



# ***AirCare ACC1 Console***

## **Technical Manual**

ACC1-10  
ACC1-25  
ACC1-50  
ACC1-125



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## **Product Overview**

### **Product Family Members**

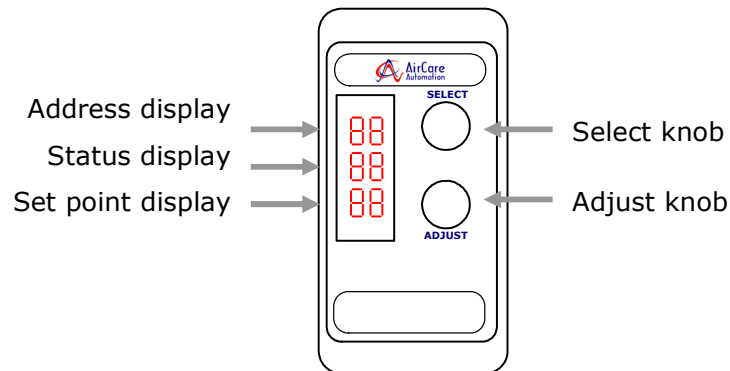
ACC1-10 – Supports up to 10 control modules (address 1-10)  
 ACC1-25 – Supports up to 25 control modules (address 1-25)  
 ACC1-50 – Supports up to 50 control modules (address 1-50)  
 ACC1-125 – Supports up to 125 control modules (address 1-125)

All ACC1 consoles also support the following modules:  
 ACM1007 standby switch at address 251,  
 ACM1007 emergency stop switch at address 252  
 ACM1009 error relay output at address 253

### **Main Functions**

- Controller module status monitoring
- Standby (set-back / hi-lo) function
- Monitoring of fault contacts or pressure switches
- Individual set point / speed adjustment
- Global set point / speed adjustment

## **Console Description**



Addresses 1 - 99 are displayed as '01' – '99'  
 Address 100 is displayed as alternating '1-' and '00'  
 Address 101, etc. is displayed by alternating '1-' an '01', etc.

Set point display is percent ('00' – '99', 'on'=100%).

## **Specifications**

Supply Voltage: 8-13Vdc

DC Power Connector: 2.1mm DC power jack

Typical Supply Current: 90mA

(optional) Battery power: 4 x AA size

Typical battery life: 30 hours with alkaline batteries

Network communication protocol: Modbus RTU

Physical communication standard: RS485(2-wire) serial,

Modbus cable required: CAT5 patch cable with RJ45 connector

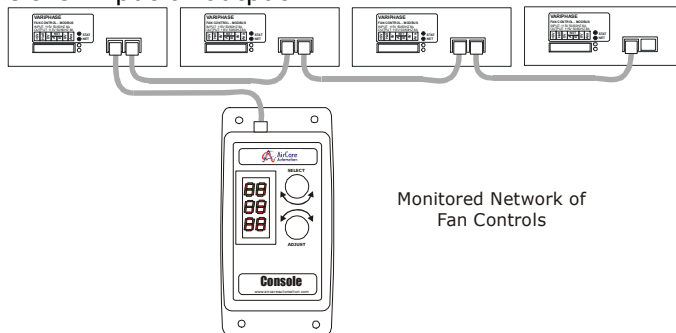
Serial communication transceivers: 2-wire 1/8" unit load

Operating Temperature: 0-40 degC

Maximum Modbus cable length between modules: 20 meters (65 feet)

## **Installation**

A network is constructed by daisy-chaining controller modules and network I/O modules with the console. Both Modbus RJ45 jacks on the modules can be used for either input or output.



All modules must be pre-set with a unique address within the range of the ACC1 console.

DC power to the console can be supplied via:

1. Power supply module connected to the DC power jack,
2. Battery pack (4 of AA batteries), or
3. Modbus network cable via ACM1008 module connected to the network

When power to the ACC1 is turned on, the console will automatically scan and identify all modules connected to the network.

If fault contacts or pressure switches are used, these will be monitored on all control modules.

The control modules will continue to function normally if a connection to the network or console is lost.

