

# Panel Air Conditioner Primary-Secondary Application

Scenarios involving end user applications that require more and more electrical equipment in large cabinets are leading to increasing cooling capacity requirements. This is having a significant impact on the way air conditioners are being used and controlled. With the advent of more sophisticated digital controllers, customers have moved from previously having to carefully monitor single, isolated devices to monitoring and controlling multiple devices remotely. Even with these additional highly sophisticated monitoring and control features, there is still the issue of high costs, setup time, more IP addresses and network connectivity.

Emerging technologies are beginning to integrate air conditioners with primary-secondary applications that are dramatically increasing the cooling capacity for small, medium, and larger size cabinets. Primary-secondary applications are suitable and applicable to nVent air conditioners of all sizes. nVent air conditioners that are used in a primary-secondary application have the capability to

- Provide more cooling capacity to a cabinet when more cooling is required
- Use one unit, the primary (leading unit), to lead the group in electrical functions such as turning the compressors ON/OFF
- Enter standalone mode if a lost communication alarm occurs and automatically reset after the alarm has cleared
- Utilize the primary unit to detect any alarm that has occurred to the secondary or neighboring units and automatically reset after the alarm has cleared



Figure 1: Illustrates Slim Fit A/C series

- No cycle power is required for the units after established primary-secondary selection
- Operate up to four air conditioners included the primary unit.

## **OPERATING FUNCTIONS**

- When any unit in the group has a request for cooling, the primary unit will respond by sending the ON command to energize the compressors
- When cooling in the cabinet is satisfied, the primary unit sends an OFF command to de-energize all units.

With this innovation, the air conditioners communicate through a TLAN

communication port on the controller as shown in Figure 2. Any alarm that occurred to the secondary unit will be output to the primary unit.

At the same time, the primary-secondary application also provides the ability to remotely monitor the air conditioners from anywhere, at any time, securely, and looks at devices on a system as all are interconnected. The primary-secondary application provides a low cost solution with remote access capability with only a single Remote Access Communication board required for one group in a single cabinet as shown in Figure 3.

The advantage of using a single remote access communication board is to

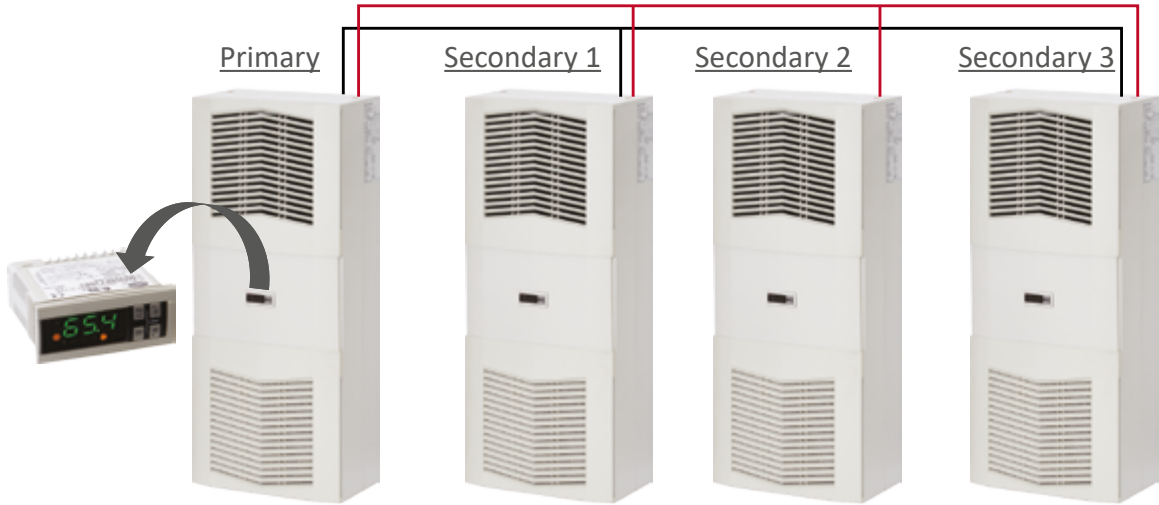
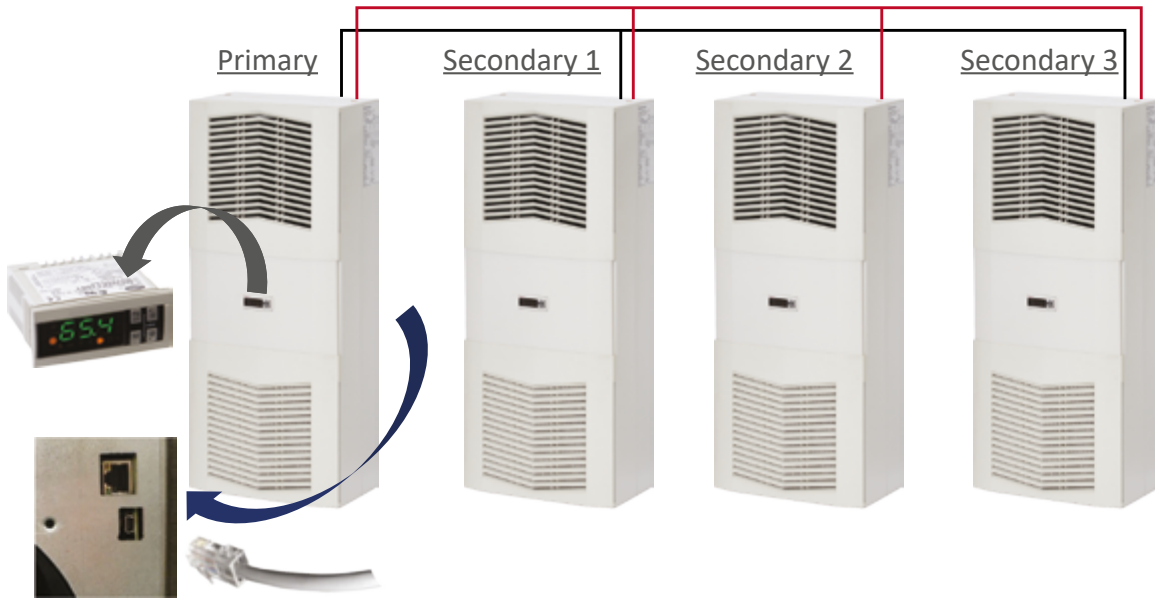


Figure 2: Primary-Secondary Network

- Reduce the network connectivity by just using one single network port
- Eliminate the IP address
- Reduce network configuration times
- Reduce materials and labor cost

- Provide the ability to oversee the temperature setpoint, differential, alarms of the primary and secondary units remotely
- Have the ability to setup the temperature setpoint and differential to the primary and secondary units remotely.

It is one of the very first generation of the technologies that integrates with industrial air conditioners.



**Remote Access Communication Board**

Figure 3: Primary-Secondary Strategy Network with Remote Access Capability



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