NINTH WAVE TECHNOLOGIES.

think **BIG**. *we* **DO**.

FEATURED PRODUCTS

1. Flow Meters
2. BTU Meters
3. Valves & Actuators
4. Field Sensors
5. VAV Box
6. Damper Actuator (UL & Non-UL)
7. Variable Frequency Drive (VFD) - Honeywell
8. Building Management System (BMS)
9. Pressure Independent Balancing Control Valve (PIBCV)
10. Fire Detection & Notifier (Honeywell)
11. Electronic Air Cleaner (EAC)
12. Fire Dampers & Louvers

FLOW METERS

Portable Flow meters

Model: STUF-300H

1. High accuracy ±1% of velocity.
2. NIST Standard traceable readings.
3. Non-intrusive, clamp-on installation.
4. Light weight (538g for the handset).
5. Bi-directional .
6. Wide pipe size range [3/4" ~ 240”].
7. Suitable for all commonly used pipe materials.
8. Rechargeable battery for 10 hours of continuous usage.
9. Three totalizer for net, positive and negative.
10. Optional Stuff Manager TM PC software.

FLOW METERS

Online Flow meters

Model: ST-301B

1. Very high accuracy ±1 % of velocity.
2. IP:65 Protection Class.
3. Intrusive or clamp-on installation.
4. Response time programmable (0.5 -99 sec.)
5. RS-485, Mod Bus Comm. Protocol.
6. Current Output: 4-20 mA,
7. Three totalizer for net, positive and negative.

FLOW METERS

Ultrasonic water meter

Model: 280W-CI

1. Employs Cutting edge technologies
2. Not impacted by water impurity or magnetic interference
3. No blockage on the flow
4. Very low pressure drop
5. Wide measurement range
6. Exceed Class D Performance
7. Accurate transit-time technology
8. Free positioning for mounting
9. Battery supply for 6 or more years
10. Pulse / M-Bus / RS485 for remote readout and meter networking

BTU METERS

Inline BTU meters

Model: tPrime™ Series 280T-S

1. Powered by both battery and MBus for extended lifespan.
2. Ready for AMR with M-Bus / Modbus / BACnet interface.
3. Wear-free. Maintenance-free.
4. IP68 water-proof rated for the sensor.
5. Excellent long-term stability.
6. Unique sensor design for robust performance in both clear water and dirty water.

BTU METERS

Online BTU meters

Model: STUF-300R

1. Very high accuracy ±1 % of velocity.
2. IP:65 Protection Class.
3. Clamp-on installation.
4. Response time programmable (0.5 -99 sec.)
5. RS-485, Mod Bus Comm. Protocol.
6. Three totalizer for net, positive and negative.
7. Single sensor works from 15mm to 6000mm line size.

VALVES & ACTUATORS

1. Valves & actuators, forming heart of any HVAC system.

2. Ninth Wave provides the customers with best quality, cost effective & world renowned brands of valves & actuators
for a wide range of applications

- Residential,
- Office buildings
- Plumbing to industrial plants.

3. The usage varies from energy generation to energy distribution till energy consumption i.e. a total solution.

MOTORIZED VALVES

Under a single roof we can provide you with 2 way/ 3 way motorized valves with actuators :

Butterfly Valves

Ball Valves

PIBCV

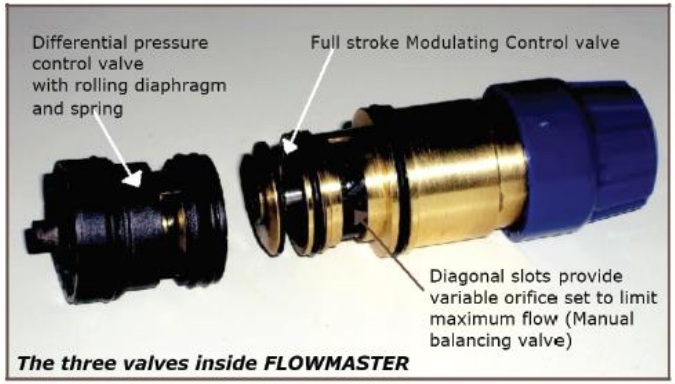
Globe Valve

FCU Valves

HICV SERIES – THREADED

Pressure Independent Integrated Balancing Control Valve

Characteristics : Electrical modulating, normally closed
Protection class : IP 54
Power supply : 24 V AC ± 10%
Control signal : 0(2) - 10 V DC/0(4) - 20mA
Feedback signal : 0-10V DC



The three valves inside FLOWMASTER

Dial under actuator used to set limit to maximum flow

MANUAL VALVES

Butterfly Valves

Ball Valves

NRV

Y Strainer

PRV

Auto Air Vent

Flow Switch

Balancing Valves

DAMPER ACTUATOR

Variants:

-Non Spring return
-Spring Return

UL555/ UL555S Listed (Spring return)

Torque Rating :

Spring Return	Non-Spring Return
-10Nm	-9 Nm
-20 Nm	-20Nm
	-34Nm

Also Non-UL Actuator 9 & 20 Nm.

VARIABLE AIR VOLUME -VAV

- Sizes
  - Upto 24” (8000* CFM)
- Controller
  - PVB0000
  - PVB4022
  - PVBxxxxAS-E
- Thermostats
  - Analog Thermostat TR40
  - Digital Thermostat TR42
  - Temperature + RH
  - Temperature+CO2
  - Temperature+RH+CO2
- VAV Box + Controller – Honeywell
- BacNet / LonWORKS protocol availability.

Unit Size (inch)	L/S Min-Max	CFM Min-Max
6	29-212	62-450
7	40-307	85-650
8	52-378	110-800
9	66-496	140-1050
10	85-637	180-1350
12	127-991	270-2100
14	189-1510	400-3200
16	269-1888	570-4000

FLAT OVAL VAV (NEW)

VAV CONTROLLERS

PVB 0000/4022 AS

Thermostat TR 40 & 42 Can be used.

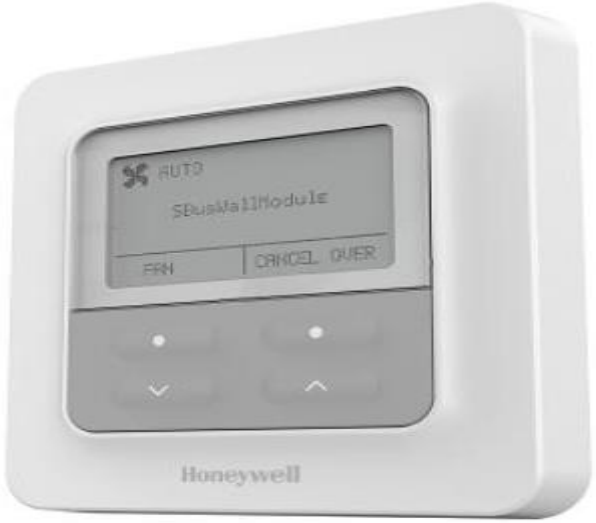
PVB 0000/4022 AS-E (New)

Thermostat TR 40, 42,
TR 42 XX(new)
Can be used.

