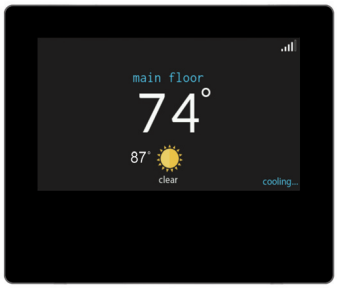
SYST0101CW
Ion™ System Control

Product Specifications

NOTE: Ion™ System Control compatible with Ion™ System indoor equipment only.

US Patents: U.S. Pat No. 7,243,004, U.S. Pat No. 7,775,452, pointSET™ U.S. Pat No. 7,415,102



A180024

Ion™ System Controls

The Ion™ System Control is the premium control center for premium Airquest® communicating HVAC equipment. When you add an Ion™ System Control to a compatible variable speed furnace, fan coil, you will enjoy longer heating and cooling cycles at lower fan speeds for a more consistent temperature throughout your home. By adding a multi-stage, or 2-stage outdoor unit, you will enjoy extra benefits which include better humidity and temperature control as well as a more energy efficient comfort system. When paired with Ion Zoning controls, the Ion™ System Control allows you to create up to 8 zones of customized comfort.

The Ion Zoning system does not require a bypass damper, leaving air temperature (LAT) sensor, or field-installed power transformer.

Always install the latest version of software to enable all features of the system.

Over-the-Air software updates for Wi-Fi® models connected to the Ion server are automatically downloaded. Software updates via MicroSD are available at https://www.IonComfort.com.

- NOTE: The Ion Zoning System MAY NOT be compatible with all ICP communicating indoor equipment. For example, G9MV two-stage, communicating gas furnaces are NOT compatible with the Ion Zoning System. See page 3 of this document for more information.
- NOTE: Only use modulating dampers provided by ICP for use with the Ion Zoning System. Dampers provided by other companies are NOT compatible with the Ion Zoning System.

Industry leading Features/Benefits

Airquest's revolutionary Ion System Control is the smart control of the future. Its unique system self-configuration and diagnostics capabilities make installation and service fast and accurate, helping to avoid costly call-backs. The Ion System Control features a high resolution display, making it easier to read. Intuitive prompts let you program everything from humidity levels to fan speeds, giving you the ultimate control over your home comfort. Other features include:

- Recommended for use with the following products:
  G97C, G96C, and G80C Communicating gas furnaces,
  FCM4 Communicating variable-speed fan coil,
  HVA9 Communicating, inverter-driven air conditioner
  HVH8 Communicating, inverter-driven heat pump
- Limited functionality with G9MV communicating, two-stage gas furnaces. (See page 3.)
- 4-wire installation from each major component in the system
- 2-wire connection to Ion System two or more stage outdoor equipment
- Ion Zoning System compatibility
- Complete integration of the temperature, humidity and ventilation in every season
- For Zoned Systems, auto mode selection to satisfy simultaneous heating and cooling demands in different zones via more aggressive Auto Changeover algorithm-installer must enable
- 7-day programmability with Lifestyle Comfort Profiles and activity features; complies with California Title 24 programmability requirements
- Easy timed-override schedule
- Simplified vacation schedules
- Programmable fan by period
- Dirty Filter Detection
- Indoor Air Quality pop up service reminders
- General maintenance reminder messaging
- Wi-Fi® remote access capability
- Upload photo, dealer info, and software updates locally via MicroSD card. Software updates available automatically when

