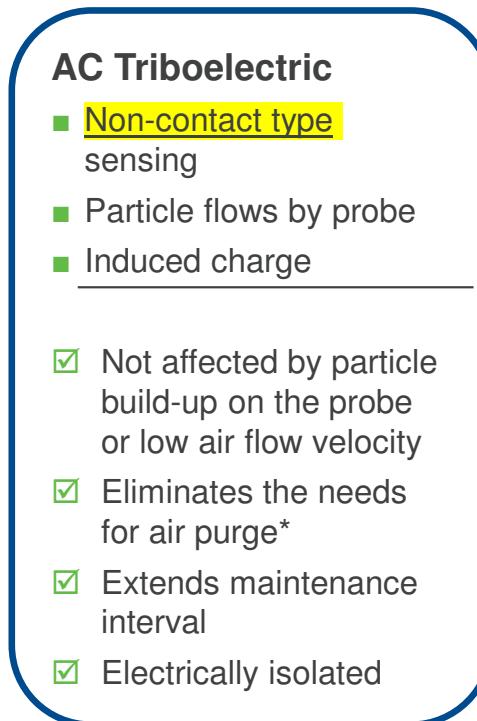
DPT Controller



Provides pulse-jet DP/cleaning control, particulate monitoring, basic diagnostics, and a solid range of features, functions, and I/O for general improved operation and maintenance planning.

AC Triboelectric Sensing

- Non-contact type particle sensing technology



- 4-20mA, &/or
- Relay (x2)