THERMOSTAT USED WITH VAV

TR - 40

TR - 42



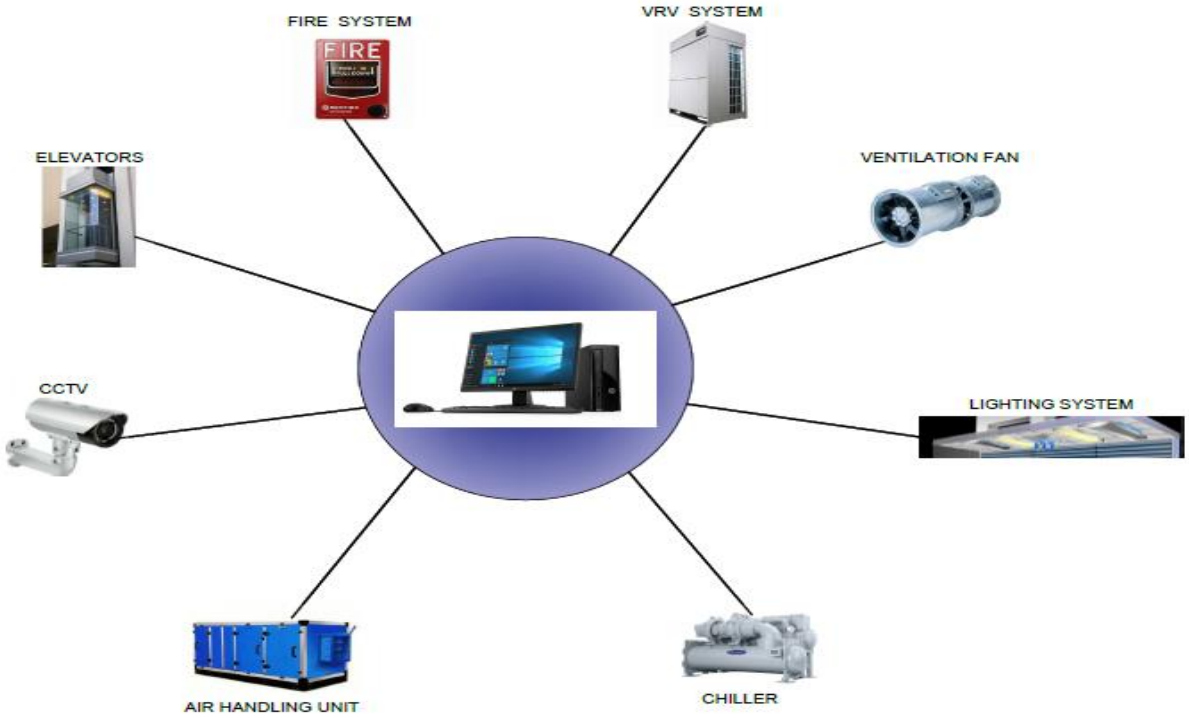
TR 42 XX (New)

VARIABLE FREQUENCY DRIVE (VFD)

- Available from 0.75KW to 18.5KW.
- Maximize Energy Savings by Modulating the speed of Fans & Pumps.
- Easy Programming & Commissioning.
- Available with Bypass Option to work with Auto/ Manual Mode.
- Can Integrate with BMS.
- Automatic Restart features.
- Sales & service across INDIA.
- Optional VFD Chock Available.

BUILDING MANAGEMENT SYSTEM

- Official partner of Honeywell across India.
- Work on below mentioned Systems
- Webs
- Trend (IP Based).
- Provide full SITC one stop shop solution (Panels, VFD, Sensors etc.).



SENSORS

- Temperature Sensor
  - Duct mount
  - Wall Mount
- Pressure Sensor
  - Duct mount
  - Wall Mount
- Humidity sensor
  - Duct mount
  - Wall Mount
- Occupancy Sensor
- Velocity sensor
- Hydrogen Sensor
- CO/ CO2 Sensor

BMS FIELD SENSORS

Ninth Wave provides sensors of **Honeywell** & **Omicron** Make.

Duct Temp / Humidity

CO / CO2

DPS

DPTE

Out air Temp / Humidity

Smoke Detector

BMS SYSTEM

WEBS

- Controllers : PUB 6438SR

- Extension Module : SIO 12000,
  SIO 6042, SIO 4022.

- DDC Controller Communication Protocol : BACNET MSTP.
- Supervisory controller required for DDC Controller Communication.

TREND

- Controllers : IQ4E

- Extension Module : IQ 4IO.

- DDC Controller Communication Protocol : BACNET IP.
- Supervisory controller not required for DDC Controller Communication.

THIRD PARTY INTEGRATOR (BMS)

WEB-8000 series

Used with Webs N4 (Niagara) software.

TONN-8 series

Used With Trend IQ-Vision / 963 software.

