

## QUIET PERFORMANCE

### CFR Terminals are Designed for QUIET, EFFICIENT COMFORT

Model CFR fan terminals are specifically designed for quiet operation. They also offer improved space comfort and flexibility for a wide variety of HVAC systems. This is critical in today's buildings, where occupants are placing more emphasis on indoor acoustics.

### Occupant-Sensitive Design

Due to heightened interest in Indoor Air Quality, many HVAC system designers are focusing on the effects of particulate contamination within a building's occupied space. Often, HVAC system noise is overlooked as a source of occupied space contamination. The CFR terminal is specifically designed to eliminate obtrusive fan noise from reaching the occupants, while providing constant air motion in the space.

Occupants will benefit from the CFR design that minimizes low frequency (125Hz-250Hz) sound levels that typically dominate the space sound level. The CFR also minimizes the fluctuation in sound levels that occur during VAV damper modulation.

### For the Building Designer: FLEXIBILITY

**Selection and Layout.** The CFR provides flexibility in system design. Reduced noise at the fan terminal allows the system designer to place properly sized units directly above occupied spaces. It is not necessary to use the crowded space above a hall or corridor to locate the equipment. This will reduce lengthy and expensive discharge duct runs. The standard

shallow casing height (14" up to 1000 CFM) minimizes conflict with other systems competing for ceiling space. The FlowStar™ sensor ensures accurate control, even when space constraints do not permit long straight inlet duct runs to the terminal.

**Sizes.** Model CFR terminals are available in nine fan sizes to handle airflow capacities between 100 and 4800 CFM. Most fan sizes are available with three primary air valve sizes to optimize the unit fan and primary air valve combinations required by current industry needs.

An ENVIRO-TEC® Windows® based Computer Selection Program is available on CD-ROM to facilitate the selection process. Contact your ENVIRO-TEC® representative to obtain a copy of this powerful and time-saving program.

### For the Contractor: CONVENIENCE

**Quality.** All CFR terminals are thoroughly inspected during each step of the manufacturing process, including a comprehensive "pre-ship" inspection, to assure the highest quality product available. Each unit is also "run tested" before leaving the factory to ensure trouble free field "start-up."

**Quick Installation.** A standard single point electrical main power connection is provided. Electronic controls and electrical components are located on the same side of the casing for quick access, adjustment, and troubleshooting. Installation time is minimized with the availability of factory calibrated ENVIRO-TEC® controls.

Finite fan speed adjustment is accomplished with an electronic SCR controller. The SCR fan speed controller is manufactured by ENVIRO-TEC® and is compatible with the fan motor. This minimizes electronic interference and harmonic distortion that occurs from non-compatible motor and SCR components. Increased motor life and efficiency result from the compatible design.

CFR terminals utilize three tap motors that accommodate a broad range of flow and static pressure field conditions while dramatically increasing efficiency.

The FlowStar™ sensor ensures accurate airflow measurement, regardless of the field installation conditions. A calibration label and wiring diagram is located on the terminal for quick reference during start-up.

The terminal is constructed to allow installation with standard metal hanging straps. Optional hanger brackets for use with all-thread support rods or wire hangers are also available.

### For the Owner: VALUE AND SECURITY

**Quality.** All metal components are fabricated from premium grade G 60 galvanized, chromate finished steel. Unlike most manufacturers' terminals, the steel used in the CFR is capable of withstanding a 125 hour salt spray test without showing any evidence of red rust.

**Energy Efficiency.** In addition to quiet and accurate temperature control, the building owner will benefit from lower operating costs.

The highly amplified velocity pressure signal from the FlowStar™ inlet sensor allows precise airflow control at low air velocities.

The FlowStar™ sensor's airfoil shape provides minimal pressure drop across the terminal. This allows the central fan to run at a lower pressure and with less brake horsepower. Energy efficient three tap, three winding, permanent split capacitor fan motors are manufactured to ensure efficient, quiet, reliable, and low maintenance operation.

Three tap motors provide superior energy efficiency over single speed motors by delivering three separate horsepower outputs. For

example, a nominal 1/2 HP motor delivers 1/3 HP on medium tap and 1/4 HP on low tap. This allows the motor to operate at a higher efficiency when at a reduced fan capacity.

Fan terminals that utilize a single speed motor must rely solely on an SCR controller to obtain the reduction in fan capacity. At minimum turndown, they suffer from excessive power consumption and high motor winding temperatures, significantly reducing the motor life.

**Agency Certification.** Model CFR terminals, including those with electric heat, are listed with ETL as an assembly, and bear the ETL label.

CFR terminals comply with applicable NEC requirements, are tested in accordance with ARI Standard 880, and are certified by ARI.

**Maintenance and Service.** CFR fan terminals require no periodic maintenance other than optional filter replacement. If component replacement becomes necessary, the unit is designed to minimize field labor. The bottom casing panels can be removed to provide easy access to the fan assembly, and the motor electrical leads are easily unplugged.

## CONTROLS

Model CFR terminals are available with INTELLIZONE™ DDC electronic, analog electronic, and pneumatic controls. ENVIRO-TEC® manufactures a complete line of analog and DDC electronic controls specifically designed for use with CFR terminals. These controls are designed to accommodate a multitude of various control schemes.

From the most basic to a sophisticated sequence of operation, the controls are designed by experts in VAV terminal operation. Refer to the Analog Electronic Controls Selection Guide, and the Pneumatic Controls Selection Guide for a complete description of the sequences and schematic drawings that are available.

Available Control Types:

- INTELLIZONE™ DDC Electronic (shown)
- Analog Electronic
- Pneumatic

Standard Features of ENVIRO-TEC® Electronic Controls Include:

- The Patented FlowStar™ Airflow Sensor
- ETL Listing
- NEMA 1 Enclosure
- 24 Volt Control Transformer
- Floating Modulating Actuator
- Brass Balancing Tees and Plenum Rated Tubing