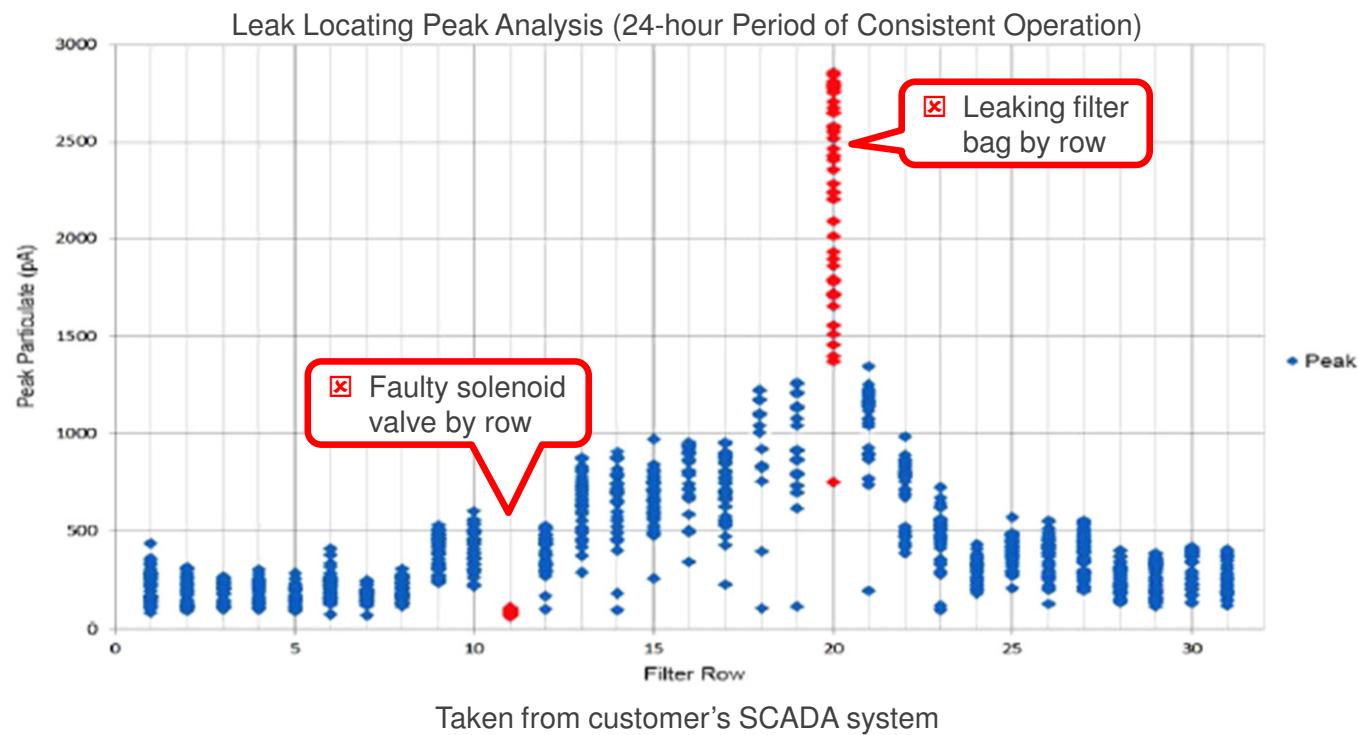
 **EMERSON**

* Except carbon black applications

Intelligent Monitoring

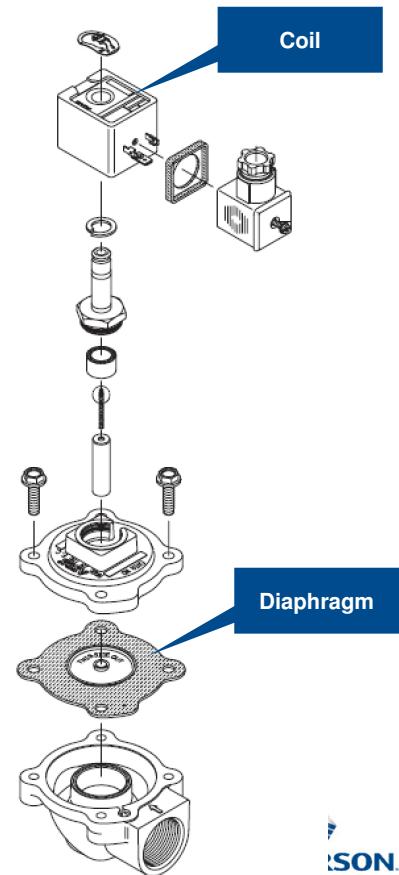
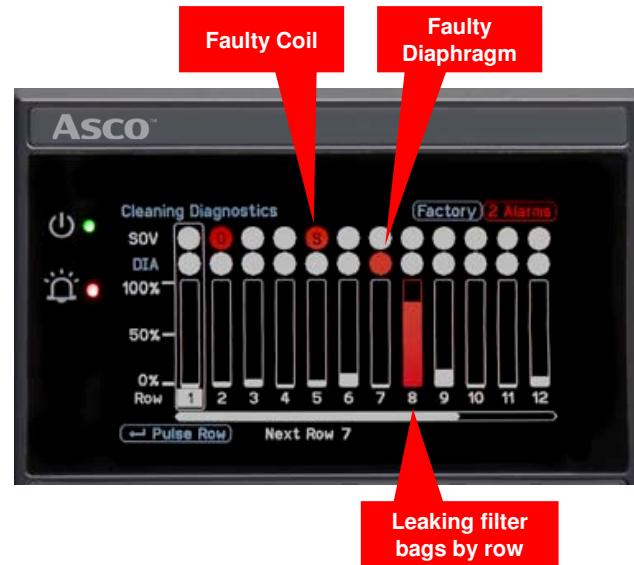
- **Real-time monitoring, logging & diagnosis of particle data**

- Detects filter leakages & solenoid failures
- Locates leaking filter bags & faulty solenoid valves by rows



Advanced Monitoring & Diagnostic Capabilities

- **Real-time monitoring, logging & actionable diagnosis of system**
 - ✓ Detects leakages, minimizes wastages & ensures compliances
 - ✓ Detects filter leakage, solenoid coil & diaphragm failure by rows



ISON.