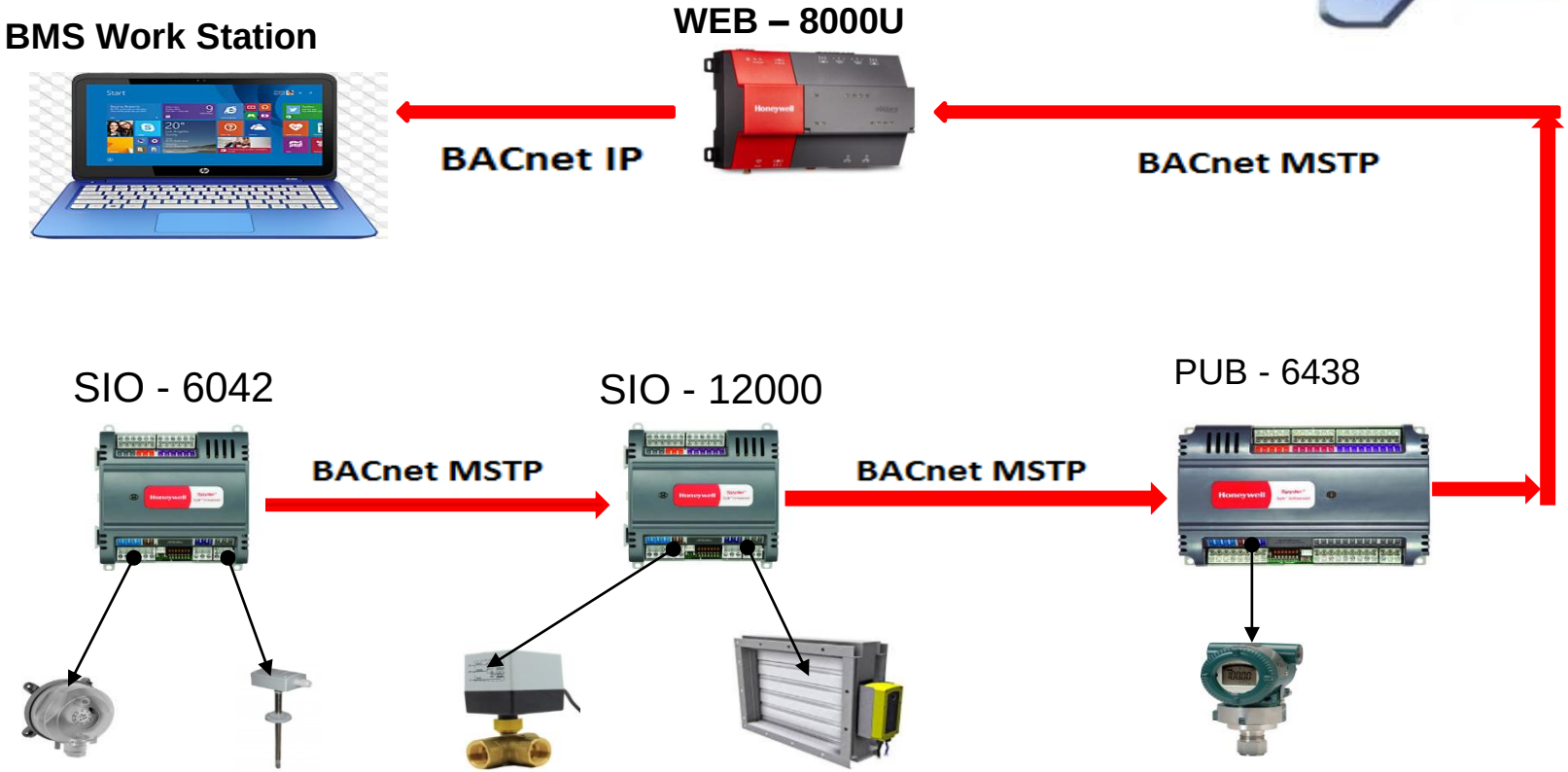
Stellar

Can be used with both system

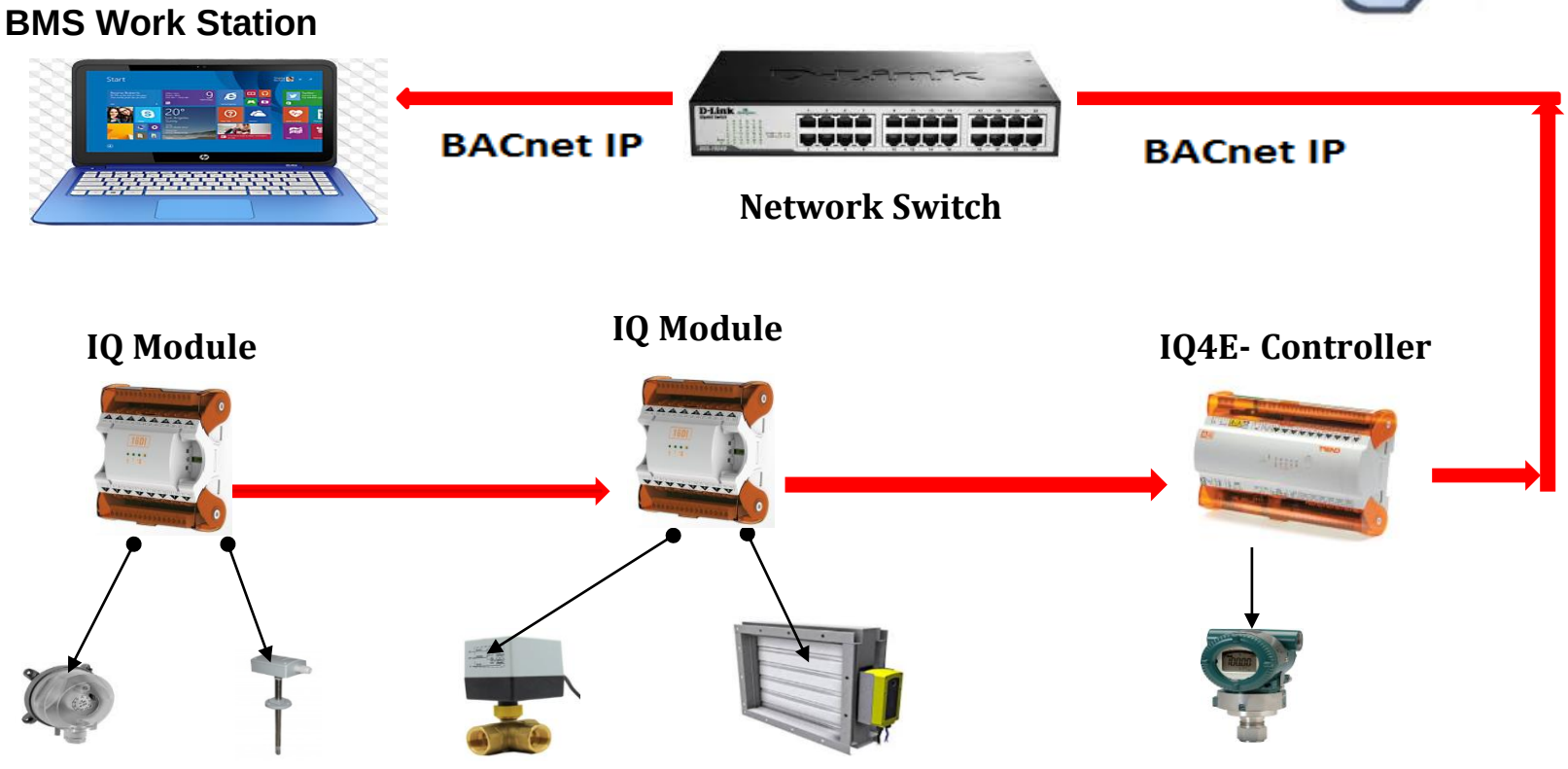
BMS PANEL MAKE : NINTH WAVE

BMS PANEL MAKE : NINTH WAVE

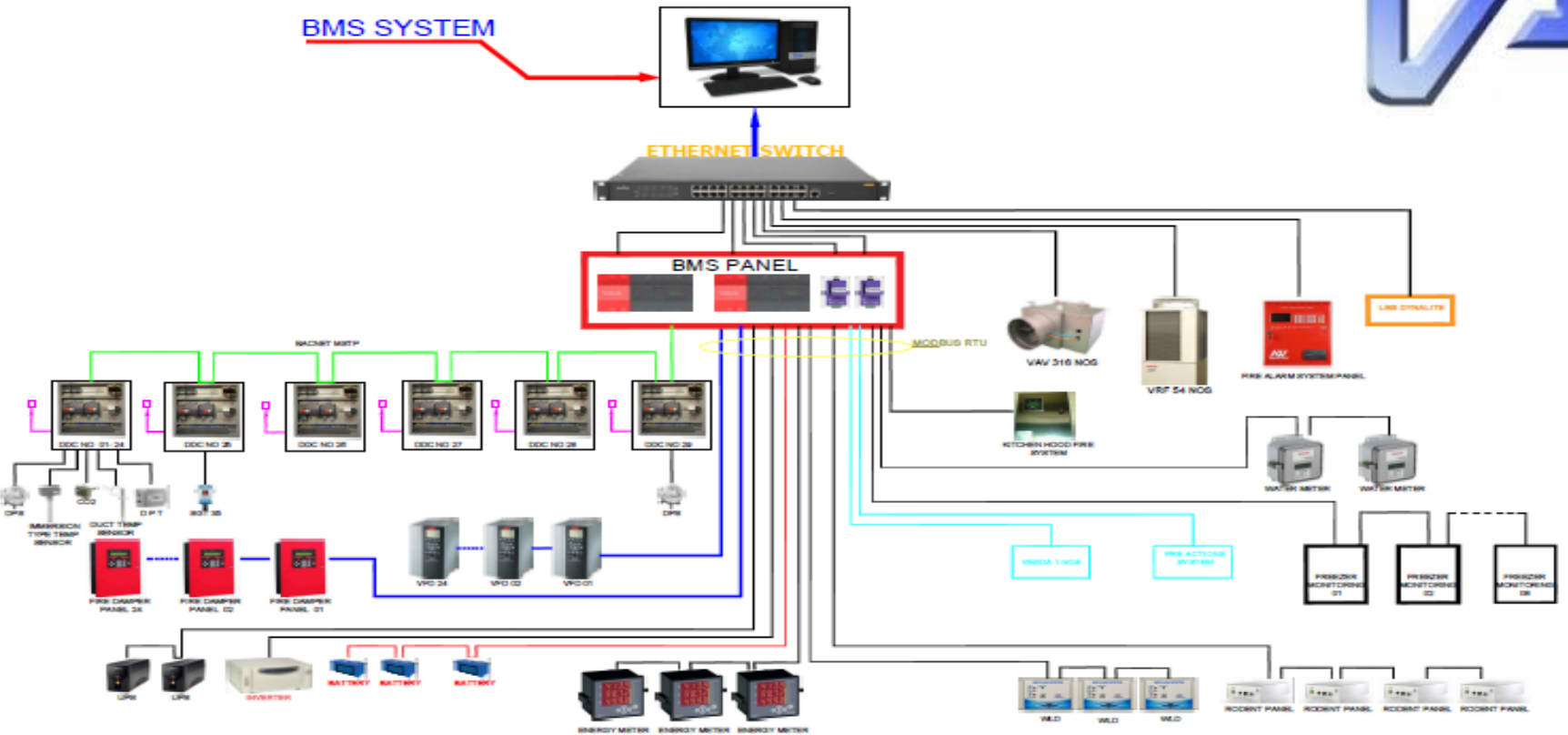
WEBS BMS SYSTEM ARCHITECTURE



TREND SYSTEM ARCHITECTURE

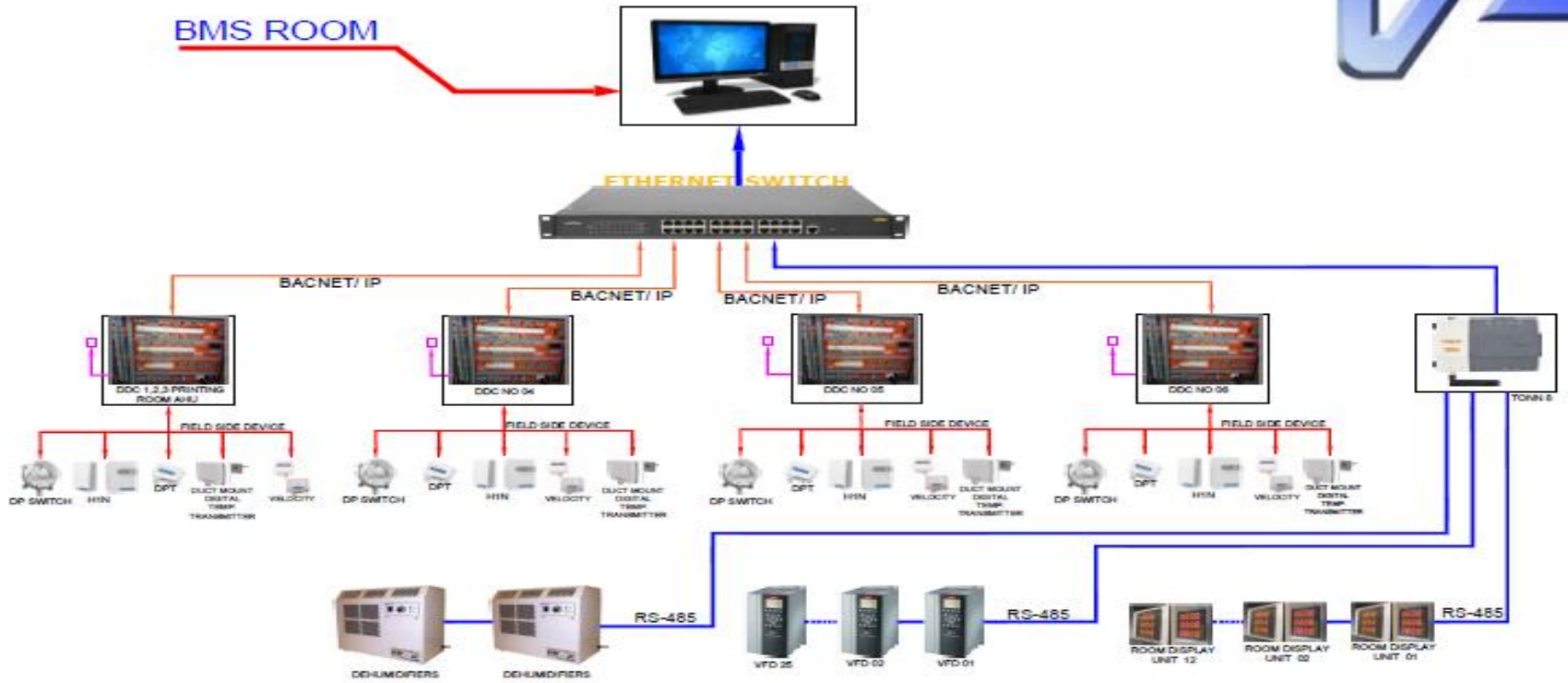


WEB SYSTEM - ARCHITECTURE



BMS SYSTEM ARCHITECTURE

TREND SYSTEM - ARCHITECTURE



BMS SYSTEM ARCHITECTURE

RUSKINTITUS
India
Future of Air Technology

PRODUCTS UNDER VARIOUS BRANDS

ROLASTAR
World Class Ducting

Factory fabricated ducts – Type Rolamate & TDF

RUSKIN®
Air & Sound Control

Fire Dampers, Smoke Dampers, Fire & smoke Dampers (UL Listed), Fire Damper Motorised Damper (CBRI Tested) ERW, TVD, Low leakage dampers, Sound Attenuators , Damper - AMCA certified , Air Measuring Station, Louver –AMCA

Titus

Grills, Diffusers, Fixed bar, Slot Diffusers, Drum Louver , Jet Nozzles, Under floor , air distribution, VAV Boxes (AHRI certified), VAV Diffuser, Fan Powered VAV Box

RUSKIN – PRODUCT RANGE

Product Range :

- **Fire Dampers** (UL Listed)