MODEL NUMBER NOMENCLATURE

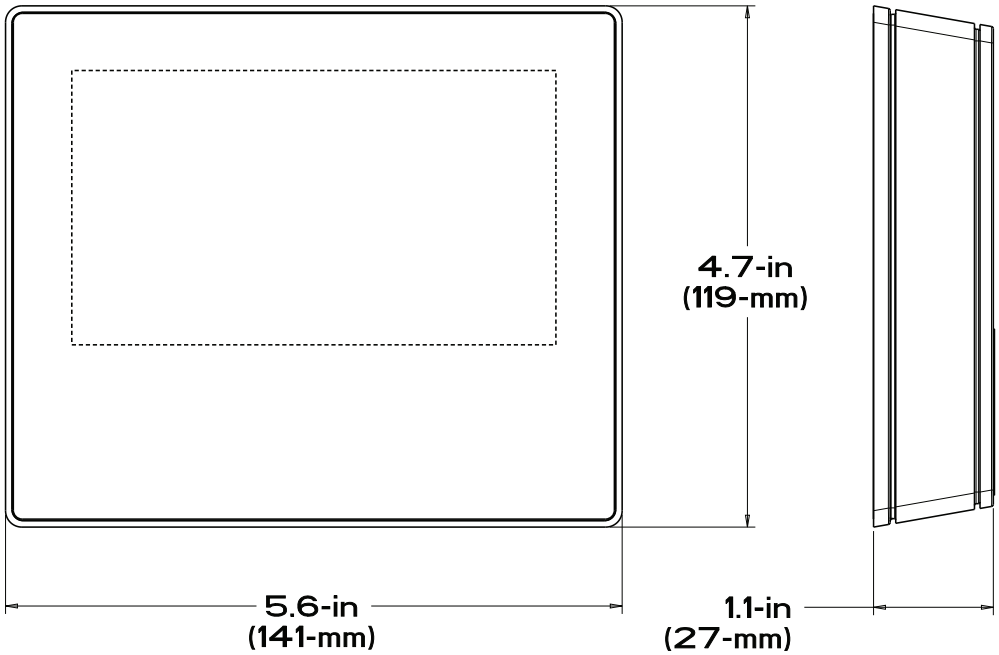
1	2	3	4	5	6	7	8	9	10
S	Y	S	T	0	1	0	1	C	W

Product Type
Ion™ Communicating System

Version
01 - First

Model Type
RM - Communicating Relay Module
CW - Communicating, Wi-Fi System Control
ZP - Zone Panel

Packaged Quantity
01



A180073

Fig. 1 – Unit Dimensions

Product Data Information

Compatible Communicating Products

Full functionality and recommended for use with the following products:
G97C, G96C, G80C and G9MA communicating, gas furnaces
FCM4 Communicating, variable-speed fan coil

Works with all communicating outdoor units.
Works with all non-communicating outdoor units but may require Communicating Relay module. See CRM requirements below.
Limited functionality with G8MV and G9MV gas furnaces

.