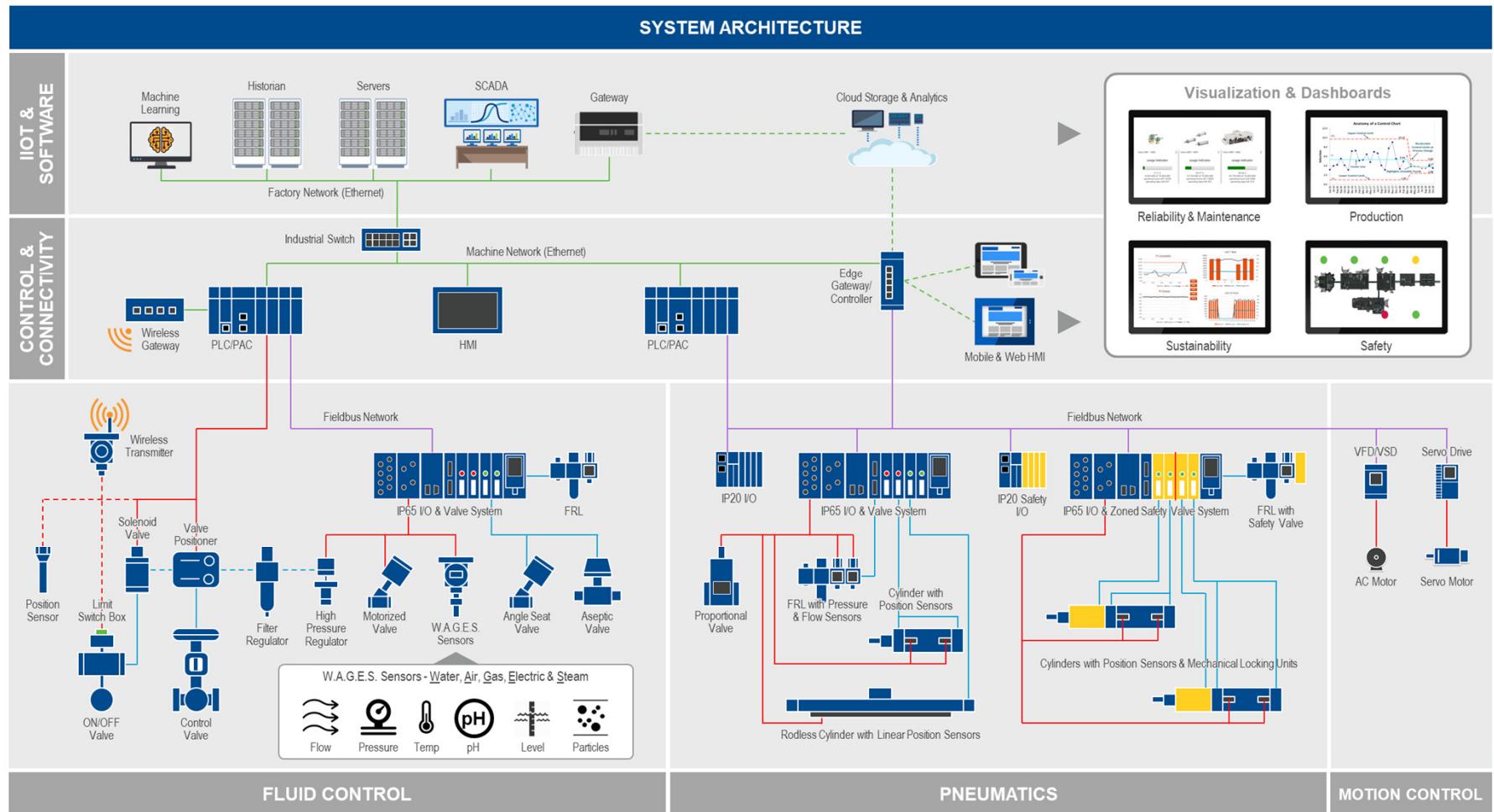
Fluid Control & Pneumatics

ASCO • AVENTICS • TESCOM • TOPWORX

Digital Transformation

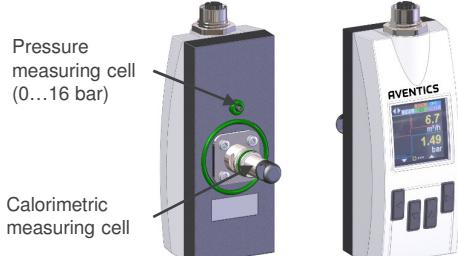


Digital Transformation Portfolio



AF2 – The IIoT enabled Flow sensor

Working Principle



Process Parameter

Volumetric Flow Rate (L/min)
Pressure (bar)
Temperature (°C)
Mass Flow Rate(kg/h)
Flow Velocity (m/s)
Volume (L)
Mass (kg)
Energy (kWh)



Variants