- **Fire & Smoke Dampers** (UL listed)
- **Tunnel Ventilation Damper**
- **Bubble Tight Dampers**
- **Isolation Dampers**
- **Sound Attenuators**
- **Louvers**
- **Architectural Louvers**
- **Acoustic Louvers**
- **Air-Flow Measuring Station**
- **VAV Diffuser**

LIFE SAFETY DAMPERS

Fire Dampers

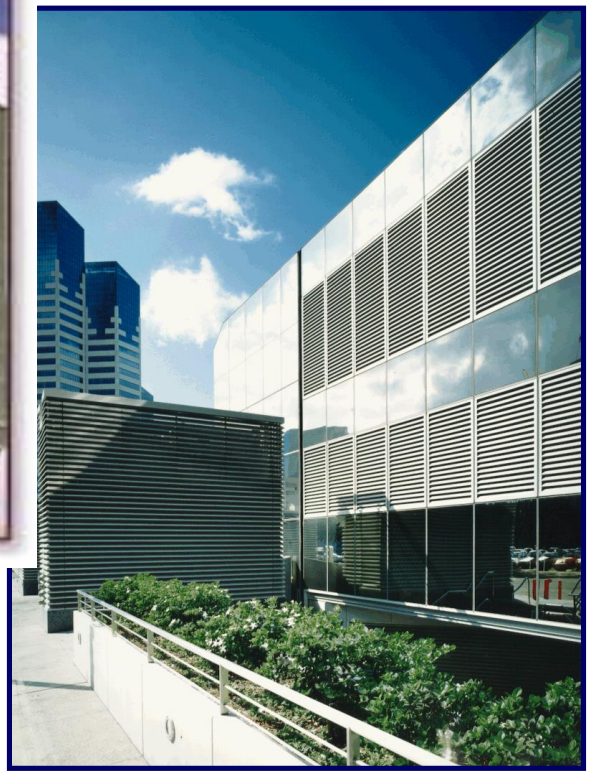
Smoke Dampers

Combination Fire & Smoke Dampers

Ceiling Dampers

Corridor Dampers

LOUVERS



Louvers are applied universally to many building types

AIR DISTRIBUTION PRODUCTS

DFW Terminal D

- Flowbar
- CT – special 24”
- Curved CT
- TMS
- 350 Return Grille

AIR DISTRIBUTION PRODUCTS

- DESV
- DTQS
- 13 RL/RS
- 272 RL/RS
- PAR
- CT
- Flowbar
- N-SLOT
- TDC

AIR FLOW MEASUREMENT

LOUVER STYLES

STANDARD DESIGN

-AMCA “Still Air” tested

-Traditional airflow capacity

WIND DRIVEN RAIN RESISTANT

-AMCA wind driven rain tested

Higher airflow capacity

ELF445DX & EME520DD

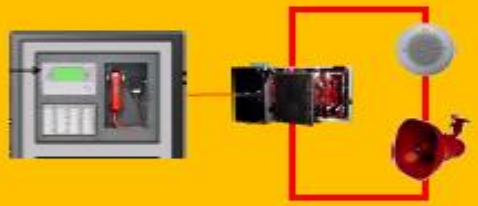
HONEYWELL NOTIFIER FIRE ALARM SYSTEM

10 Reasons **Why Notifier** ???

1. LIFE SAFETY…..