Ion™ System Feature	Description	Operation with FCM4 fan coils and G97C, G96C, G80C, and G9MA gas furnaces (With full-feature ECM blower motor)	Operation with G8MV, G9MV furnaces (Variable speed, constant torque motor)
Zoning	Divide home into up to eight zones for personalized comfort and energy savings.	Zoning features and benefits Fully Supported with these products containing full-feature ECM (ECM 3.0) motors	Zoning, and its associated features and benefits, NOT AVAILABLE with these products containing PWM ECM blower motors
Zone Names	Zones can be named by the homeowner; for example "Living Room," "Kitchen," "Bedrooms," etc..		
Duct Assessment	System measures percentage of airflow going to each zone.		
Zoning Setup	This feature allows the installer to adjust system parameters to optimize the setting for any particular installation, including airflow per zone. Allows the installer to enable/disable zoning, zone temperature offsets, airflow limits and duct assessment time.		
Room Temperature Offset Adjustment	This option allows actual temperature offset for each zone, allowing calibration (or deliberate mis-calibration) of each sensor.		
Simultaneous Heat/Cool Demand	Zoning system monitors heating and cooling needs for each zone, and forces system heat/cool operation to the opposite mode within a one-hour period to ensure comfort in all zones. May cause zoning systems to use additional energy to provide these feature, due to airflow between zones.		
Zoning System Checkout	The checkout allows the installer to run specific conditions in order to assess the proper functioning of the zoning system, such as zone airflow limits, zone damper/sensor checkout, zone duct assessment and zone sensor types checkout.		
Low Ambient Cooling	Allows compatible outdoor units to operate in cooling at outdoor temperatures below 55F without add-on accessories; see the outdoor equipment data sheet for details	Available for specific outdoor units; see the outdoor equipment data sheet for details	Not Available; Low ambient cooling available only with add-on accessories to the outdoor unit
System Checkout	The checkout allows the installer to run specific or multiple HVAC devices at specified settings in order to assess the proper functioning of the device(s).	Fully Supported	Limited; Displayed data limited to "airflow estimates," only.
Filter Check	The system periodically checks static pressure and can determine if a filter might be dirty, prompting the homeowner to inspect the air filter.	Fully Supported; Filter replacement notices based on either calendar time or system static pressure checks.	Limited; Filter replacement notices based on calendar time, only.
Energy Usage and Tracking	Tracks how much energy is used by the system for different time periods. Includes electrical and gas consumption.	Fully Supported	Not Available; Indoor fan energy consumption calculation is not available.
Altitude Setting	Adjust the furnace airflow to compensate for Altitude, based on setting entered by installer.	Fully Supported	Not Available; Airflow delivery NOT adjusted for installation altitude.
Coil Freeze Protection	Helps to keep indoor coils from freezing. Coil freeze mitigation action taken with significant rise of system static pressure. The system will turn off cooling when a possible freezing coil is declared.	Fully Supported	Not Available; No active protection from freezing coils.
Blower RPM Report	Indoor product reports current blower RPM. System monitors the circulating air blower RPM for diagnostic purposes, such as excess static pressure, and energy consumption reporting.	Fully Supported	Not Available
System Static Pressure Report	Indoor unit reports current system External Static Pressure (external to indoor unit). System monitors the system static pressure for diagnostic purposes, such as filter usage and coil freezing, and zoning system control.	Fully Supported	Not Available
System CFM Control	Controls the airflow delivered by the indoor section based on the heating or cooling capacity, and the indoor and outdoor conditions, such as humidity and temperature.	Static-independent airflow control: motor adjusted to maintain airflow across a wide range of static pressures; CFM actively controlled typically within 5% of demand up to 1.0" ESP (see equipment airflow tables for details)	Limited; Static-dependent airflow control: airflows varies with system static pressure, although significantly less than with PSC motors; see equipment airflow tables for details

Remote Access Capability

Connect the Ion System Control to a local Wi-Fi® network with access to the Internet. Register the device at https://www.IonComfort.com. See the instructions packaged with the product for more information. Once registered, the user has access to their system wherever an Internet connection is available.

In addition, users can access the Ion system with the Amazon Alexa "My Ion" Smart Home Skill through their Amazon Echo, or other device. See the Amazon Alexa website, or the My Apps page of https://www.IonComfort.com for more information.

NOTE: The ability to remotely access and adjust the settings of the Ion System Control with the ICPUSA web and mobile applications is dependent on the compatibility of the user's computer, home network and/or mobile device, the Ion System Control, and/or the ICPUSA web server or other system interfaces with, and the availability of, the user's internet service provider or mobile device carrier service. ICP Corporation makes no representations or warranties, express or implied, including, to the extent permitted by applicable law, any implied warranty of merchantability or fitness for a particular purpose or use, about the compatibility of the user's computer, home network, and/or mobile device, with the Ion System Control, and/or the ICPUSA web server or other system interfaces, with, and the availability of, the user's internet service provider or mobile device carrier service, or that the ability to remotely access and adjust the settings of the Ion System Control will not be negatively affected by the network-related modifications, upgrades, or similar activity of the user's internet service provider or mobile device carrier service.

Physical Characteristics

- Dimensions: See drawing
- Appearance: Black glass front, silver plastic body

Electrical Characteristics/Communication

- Input Volts/Amps 24VAC
  - Each device in the Ion System has a four-pin connector labeled DX+ DX- C R. It is recommended that the following color code be used when wiring each device:
  - DX+ — Green = Data A+
  - DX- — Yellow = Data B-
  - C — White = 24VAC (Com)
  - R — Red = 24VAC (Hot)

    Always verify that the IDU and ODU are well-grounded, and that there are less than 10 volts AC/DC as measured between the cabinets of the IDU and ODU, while the equipment is operating at full capacity. If there is a larger voltage difference between the cabinets of the IDU and ODU, recheck the equipment grounding.