- Output : Ethernet & Industrial.
- Protocol : OPC-UA & MQTT.
- Size : G3/8" G1/2" G1"
- Range : 1600 LPM, 2500 LPM, 6,500 LPM.

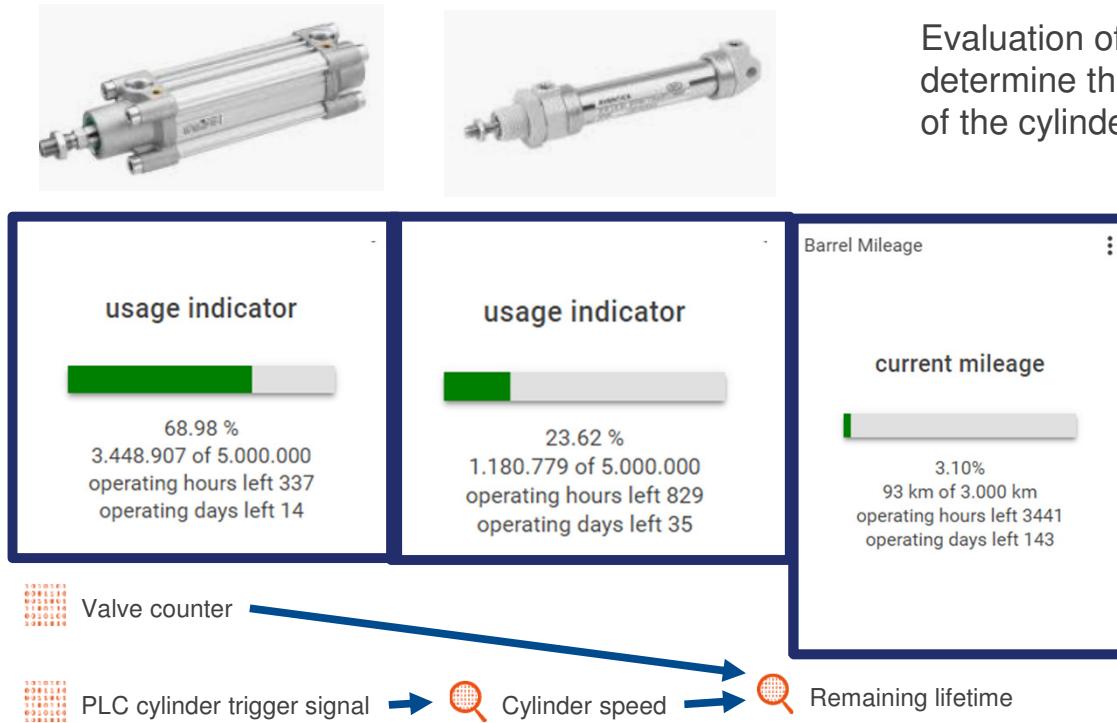
Features

- OLED display, CE, UL, RoHS
- Integrated statistics (min, max and mean)
- Integrated counter (Volume, Mass, Energy)
- Integrated logging (7d, 24h, 60min) readable via OPC UA

The IIoT enabled AF2 flow sensor for Air flow & pressure monitoring.