2. SIMPLE SYSTEM…..
3. FULLY CODE COMPLIANT
4. ADVANCED DETECTION TECHNOLOGY
5. EVACUATION : DIGITAL PUBLIC ADDRESS SYSTEM
6. FIRE FIGHTER'S 2-WAY TALK BACK SYSTEM
7. ADVANCED INTEGRATION
8. BEST IN NETWORKING
9. WE ARE COMMITTED
10. LEADERS WITH LARGEST REFERENCES

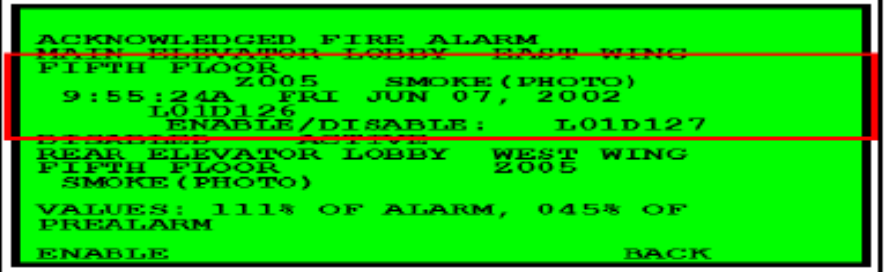
COMPONENTS OF LIFE SAFETY SYSTEM

ADDRESSABLE FIRE ALARM SYSTEM



PUBLIC ADDRESS cum VOICE EVACUATION SYSTEM

FIREFIGHTER'S 2-WAY TALK BACK SYSTEM

FRIENDLY PANEL		**AUTOPROGRAMMING : 3330 DEVICES ARE IDENTIFIED IN LESS THAN A SECOND, DETECTOR AND MODULE PROGRAMMING FROM THE PANEL AND NOT IN THE FIELD.**
640 CHARACTER DISPLAY		**EASE OF VIEWING DETAILED INFORMATION, EASE OF VIEWING NUMBER OF EVENTS, EASE OF PROGRAMMING THROUGH PANEL.**
QWERTY KEYPAD		**NO DEPENDENCY ON ADDITIONAL EQUIPMENT AND EASY TO PROGRAM THROUGH QWERTY KEYPAD.**
HARD ADDRESSAL		**NO DEPENDENCY ON ADDITIONAL EQUIPMENT AND EASY TO IDENTIFY ADDRESS.**

4. ADVANCED DETECTION TECHNOLOGY

ACCLIMATE Plus™ (FAPT-851)

•Acclimate Plus ™is a dual technology, heat and photo 'Smart Detector.'