Environmental Requirements:

- Operating Temperature/Relative Humidity:
  - User interface and all sensors: 32°F to 104°F / 0°C to 40°C, 95% RH non-condensing

Feature Specifications:

- Temperature set point range: 50°F to 90°F / 10.0°C to 32.0°C
- Separate heat and cool setpoints
- Programming days: 7 day
- Programming periods: Up to 5 periods per day
- Smart Setback (with programming)
- Activity feature
- Non-Programmable (installer selectable)
- Auto Changeover* (may be disabled)
- Simultaneous Heat Cool Demand Algorithm for zoned systems
- Programmable fan (installer selectable)
- Temperature sensor offsets (indoor and outdoor)
- Humidity Sensor Offsets
- Auto Changeover Timer (installer adjustable)
- Smart Recovery (in heating and cooling)
- Hold function
- Copy functions: copy day of week; copy zones
- Permanent memory
- Humidity display and control
- Dirty Filter Detection with compatible indoor equipment

* See Installation Instructions for details on Auto Changeover and Simultaneous Heat/Cool Demand Algorithm operation.

Wiring Requirements:

- Power supply: 24VAC, 40 VA (minimum), 60 Hz, via indoor equipment communications connector. Zoning systems with a large number of dampers, especially multiple dampers per zone, may require a separate, dedicated, field-installed 24VAC power supply.
- Wiring material: Standard thermostat wire 18 to 22 gauge. Use 18 AWG wiring for wire lengths over 25 feet. Shielded, twisted pair cable for the communication bus is optional, and may be helpful in electrically noisy environments, or for zoning systems with Smart Sensors (when available).

CRM (Communicating Relay Module) Requirements:

IDU	Non-comm ODU	CRM required?
Furnace	1-stage A/C	No
Furnace	2-stage A/C	Yes
Furnace	1-stage HP	Yes
Furnace	2-stage HP	Yes

Fan Coil	1-stage A/C	No
Fan Coil	2-stage A/C	Yes
Fan Coil	1-stage HP	No
Fan Coil	2-stage HP	Yes

A160170i

Controls

Description	Part Number
Ion System Control with Wi-Fi® Remote Access Capability	SYST0101CW
Ion Communicating Relay Module (CRM)	SYST0101RM*

*. Required for dual fuel applications with non-communicating heat pumps, and for use with 2-stage, non-communicating AC or HP.

Zoning Controls

Description	Part Number
Ion Zoning System Damper Control Module (4 Zone)	SYST0101ZP*
Smart Sensor for Ion Zoning	SYSTXZNSMS01
Ion Remote Room Sensor - Wired (RRS)	SYSTXIIRRS01†

*. One Damper Control Module for up to 4 zones. A second Damper Control Module is required for zones 5–8.
Each piece of the zoning equipment is purchased separately allowing for customization of the zoning application
†. Not required for Zone 1, but may be used to remote sensor indoor room temperature.

Optional Accessories

Description	Part Number
Decorative Trim Plate - White (six pack)	SYSTXNNWTP06*
Decorative Trim Plate - Black (six pack)	SYSTXNNBTP06*
Decorative Trim Plate - Silver (six pack)	SYSTXNNSTP06*
Equipment Communicating Communication Connector (DX+, DX-, C,R; 10 pack)	SYSTXGXRPLG10
Outdoor Air Temperature Sensor	TSTATXXSEN01-B
Interface Relay Kit, Hydronic Heat for FCM4X Fan Coils	NAEA00101HW

*. Backplate dimensions 6.83 in. (173.5 mm) wide X 5.97 in. (151.7 mm) high

Zoning Accessories And Replacement Parts

Description	Part Number
Duct Temperature Sensor	ZONEXX0DTS01
45° Actuator for Round & Rectangular Dampers	HF21KJ011*
90° Actuator for Slip-In Dampers	HF21KJ012*
Damper Control Module 1-amp Fuse	ATO1*