Overall Equipment Effectiveness

- Example – Lifecycle Management (Cylinder Failures)



Energy Efficiency & Sustainability

Air Consumption



Leakage





Emerson Machine Automation Solutions (MAS)



MAS Product Portfolio

1. Programmable Automation Controllers (PAC)

An industrial controller that combines the functionality of a PLC with the processing capability of a PC

- Multi-Discipline platform
- High Performance
- Open & Scalable



3. QuickPanel+



Operator Interface for the Industrial Internet

- Multi-touch
- All-in-One Automation Panel
- Connectivity



5. Variable Frequency Drive (VFD)



Adjustable-speed drive used to control AC motor speed & torque

- Unified configuration tool
- Easy to configure and Maintain
- PROFINET supported

2. Outcome Optimizing Controller

A hypervised, multicore Industrial Internet Control System

- First IT/OT product
- Secure connectivity to clouds
- Capable of optimizing the process



4. Industrial PC



The Next Generation of Ruggedized Computing System

- Patented Cooling technology
- Rugged design
- Customized capability

6. Industrial Ethernet Switches



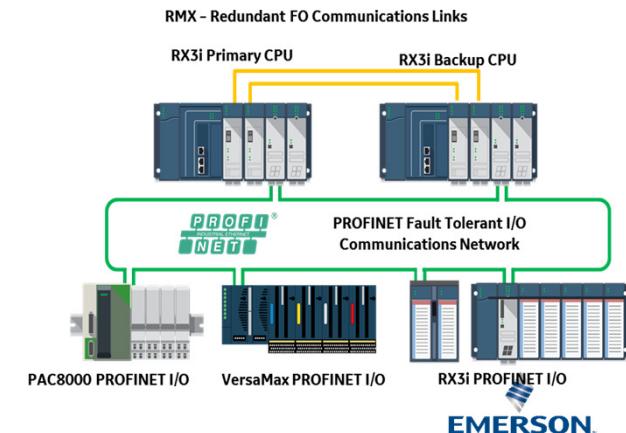
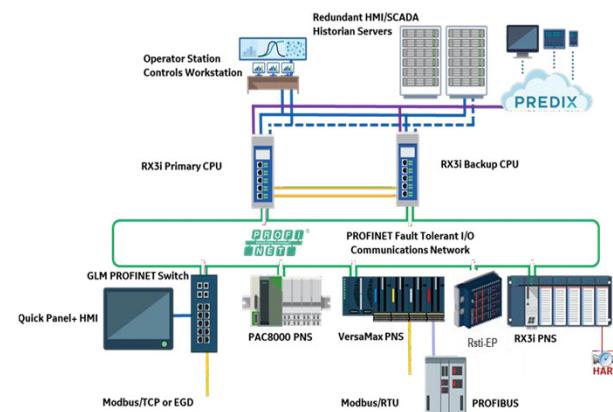
Fast, seamless & resilient connectivity for Industrial Ethernet devices

- Rugged design
- Fast ring recovery technology
- Advanced PROFINET topology support