•Advanced algorithms for greater stability and sensitivity.

•Independently and Automatically adjust its detection parameters and alarm threshold depending on the ambient conditions it samples in its environment.

•Each Detector ACCLIMATES to its environment.

•HEAT ONLY MODE

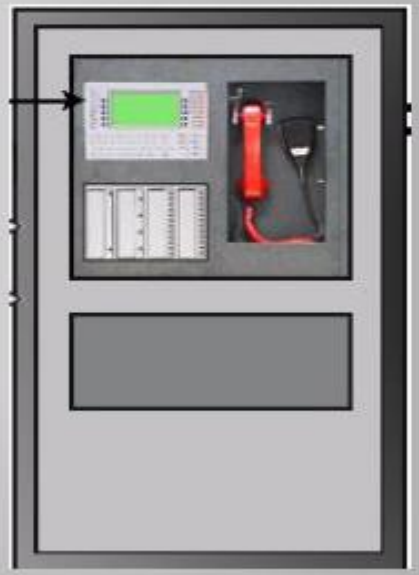
PA v/s Voice Evac System

- Life Safety Certification – Listing as per codes
- Speaker Line Circuit Monitoring.
- Equipment health monitoring and Alarm Reporting.
- Amplifier Backup capability.
- On-board storage of emergency messages on Amplifier
- Multi Channel Messaging – Ability to transmit different messages at different locations at the same time