*. Ordered from and warehoused by RC/FAST Parts

Round & Rectangular Dampers

Description		Part Number
Round Dampers	6 in.	DAMPRND06INC-*
	8 in.	DAMPRND08INC-*
	10 in.	DAMPRND10INC-*
	12 in.	DAMPRND12INC-*
	14 in.	DAMPRND14INC-*
	16 in.	DAMPRND16INC-*
Rectangular Dampers	8 in. X 10 in.	DAMPREC08X10-*
	8 in. X 14 in.	DAMPREC08X14-*
	8 in. X 18 in.	DAMPREC08X18-*
	8 in. X 24 in.	DAMPREC08X24-*
	10 in. X 10 in.	DAMPREC10X10-*
	10 in. X 14 in.	DAMPREC10X14-*
	10 in. X 18 in.	DAMPREC10X18-*
	10 in. X 24 in.	DAMPREC10X24-*

Slip-In Dampers

Description		Part Number
Slip-In Dampers	Side mount, 8 X 8	DAMPSLS08X08-*
	Bottom mount, 8 X 8	DAMPSLB08X08-*
	Side mount, 8 X 10	DAMPSLS08X10-*
	Bottom mount, 8 X 10	DAMPSLB08X10-*
	Side mount, 8 X 12	DAMPSLS08X12-*
	Bottom mount, 8 X 12	DAMPSLB08X12-*
	Side mount, 8 X 14	DAMPSLS08X14-*
	Bottom mount, 8 X 14	DAMPSLB08X14-*
	Side mount, 8 X 16	DAMPSLS08X16-*
	Bottom mount, 8 X 16	DAMPSLB08X16-*
	Side mount, 8 X 18	DAMPSLS08x18-*
	Bottom mount, 8 X 18	DAMPSLB08X18-*
	Side mount, 8 X 20	DAMPSLS08X20-*
	Bottom mount, 8 X 20	DAMPSLB08X20-*
	Side mount, 8 X 22	DAMPSLS08X22-*
	Bottom mount, 8 X 22	DAMPSLB08X22-*
	Side mount, 8 X 24	DAMPSLS08X24-*
	Bottom mount, 8 X 24	DAMPSLB08X24-*
	Side mount, 10 X 10	DAMPSLS10X10-*
	Bottom mount, 10 X 10	DAMPSLB10X10-*
	Side mount, 10 X 12	DAMPSLS10X12-*
	Bottom mount, 10 X 12	DAMPSLB10X12-*
	Side mount, 10 X 14	DAMPSLS10X14-*
	Bottom mount, 10 X 14	DAMPSLB10X14-*
	Side mount, 10 X 16	DAMPSLS10X16-*
	Bottom mount, 10 X 16	DAMPSLB10X16-*
	Side mount, 10 X 18	DAMPSLS10X18-*
	Bottom mount, 10 X18	DAMPSLB10X18-*
	Side mount, 10 X 20	DAMPSLS10X20-*
	Bottom mount, 10 X 20	DAMPSLB10X20-*
	Side mount, 10 X 22	DAMPSLS10X22-*
	Bottom mount, 10 X 22	DAMPSLB10X22-*
	Side mount, 10 X 24	DAMPSLS10X24-*
	Bottom mount, 10 X 24	DAMPSLB10X24-*
	Side mount, 12 X 12	DAMPSLS12X12-*
	Bottom mount, 12 X 12	DAMPSLB12X12-*
	Side mount, 12 X 14	DAMPSLS12X14-*
	Bottom mount, 12 X 14	DAMPSLB12X14-*
	Side mount, 12 X 16	DAMPSLS12X16-*
	Bottom mount, 12 X 16	DAMPSLB12X16-*
	Side mount, 12 X 18	DAMPSLS12X18-*
	Bottom mount, 12 X 18	DAMPSLB12X18-*
	Side mount, 12 X 20	DAMPSLS12X20-*
	Bottom mount, 12 X 20	DAMPSLB12X20-*
	Side mount, 14 X 14	DAMPSLS14X14-*
	Bottom mount, 14 X 14	DAMPSLB14X14-*
	Side mount, 14 X 16	DAMPSLS14X16-*
	Bottom mount, 14 X 16	DAMPSLB14X16-*
	Side mount, 14 X 20	DAMPSLS14X20-*
	Bottom mount, 14 X 20	DAMPSLB14X20-*
	Side mount, 16 X 16	DAMPSLS16X16-*
	Bottom mount, 16 X 16	DAMPSLB16X16-*
	Bottom mount, 16 X 20	DAMPSLB16X20-*