1. Programmable Automation Controllers (PAC)

Benefits & Strength

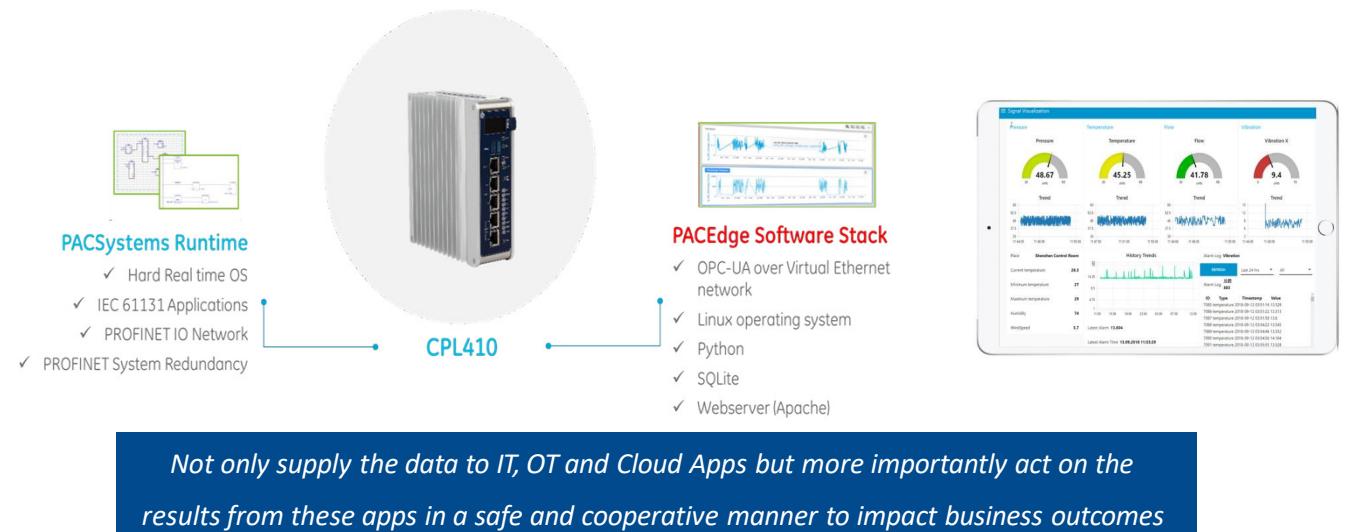
- Multidiscipline control** (process, discrete, motion, view) in one platform
- Scalable**: from small Micro applications with a few IO to large redundant systems with up to 32K IO per controller
- Open and based on standards**: IEC61131 programming with broad connectivity options
- Deterministic High-Speed Control**: Base scan rate as low as 400uS, switchover in 1 scan
- Compact Footprint**: IO densities as high as 7 terminals per square inch
- Secure** by design: TPM, Secure Boot, Signed Firmware



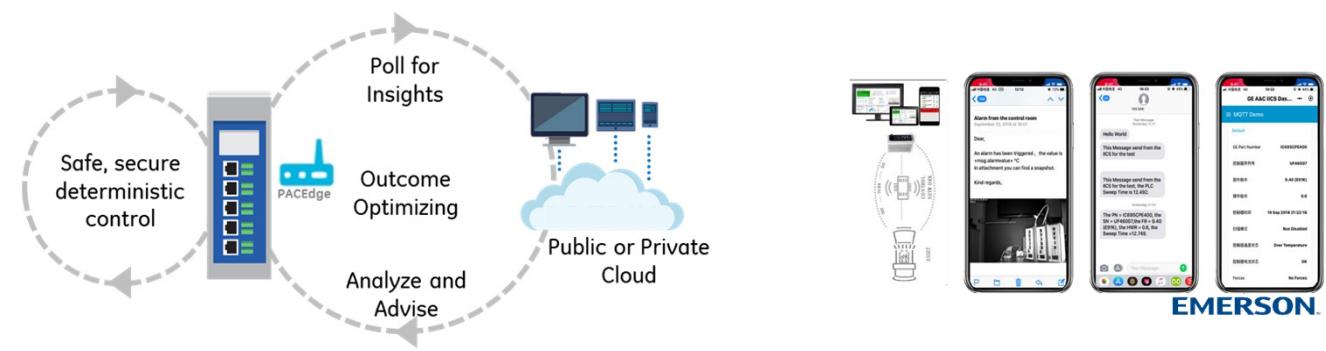
2. Outcome Optimizing Controller (OOC)