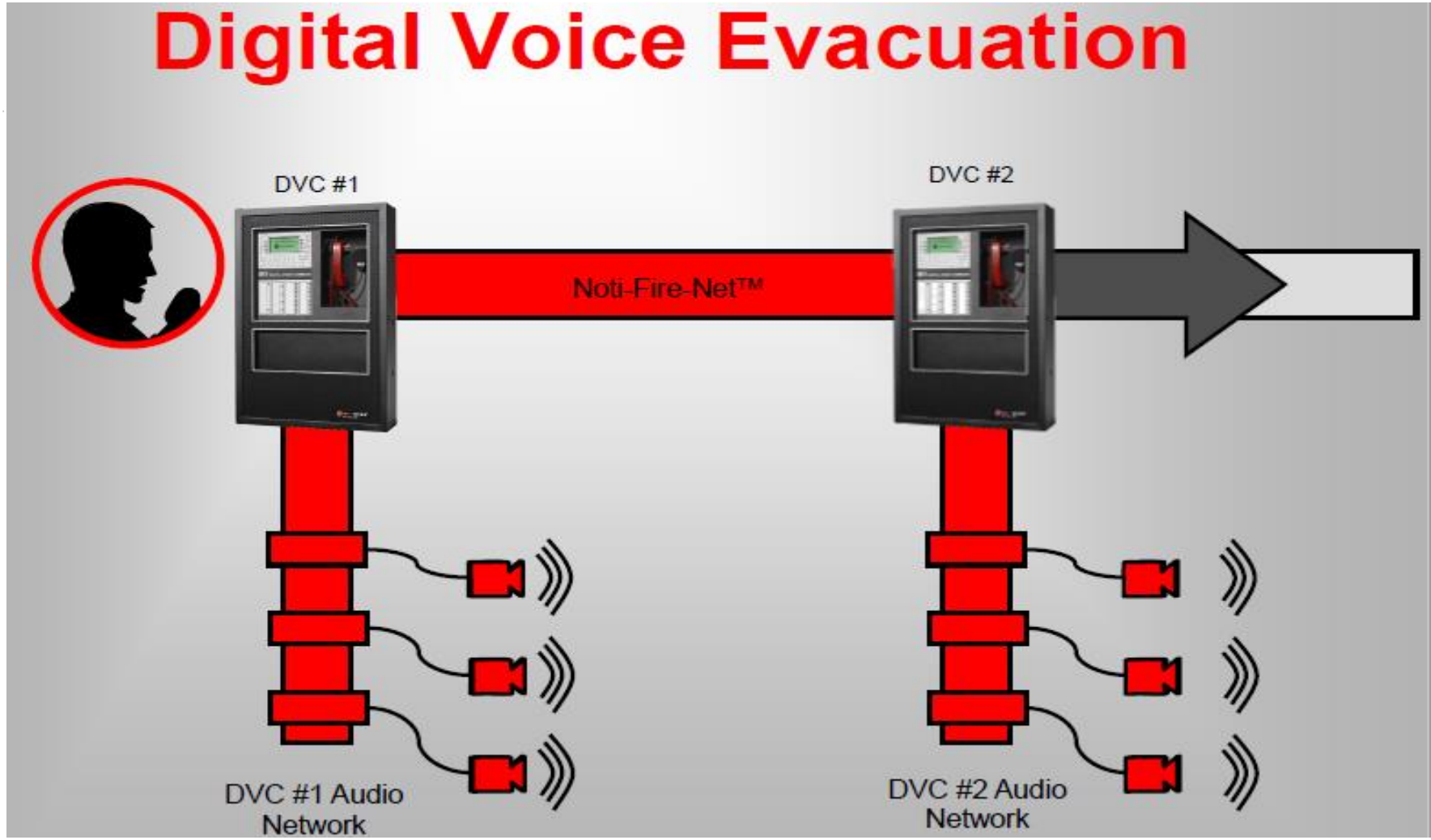
Digital Voice Evacuation

Digital Voice Command

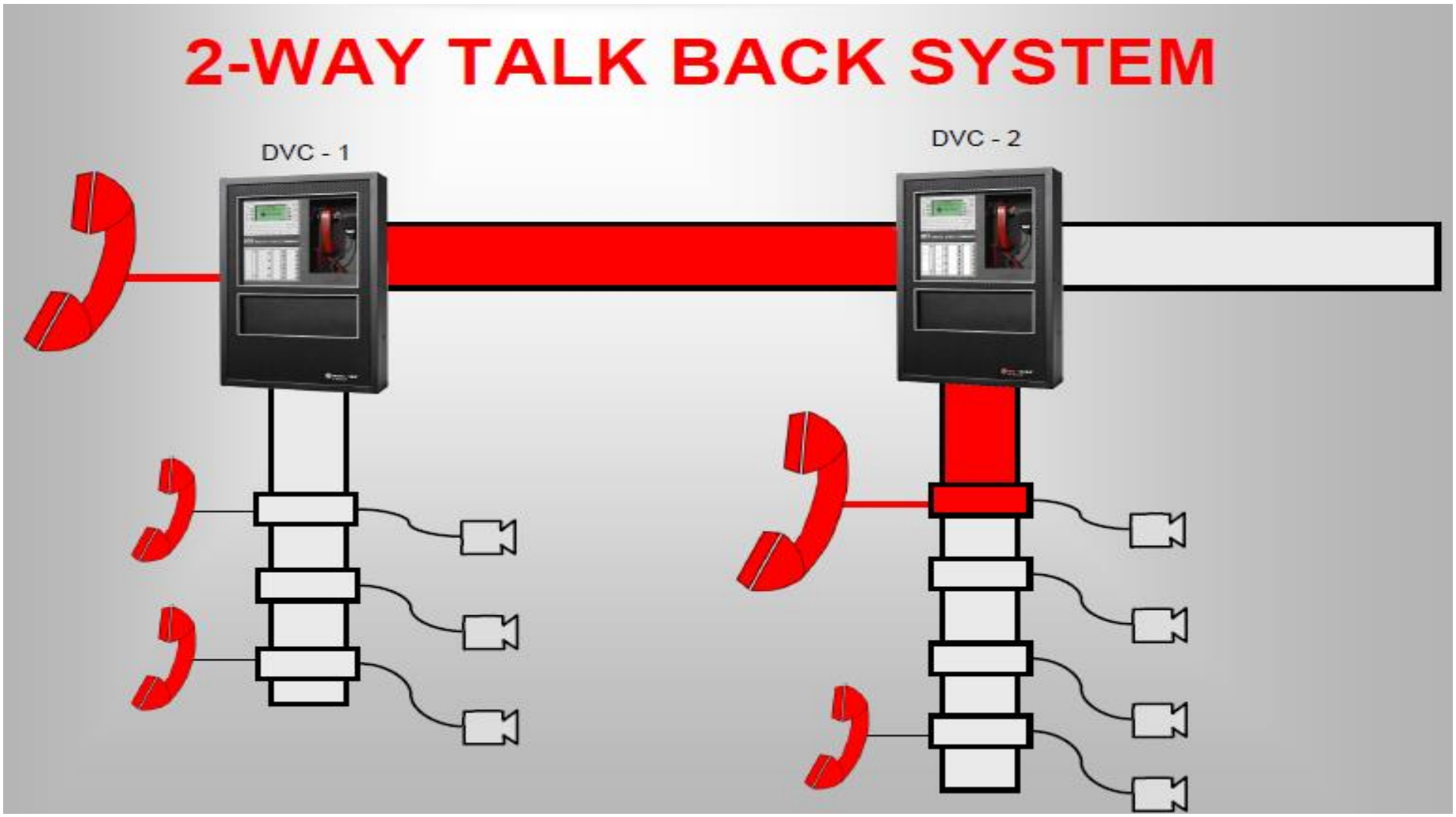
- Fully Integrated Audio Command Center.
- Up to 1000 audio sequences with Message prioritization.
- Controls upto 32 Digital Audio Amplifiers.
- Local paging microphone option. Remote microphone option.
- Pre Assigned Call functionality:
  - All Call
  - Page Active Evac Areas
  - Page Active Alert Areas
  - Page Inactive Areas.
- Auxiliary input for 1 Vp-p analog low-level audio sources.
  - Background Music
  - EPABX
- Multiple audio command centers supported via NOTI•FIRE•NET.



Digital Voice Evacuation



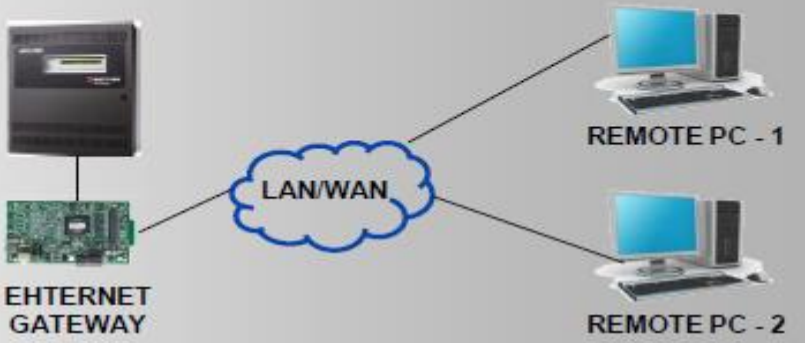
2-WAY TALK BACK SYSTEM



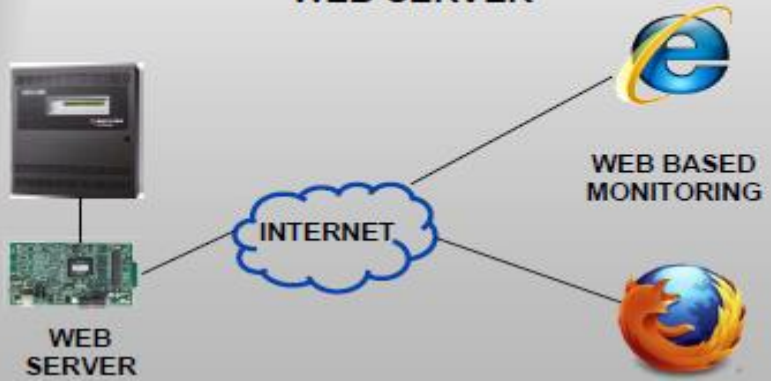
INTEGRATION

BACNET / MODBUS GATEWAY

ETHERNET GATEWAY



WEB SERVER



ONYX WORKS ™

Onyx Fire Alarm Control Panels

NFS-320

- SINGLE LOOP
- 159 DETECTORS + 159 DEVICES
- NON EXPANDABLE
- NETWORKABLE
- 80 CHARACTER DISPLAY WITH QWERTY KEYPAD

NFS2-640

- SINGLE LOOP EXPANDABLE TO 2 LOOPS
- UPTO 318 DETECTORS + 318 DEVICES
- NETWORKABLE
- 80 CHARACTER DISPLAY WITH QWERTY

NFS2-3030

- 1 LOOPS – 10 LOOPS
- UPTO 1590 DETECTORS + 1590 DEVICES
- NETWORKABLE
- 640 CHARACTER DISPLAY WITH QWERTY KEYPAD

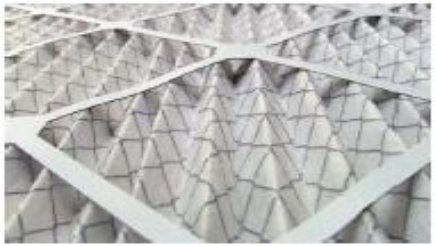
AIR FILTER FOR PARTICULATE REMOVAL

Two types of air-cleaning devices can remove particles or particulates from the air:

- Mechanical Air Filters
- Electronic Air Cleaners

Mechanical Air Filters

- Come in a variety of shapes, sizes, compositions and forms
- Panel Filter: Filter medium is usually constructed of woven or non-woven fibres and is composed of a variety of materials such as glass, metal, synthetic (polymeric) materials (such as polyester and polypropylene), cellulose/paper or woven fabric (such as cotton or nylon).
- Extended-surface panel filters: Pleated, Pocket and Cube



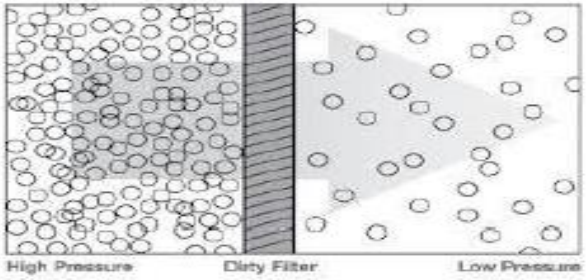
Pleated Filter

Bag Filter

Cube Filters

EFFICIENT REMOVAL OF SMALL PARTICLES WITH EAC

Media Air Filters – High Air Resistance



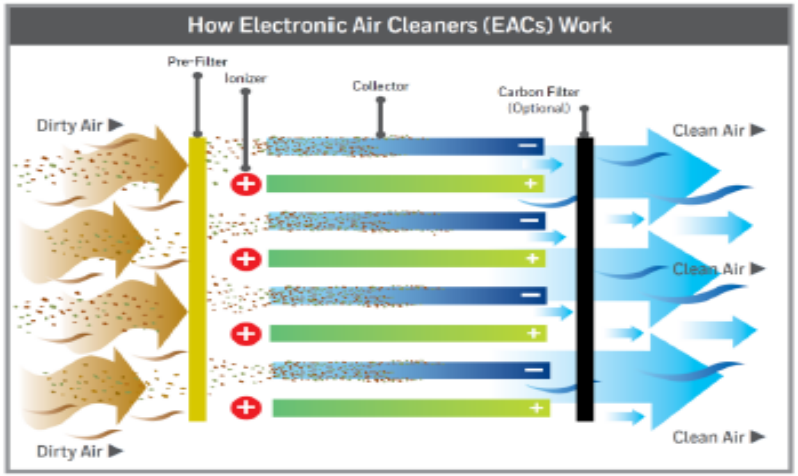
EAC – Low Air Flow Resistance, Efficient Fan Operation

Just like in face masks, highly efficient media air filters offer too much resistance to the airflow.

This causes the fan to work harder, run longer and use up more energy to achieve the desired thermal comfort.

Electronic air filtration system does not restrict air flow. It has high air filtration efficiency and very low pressure drops.

ELECTROSTATIC PRECIPITATION



Dual-stage electrostatic precipitators include two parts: the **charging** and the **collecting** sections.

In the **charging section**, the incoming smoke, dust, pollens, bacteria, mist, and other particulates pass by **ionizer wires** which impart a **positive electrical charge** to these contaminants.

The positively-charged contaminants are then drawn through the collection section which contains a secondary electrical field with negatively-charged and positively-charged aluminium plates.

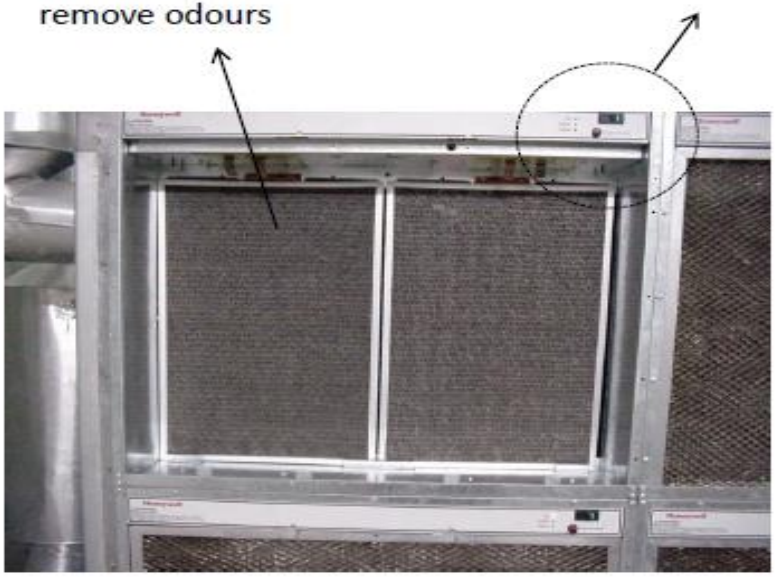
Since **opposite charges attract**, the positively-charged contaminants **collect on** the **negatively charged aluminium plates**, removing them from the air stream.

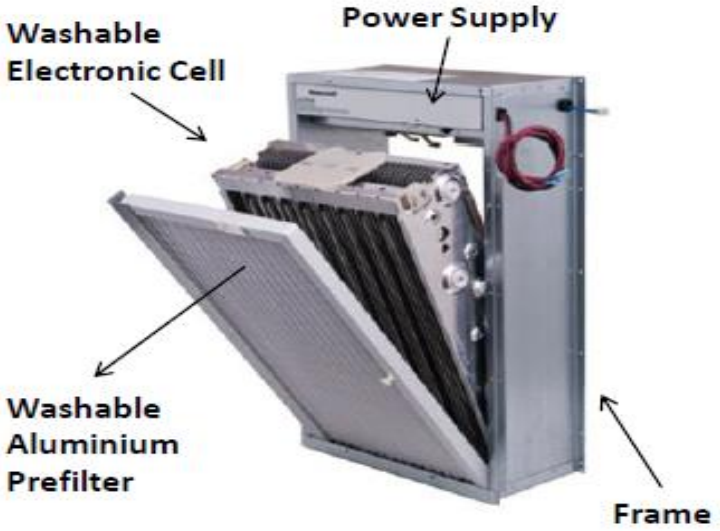
HONEYWELL EAC COMPONENTS

SSPI (Solid State Performance Indicator) for local indication and remote monitoring by BMS

Monitoring by **BMS**

Carbon Filters to remove odours





EAC – INSTALLATION IN AHU

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Thanks for Watching