If power is turned off & on to any module or console in the network, its functionality and settings will be immediately restored to the same state before power loss.

## **Power-on sequence**



At power-on, the console displays (for 1 second) firmware version major, firmware version minor, and model number.



Then the console scans the network to identify all modules connected, also ACM1007 and ACM1009 modules. If no controller modules are detected, the console beeps and repeats the scan sequence until at least one module is found.



When finished, the console will display (for 1 second):

Top display

The maximum number of control modules possible,

Middle display

`rS' if an ACM1007 is found at address 251 (standby switch input),

`ES' if an ACM1007 is found at address 252 (emergency stop input),

`rL' if an ACM1009 is found at address 253 (error output relay driver),

Bottom display

The total number of control modules found.

After 1 second, the console goes into monitor mode and is ready for operation.

## **Monitor Mode**

The console will go to monitor mode after the select and adjust knobs are not moved for 30 seconds.

In monitor mode, the console continuously polls all modules on the network. The following information is displayed:

### Address display

- Modbus address of each module

### Status display

- 'LO' if network is in standby (setback) mode.
- ' ' if no pressure switch or RPM feedback is enabled
- 'PG' for pressure switch good
- 'PF' for pressure switch fault
- 'rG' for RPM good (RPM >0)
- 'rF' for RPM fault (RPM = 0)

### Set point display

- Set point is percent % of full motor speed, or
- If sensor feedback is used, percent % of full scale value, or
- If RPM feedback is used, percent % of full motor speed.

Up to 2 minutes is needed to react to the ACM1007 and/or update the ACM1009 in a network with a large number of control modules.



## **User Mode**

The user mode is activated by:

- Any movement of the select or adjust knobs during monitor mode; or
- Exit from the options mode.

In user mode, the user can:

- 1) select a control module with the select knob,
- 2) adjust the set point of a control module with the adjust knob, and
- 3) go to the options mode with the select knob.

If 'LO' is shown in the status display (the network is in standby mode), the set points can not be adjusted.



The fault delay is automatically set to zero while in the user mode. During monitor mode, the fault delay is restored to its pre-set value (in options mode).

## **Options Mode**

The options mode allows adjustments to operational parameters of the console.

### **Entering the options mode**



Rotate the select knob counter-clockwise (left) until 'OP' and the current user access level is displayed.



Press the select knob to activate the options mode.

### **Selecting options**



Rotate the select knob after entering the options mode.



#### **Standby (setback) Enable**

- 'HI' : All control modules are set to normal operating values.
- 'LO' : The set points of all control modules are reduced by the value in the 'LS' (standby percentage) option setting.

The ACM1007's switch input will override this option setting.



#### **Access Level Enable**

- Rotate and press the adjust knob to enter the first two-number code.
- Rotate and press the adjust knob to enter the second two-number code.



Standby (setback / low ) Percentage

- When standby is enabled, the set-point on all control modules are reduced by the % set in this option.
- Rotate and press the adjust knob to enter the standby percentage value.



Fault Monitoring

- 'NC' : Normally closed fault contacts.
- 'NO' : Normally open fault contacts.
- 'rP' : Checks for RPM >0.
- '--' : No fault monitoring.
- Rotate and press the adjust knob to set the fault monitoring option.



Global Set Point Change

- Use the adjust knob to select and store the global set point value.



All set points will be updated with the new global setting when exiting the options mode.



Soft-Start

- Rotate and press the adjust knob to write a new soft start setting to all VariPhase control modules.
- A value of '10' causes VariPhase modules to accelerate to full speed in about 50 seconds.
- A value of '00' disables the soft-start feature.



### Fault Delay Control

- Rotate and press the adjust knob to set the time delay for fault detection.
- The set value is entered in 10 second units (eg, '05' = 50 seconds).

### **Exiting the options mode**



The options mode is exited at any time by:

- pressing the select knob, or
- no movement of any knob for 30 seconds.

### Access Level Enable Codes

Access Level	Pass-code	Access permitted:
A1	12 88	all settings
A2	25 75	set points and standby settings
A3	49 51	standby on/off (Hi/Lo)
A4	50 50	view set points only



## **ACC1 Dimensions**