Benefits & Strength

- ✓ The world's first Outcoming Optimizing Controller
- ✓ Real IT/OT combination solution
- ✓ Connect to cloud resources via MQTT, HTTPs, VPN...
- ✓ Perform advanced analytics in the cloud or at Edge nodes
- ✓ **Secure** by design: TPM, Secure Boot, Signed Firmware



Emerson
Confidential



3. QuickPanel+

Benefits and Strength

- Multi-touch Wide screen** (6, 7, 10, 12,15 inch)
- Interoperability** Supports 40+ drivers to interface with multi-vendor controllers and I/Os
- Embedded Control Engine**
- Embedded Data Historian**
- Connectivity**, Built-in webserver enables connectivity to outside world
- HTML 5 supported**
- Multimedia Capability**, instructional and training videos, Audio instructions and customizable audio alarms

ENHANCED UX

Intuitive, gesture-enabled multi-touch provides a better user experience and allows for more intuitive HMI design.

INDUSTRIAL GRADE



- UL C1D2, C2D2, C3D1
- UL Type 4X
- DNV
- ABS
- ATEX Zone 2 (12&15")
- RoHS
- IP65f



REMOTE CONNECTIVITY

Remote interaction and monitoring and web published reports with SNMP, HTML5 Dashboards, VNC

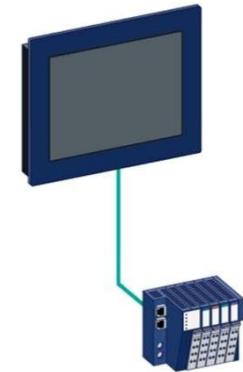
Data logger with built-in Historian; alarm and event server

SECURITY WITHOUT IT HEADACHES

- Remote diagnostics and security without VPN setup; no public IP address - SECOMEA
- One login for easy maintenance across assets

ALL-IN-ONE AUTOMATION PANEL

- Easily configured as an **AUTOMATION CONTROLLER** with powerful scripting capabilities and built-in HMI functions
- Built-in data Historian collector



3RD PARTY COMPATIBILITY

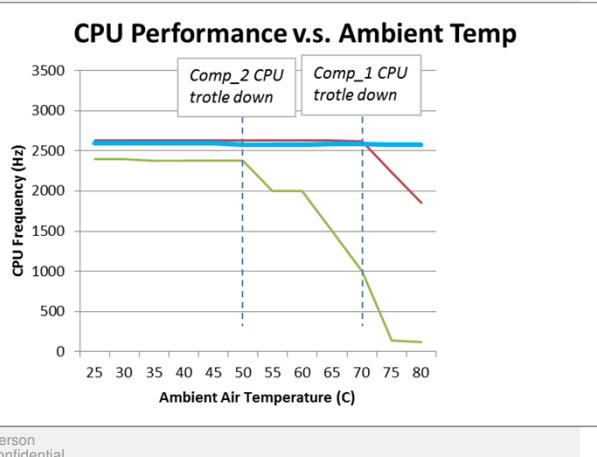
- Designed to work with Emerson and third-party PLCs & I/O, for easy integration into existing solutions



4. Industrial PC

Benefits and Strength

- Broader operating temperature range (-40 ~70)
- Patented heat dissipation technology
- RAID capability within the IPC
- Connectivity Options
- Fanless rugged design
- Marine Certificate



CONSISTENT FORM-FACTOR

Regardless of performance needs, the footprint of the unit remains same



CONNECTIVITY OPTIONS

- 0,1,2,4 PCI/PCIe expansion slot options
- 5x1Gbe Ports
- 4xUSB ports

FANLESS RUGGED DESIGN

- Patented heat dissipation technology
- Reliable performance in harsh environments -- 20 to +65C operating temperature
- CE, UL certified

FLEXIBLE PERFORMANCE

- Options for Latest Intel/AMD processor
- Dual or Quad cores options
- Multiple storage options (HDD, SSD- from 128GB to 512GB)
- ECC DDR3 RAM

