

# Evolution

CONTROLS INC.

EVO™/Air Fiddler

The Air Fiddler allows adjustment, time scheduling and monitoring of up to 124 GE ECM™ powered FFUs from a single location.

## Adjustments:

- Airflow
- RPM Low Limit
- RPM High Limit

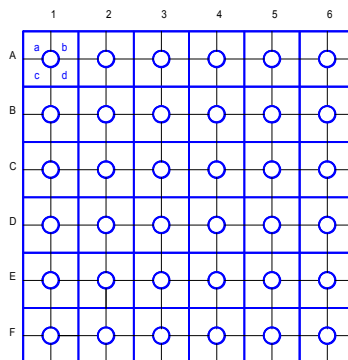
## Monitoring:

- Alarm Status
- Alarm Horn
- External Alarm
- RPM

## Time Schedules:

- Three Zones
- Weekly Schedule
- Holiday Schedule
- Holiday Calendar
- External Override

The Fiddler organizes 4 FFUs into a Quad and identifies each Quad with a number from a two dimensional grid. Grid dimensions are from QA1a to QF6d.



This grid numbering system logically maps the FFUs on the cleanroom floor.

Thirty one of the possible thirty six Quads may be activated.

## Zones

A Quad may be assigned to one of three zones. Each zone has a schedule and simultaneous adjustment capability. Zoning is especially useful when applying the Fiddler to multiple clean rooms.

## Air Balance

The air balancer simultaneously adjusts all FFUs in a zone then fine adjusts each FFU. Adjustment includes setting the flow index to achieve the desired air velocity and setting the FFU motor's minimum and maximum RPM.



## Monitoring

By selecting an FFU, the observer sees the flow index, motor RPM, motor RPM limits, and zone assignment.

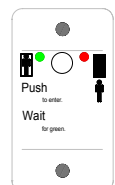
An alarm list exhibits any active FFU not performing within the user adjustable RPM range. The alarm list also includes Quad and Zone communication errors. A horn sounds when an alarm event occurs. External devices may also be connected for alarm notification.

## Time Scheduling

Time scheduling can turn the FFUs off, or change the flow from the air balanced flows to a reduced flow. Each day of the week is assigned an occupy time and standby time. Occupy sets each FFU to the air balanced flow index providing the best performance for occupied operation. Standby sets all FFUs in a zone to a common standby flow index providing energy saving operation for the standby period. Setting the common flow index to zero turns off all FFUs in the zone.

Up to 12 holiday dates may be scheduled at a time. When a holiday passes, its date may be retained for following years, or removed from the holiday list. One occupy and one standby time applies to all holidays.

Door stations may be connected to manually bring a zone from standby to occupied. Each zone may have up to six door stations.



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PRELIMINARY



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**HMI**

The Fiddler features a backlit 4 line x 16 character LCD display and 5 button keypad. Organization is hierarchical allowing easy access to all information.



**Users**

Any user can view basic information about the FFUs and temporarily silence the alarm horn. Other functions are accessed using a passcode. The Fiddler features five passcode levels with two owner adjustable passcodes for the lower three levels.

1. The Supervisor Level allows schedule overrides and alarm horn cancellation.
2. The Manager Level allows adding and modifying time and holiday schedules.
3. The Maintenance Level can access air balance functions.
4. The Passcode Level sets passwords.
5. The Integrator Level adds or removes Quads and FFUs. And activates areas.

**Scalability**

The Fiddler is a stand-alone device easily integrated into a cleanroom with up to 124 FFUs. Where more FFUs are required, multiple Fiddlers may be applied.

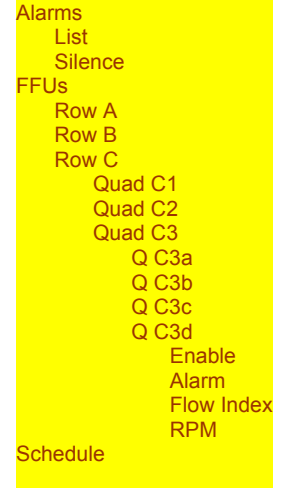
Where multiple Fiddlers must be controlled from a single operating station, a SAIA-Burgess system integrator can provide customization of the system. The PCD2 is a powerful platform for system expansion with a broad array of HMI, facility control and communications capabilities. Please see the SAIA-Burgess website [www.saia-burgess.com](http://www.saia-burgess.com) or contact a SAIA-Burgess system integrator for more information.

**The System**

The Fiddler is a custom software package running on a SAIA-Burgess PCD2. The PCD2 is fitted with an operator's terminal, an I/O module, an RS-485 communications module, and a 24Vac to 24Vdc power supply. One of four FFUs is fitted with an EVO/ECM-Modbus control to form each Quad.

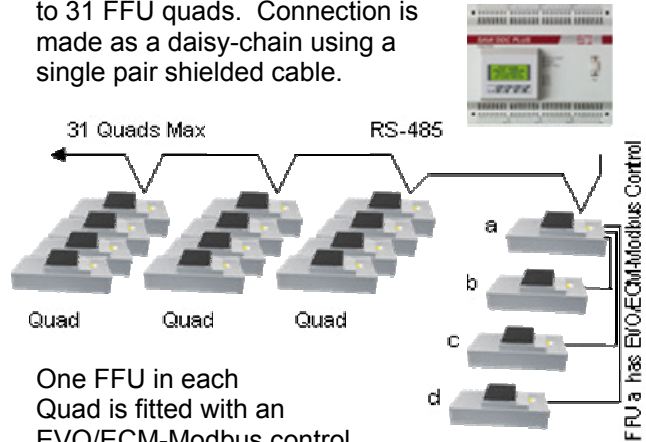
**Menus**

The terminal displays a hierarchal menu allowing easy access to all functions. Users select the row, then number to reach a Quad. Then select FFU a, b, c or d. Depending on the user level, menus appear to change schedules, balance FFUs, and administer Quad functions.



**Topology**

The Fiddler acts as a Modbus master connecting up to 31 FFU quads. Connection is made as a daisy-chain using a single pair shielded cable.



One FFU in each Quad is fitted with an EVO/ECM-Modbus control connecting up to four FFUs.

**Integration**

Air Fiddler design allows easy integration with the target clean rooms.

Integrator level functions are menu driven, allowing easy, logical selection of the functions and features required for the product.

A commissioning function allows one at a time connection of each EVO/ECM-Modbus RTU. The connection allows selection and download of initial defaults and a unique unit address.

**Mounting & Wiring**

The Fiddler is offered by equipment manufacturers and system integrators who add unique features and packaging to the product. Please see their offering for mounting and wiring details.