MODULAR DESIGN

COMExpress based design for enhanced product lifecycle

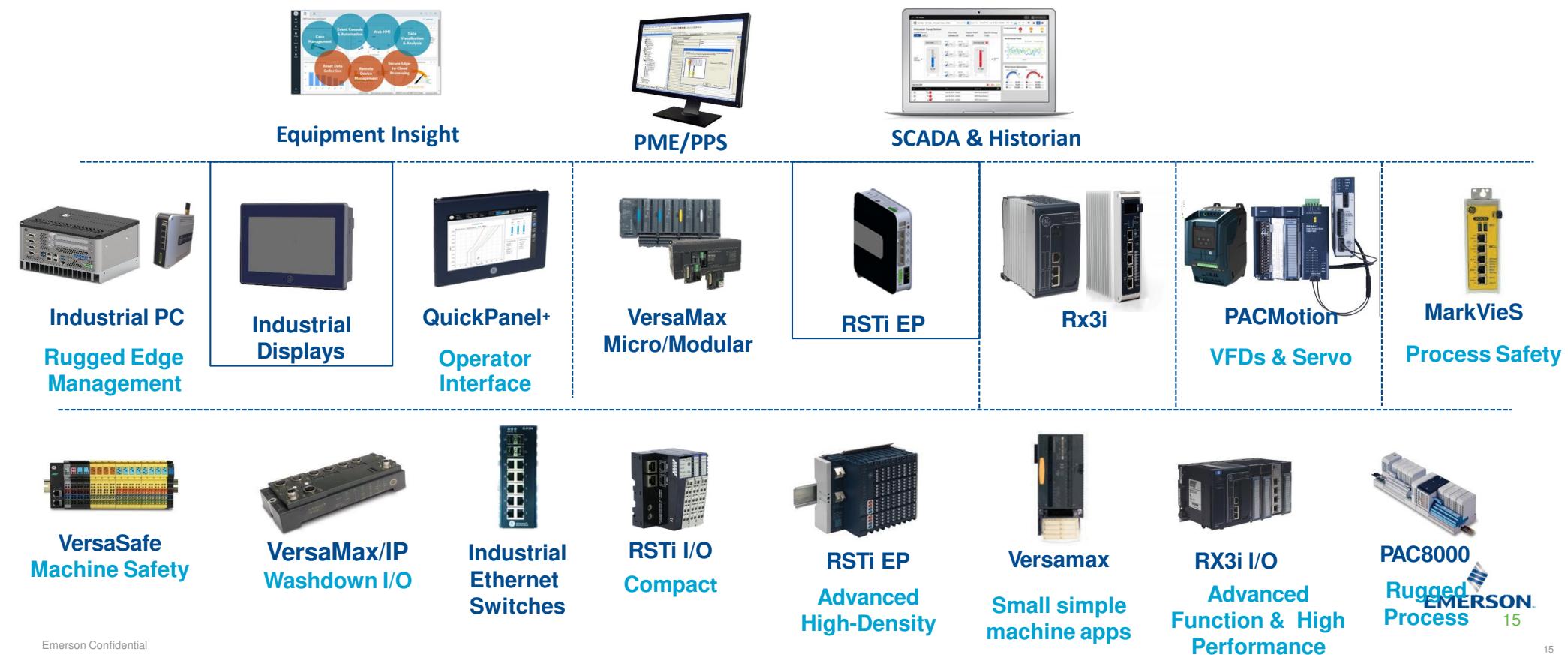
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CUSTOMIZATION

COMExpress based design allows us to customize for various OEMs to meet their computing requirements

Machine Automation Solutions Portfolio

Foundation for the Industrial Internet



A classroom scene with students raising their hands. A teacher is visible in the background. The text 'Any questions?' is overlaid in the upper left.

Any
questions?

A collage of diverse Emerson employees smiling, serving as the background for the advertisement.

**WE SEE
THE STRENGTH OF ONE EMERSON**